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Chapter 1: Introduction. MCOMS and its role in mini-grid management

1.1. Mini-grid Overview and Operational Challenges

Renewables-based mini-grids offer an innovative and compelling solution for last-mile electricity delivery. They facilitate the injection of much-needed private capital to accelerate progress in the electricity access space; at the same time, their tight focus on local catchment areas enables them to offer high quality of service to customers, and to support the flourishing of lives and livelihoods in the local community. However, mini-grid companies face many challenges in creating a sustainable business, including:

- Remote and dispersed sites, with corresponding demands on personnel mobility and communications
- Low-income customers, who face restrictions in their levels of energy consumption
- Lack of labour force training, including business management skills and technical experience

As the mini-grid sector matures, robust streamlining of management and on-ground operations is needed. The Mini-grid Communications, Operations, and Management Suite (MCOMS) fulfils this need through a comprehensive IT-based solution, which will help to unleash mini-grids' potential in delivering high-quality electricity and responsive customer service around the world.

1.2. The Role of MCOMS in Managing Mini-grids

1.2.1. Purpose

The goal of MCOMS is to provide a platform for different mini-grid stakeholders to effectively communicate, through standardised workflows, easy-to-use interfaces, third-party hardware interoperability, rapid and automated data aggregation, and transparent and reliable record-keeping.

1.2.2. Functionalities

MCOMS is built upon two critical design principles, shown in Figure 1.

Figure 1: Foundational design principles for MCOMS.

Accurate and comprehensive record keeping	Real-time communication, control, and updates
<ul style="list-style-type: none">• Including centralised databases of historical technical and financial data, user information, plant specifications, system changes, etc.	<ul style="list-style-type: none">• Accurately propagating and distributing commands issued from any node, to provide up-to-date information to all users

High-level system functionalities are detailed in Figure 2.

FIGURE 2:High-Level COMS Functionalities.



Portfolio Performance Monitoring

At-a-glance metrics for a single plant or a mini-grid portfolio



Financial Reporting

Details on plant revenues & expenses, business-level P&L statements



Technical Analysis

Benchmarking & monitoring equipment performance to safeguard smooth operation



Field Force Management

Allocation of roles & responsibilities, & personnel performance



Customer Management

Customer profiles, consumption, & payment information



Customer Service

Portal for communications between customers & the company, with service quality monitoring



Tariffs and Management

Allows customers to select from a range of energy service options suited to their needs



Inventory Management

Tracking assets & equipment stored in company warehouses



Remote Monitoring & Control

Hardware control access for manual override of electrical equipment and meters



Plant Maintenance

Logging and automated scheduling of asset maintenance and servicing



Installation & Commissioning

Tracks plant development from site selection to final commissioning



Standardised Reports

Customisable report templates for managers, investors, & other stakeholders

MCOMS is designed to cover all aspects of business monitoring, and places sales and finance metrics alongside technical performance and analysis of trends in customer demand. This synthesis of information gives mini-grid developers a deeper understanding of their projects' operations.

1.2.3. Users

Mini-grid businesses are multi-faceted, with many personnel and stakeholder roles. MCOMS caters to these user groups' requirements and workflows, as described in the following sections.

1.2.3.1. Company Personnel

To achieve operational efficiency and business performance, it is critical to clearly define the roles for each team member. The personnel hierarchy of a mini-grid operator is sketched in Figure 3, followed by a detailed description in Table 1.

Figure 3: Typical mini-grid operator organisational hierarchy.

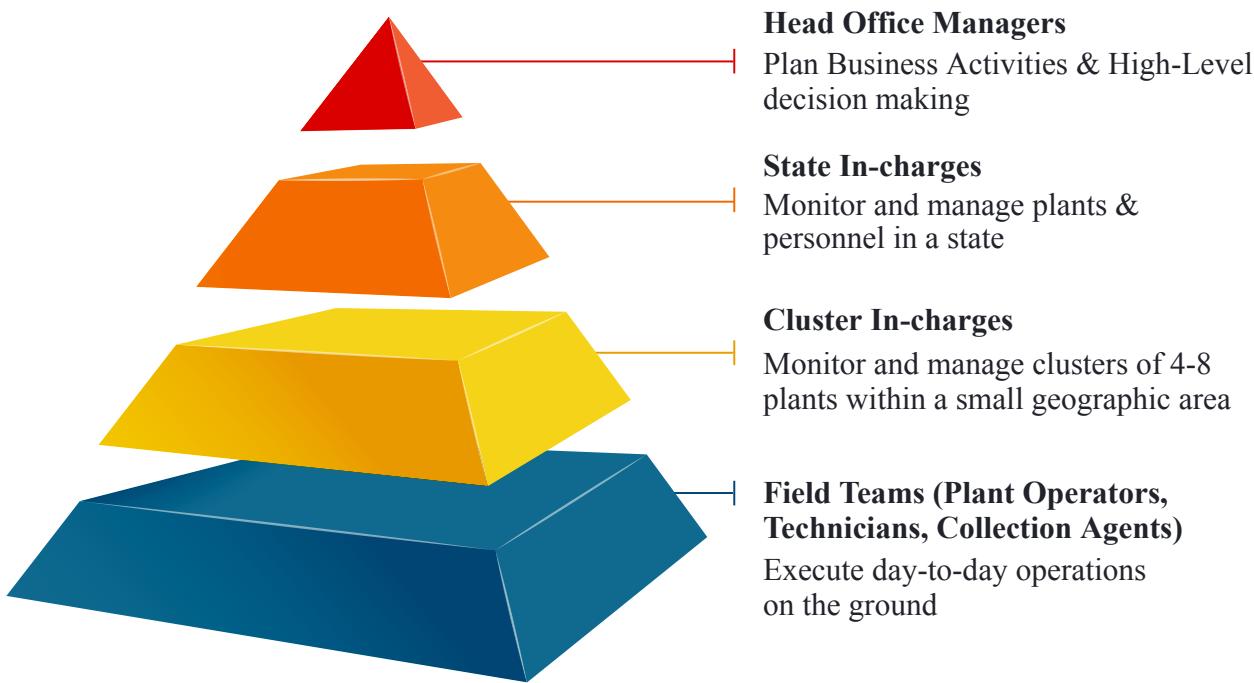


Table 1: Description of the roles and responsibilities of mini-grid personnel.

Designation	Role	Responsibilities
Operator	An operator is present 24x7 to look after the mini-grid plant	<ul style="list-style-type: none"> Monitor plant equipment to ensure correct operation Restore electricity supply after plant trips Record routine operations data, such as plant meter readings Handle complaints of customers who come to the plant
Technician	A technician addresses technical issues encountered by customers or at the plant	<ul style="list-style-type: none"> Respond to customer connection problems Diagnose and fix equipment faults throughout the mini-grid Connect new consumers to the network Record customer energy consumption
Customer Service Agent (CSA)	A CSA manages customer relationships and conducts sales activities	<ul style="list-style-type: none"> Market mini-grid services and schemes to potential customers in the catchment area Issue bills and collect payment from customers, and make deposits Intervene in the case of non-payment

		<ul style="list-style-type: none"> • Respond to customer complaints or difficulties faced • Administer requested package upgrades / downgrades
Cluster In-charge	A Cluster In-charge supervises personnel and operations at several nearby plants	<ul style="list-style-type: none"> • Track the sales performance of plants in the cluster and highlight problems • Track and verify operational costs borne by the cluster • Monitor pending tasks, and allocate them to members of the field team • Arrange for any maintenance or equipment replacement • Handle personnel training
State In-charge	A State In-charge supervises operations at all plants within a state	<ul style="list-style-type: none"> • Create monthly business performance targets, including revenue and customer numbers, and track progress towards them • Coordinate schemes and initiatives between all plants within the state • Create sales and operations reports for the head office • Create recruitment plans • Coordinate and plan portfolio expansion, construction, and recruitment
Head Office Manager	Head Office Managers are key decision-makers who manage portfolio and business development	<ul style="list-style-type: none"> • Develop strategies and initiatives to enhance business performance • Reconcile expenses and earnings reports • Perform cross-plant analyses of technical health, and arrange interventions to optimise the asset portfolio • Create new packages and services • Plan the strategic, technical, and financial elements of business expansion

1.2.3.2. Mini-grid Customers

One of the strengths of mini-grids is their ability to cater to a variety of consumer segments with different energy needs and expectations. For example, while a household may require modest levels of power to run simple appliances in the evening, shops' peak consumption may be in the daytime, while commercial enterprises with specialised equipment will require a much higher load allowance.

That said, all electricity consumers share the same basic requirements of monitoring their bills and consumption history, receiving alerts and notifications from the electricity supplier, updating their account

details, and getting in touch when something is amiss. MCOMS aims to facilitate these kinds of communications, and ensure that customers are kept in the loop with easy access to all the information and service support that they need.

1.2.3.3. Access Permissions

Different users of MCOMS will require different levels of access to the system's databases and management functionality. As such, a core component of MCOMS is the ability to set the access permissions for each user. This not only simplifies the interface, allowing each user to focus on content relevant to them, but also ensures that sensitive data is secure.

For example:

- Customers should only be able to view their own bills, and not those of other customers.
- Plant operators should only be able to input and record data pertaining to their plant.
- Maintenance activities and control of equipment operation should be in the hands of the cluster or state in-charge, rather than plant CSAs and technicians.
- Bank deposits and expense reports for the portfolio should be visible to upper management only.

This manual documents all of the MCOMS system's features which would be visible to the top-level user (e.g. the company CEO). A given reader may be able to only access some subset of these features, depending on their designation; this will be clear from the context on a case-by-case basis.

1.2.4. Communication

As already noted, communications between stakeholders are of central importance to the smooth running of a mini-grid business. Effectively connecting different levels of the business, for instance allowing managers in the head office to gather information from distributed field teams, underpins efficient operations.

Wherever possible, this is achieved through passive communications:

- Well-structured workflows which guide the user in completing tasks
- Automatically generated notifications for routine or scheduled activities
- Automated prioritisation of information according to internally programmed logic
- Rapid data consolidation so that all users have access to up-to-date information
- OTPs for customers and managers to authorise certain transactions

There are also various mechanisms for active communication between users:

- Notifications and data entry pushed via the smartphone apps
- Notifications and data entry pushed via the web platform
- Notifications pushed through email
- Notifications and requests pushed through SMS

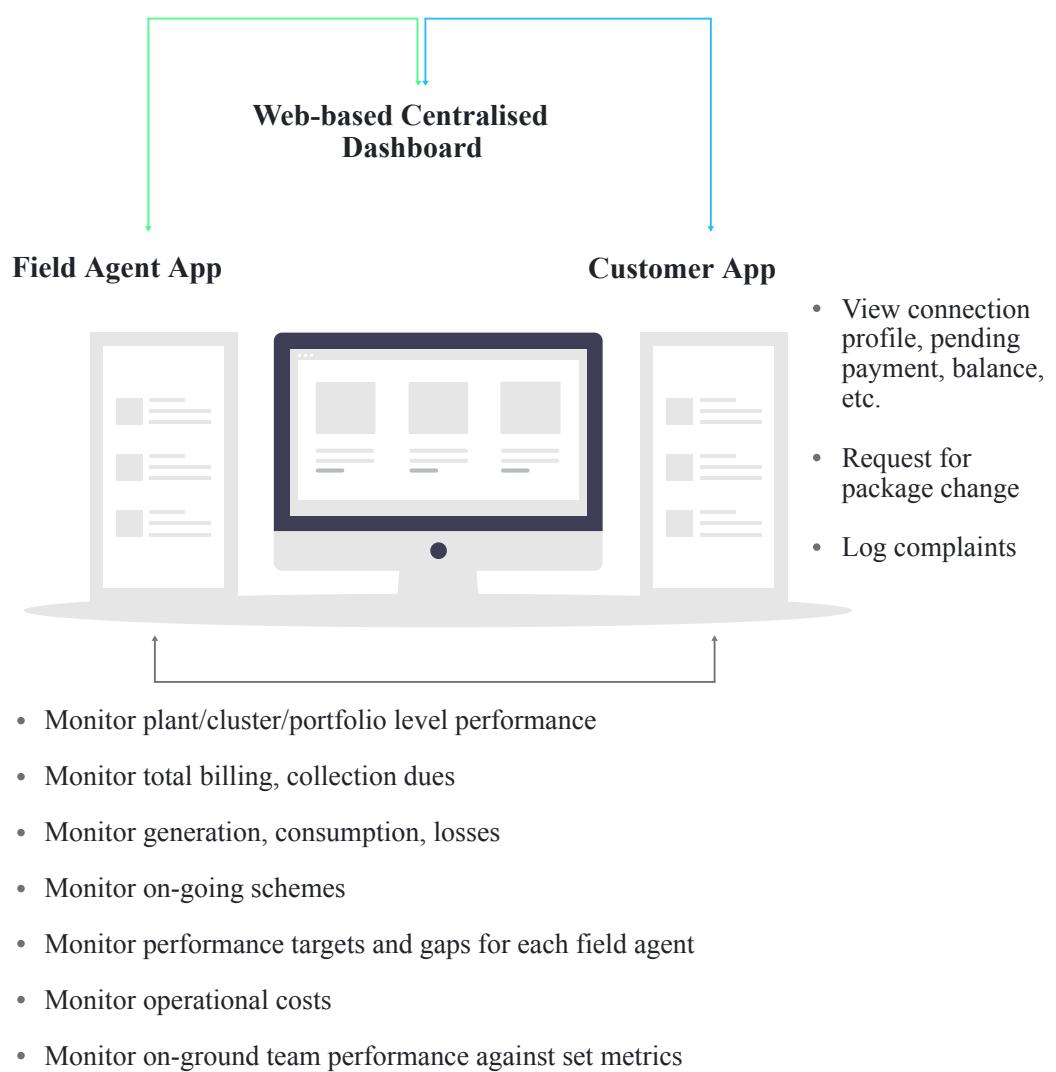
Multi-modal communications are especially important when different users will have different preferences. For example, those customers who cannot use the smartphone app will receive bills, receipts, and notifications via SMS.

1.3. MCOMS Interfaces and System Integration

1.3.1 Front-end Interfaces

The real-time integration of mini-grid customers, field agents, and management onto a single information platform is shown in Figure 4.

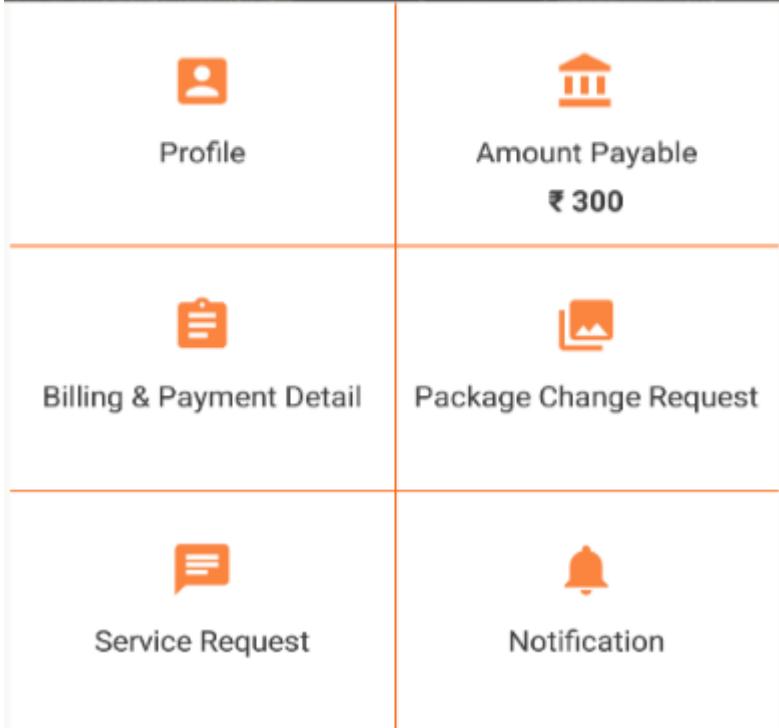
Figure 4: Integration of MCOMS interfaces.



The following sections describe each interface.

1.3.1.1. Customer App

Figure 5: Screenshot of the customer app.



The customer smartphone app provides an intuitive graphical interface through which mini-grid customers can:

- View their consumption, billing, and payment history
- Store receipts
- View and edit their customer profile
- Register service and package change requests.
- Directly contact mini-grid field personnel
- Receive alerts and notifications about their account, electricity supply, or other operational matters.

Customers without smartphones can avail some limited functionality through SMS (see Figure 6).

The customer app is fully documented in Chapter 0.

Figure 6: Screenshot of SMS services.



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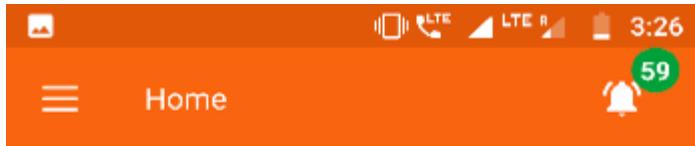
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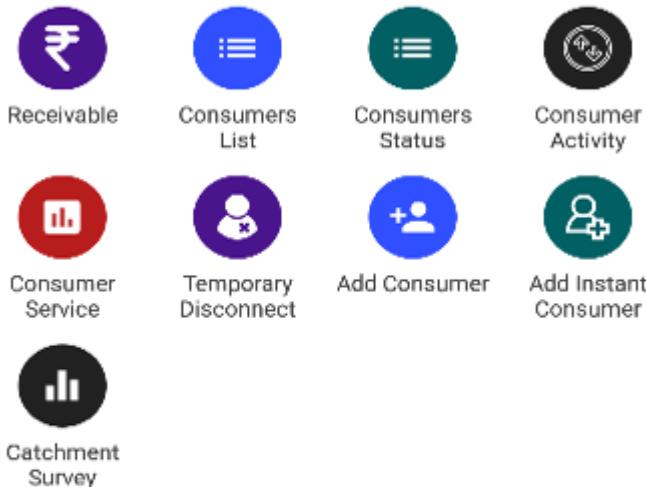
Sender does not support replies

1.3.1.2. Field Agent App

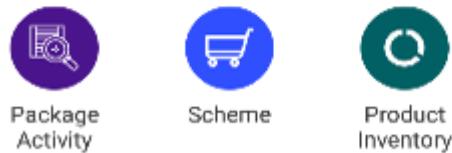
Figure 7: Screenshot of the field agent App.



Consumer



Package & Scheme



Plant



The field agent smartphone app provides a comprehensive interface for mini-grid personnel at all levels of the business hierarchy.

For personnel on the ground, the app allows:

- Viewing customer accounts
- Recording transactions
- Receiving assignments and notifications
- Registering customers and changing their package

For management personnel, the app allows:

- Tracking sales and business performance
- Communication with the field team
- Identifying emerging issues requiring intervention
- Monitoring technical operation of the mini-grid

The field agent app is fully documented in [Chapter 3](#).

1.3.1.3 Web Platform

The web platform is the primary MCOMS front-end for use by the management teams at cluster, state, and HQ levels. It provides detailed dashboards and data analysis functionalities, and allows users to view and edit database records.

A detailed guide to the web interface will be included in a future edition of this manual, but in this edition it is omitted.

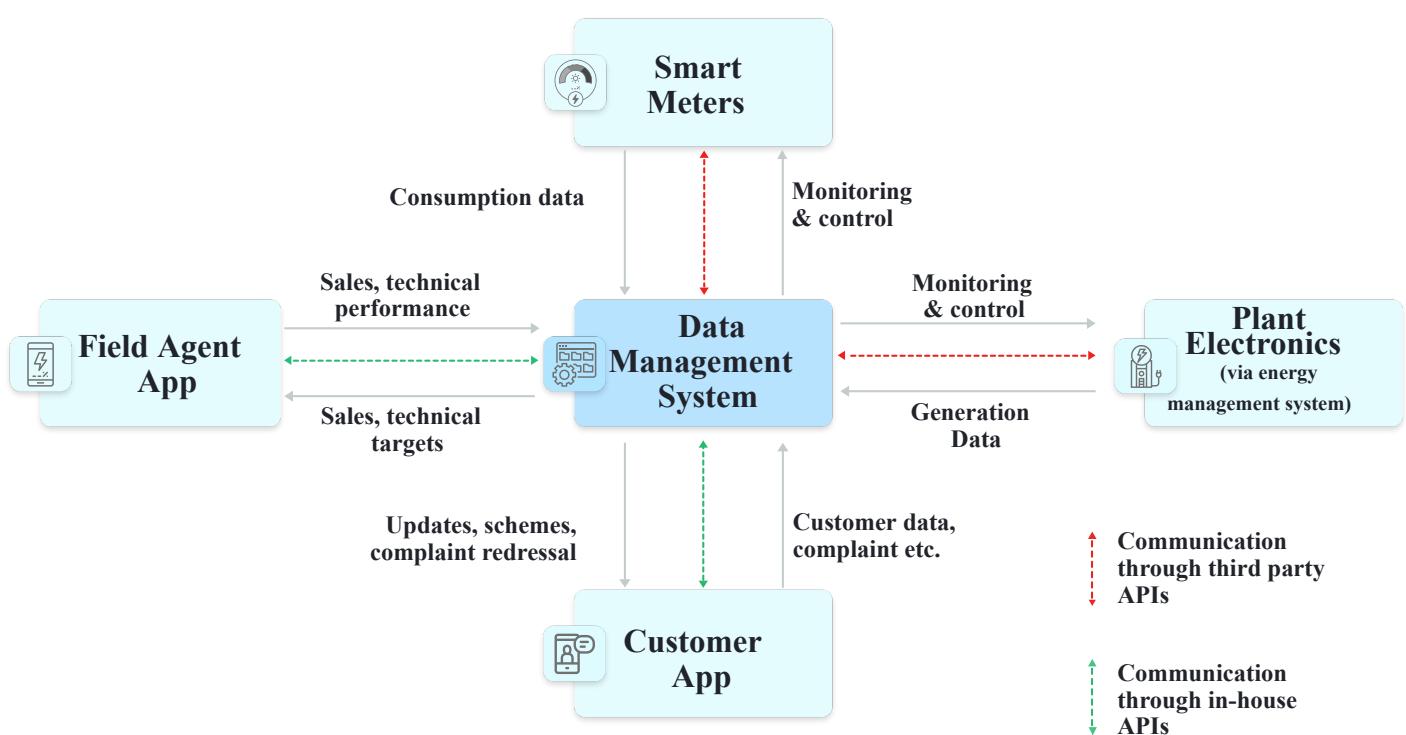
1.3.2. Data Sources and Transmission

The MCOMS components discussed in the preceding [Section 1.3.1](#) all exchange commands and information in real time. To fully appreciate and leverage the potential of MCOMS, it is necessary to get a basic overview of the various information pipelines, and how distributed hardware and software talk to each other.

1.3.2.1. System Overview

The central data management system acts both as a data repository and a command router, and can push information and notifications to specific users or hardware. Principal hardware nodes and the two-way interactions between them are depicted in Figure 8. The following sections describe data collection and transmission mechanisms in more depth.

Figure 8: Data flow between MCOMS components.



1.3.2.2. Manual Data Input

Sales and customer-related information is entered into the system by field agents and customers. This critical ground intelligence is then relayed to all levels of the business hierarchy.

Some activities are input subject to requirement – example include adding new customers or registering payments. Others are routine activities, such as logging solar energy generation or performing customer meter readings.

1.3.2.3. Smart Meters

Smart energy meters connect the demand side to cloud servers for automated data upload and remote-control capabilities. While specific technologies differ, such systems generally offer a variety of advantages over conventional meter setups, as captured in Figure 9.

Figure 9: Benefits of smart metering.



Automatic meter reading to facilitate billing and collection activities



Remotely adjustable load limits and ability to switch meters on and off



Programmable electricity packages including multiple time of day slots



Usage and credit limitations, with automated shutdown for non-paying customers



Tracking of customer power usage patterns



Detailed monitoring of parameters related to power supply quality

Communication with smart meters typically operates through the hardware manufacturer's software and cloud servers. Data can be pulled from the servers and commands issued to individual meters (or collections thereof) through the manufacturer's portal and/or through their APIs.

1.3.2.4. Plant Equipment

A detailed record on the state of supply-side equipment—including inverters, batteries, and solar panels—can be collected from data-loggers installed in the mini-grid control room. Such records allow plant management to assess performance and health of their systems.

More sophisticated setups may combine data collection with automated real-time performance optimisation, as well as two-way communication capabilities which allow technicians to remotely control plant operations.

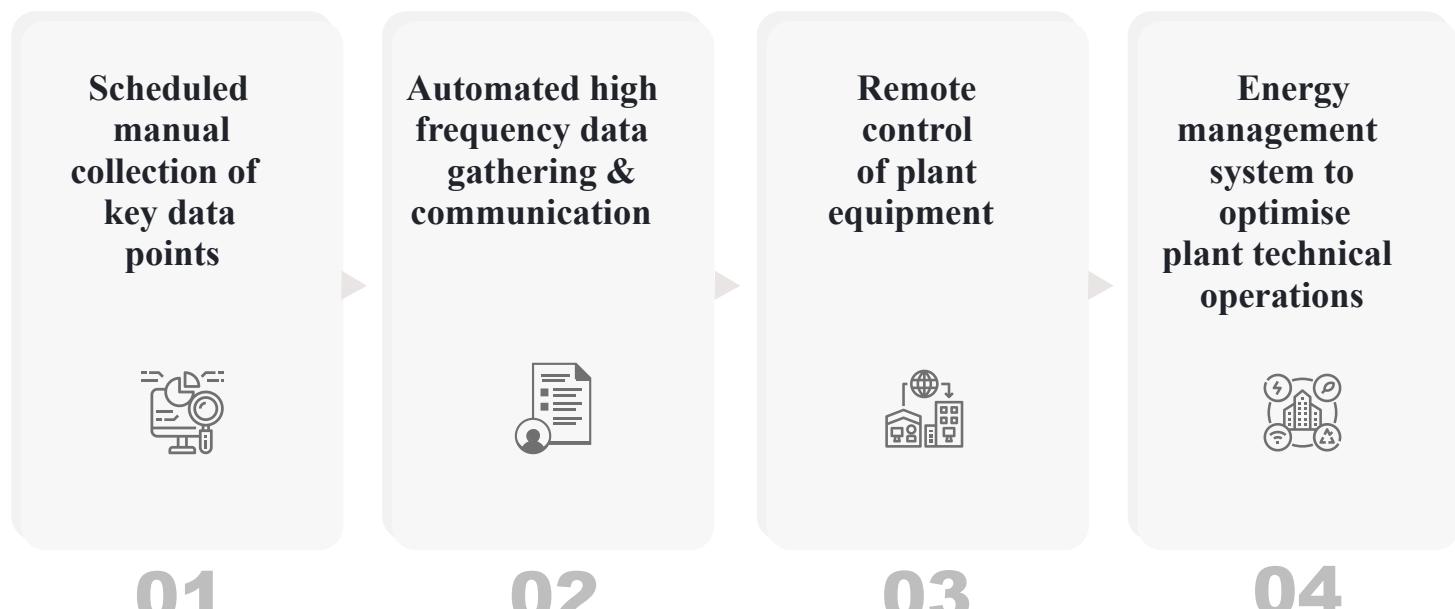


Figure 9: Technical monitoring of mini-grid supply-side equipment.

1.4. Organisation of this User Manual

This section provides some guidance about navigating and using the remainder of this manual.

Chapter 2: Mini-grid Operations and Their Workflows outlines core operating principles of running a mini-grid, and elaborates the various tasks and responsibilities pertaining to mini-grid personnel and mini-grid customers. The functionality discussed in the following chapters will be founded on a familiarity with this material.

Chapter 3: Field Agent App provides a detailed guide to the smartphone application used by mini-grid employees. The app provides a wide range of functionality, and constitutes the bulk of this manual. Each “module” of the app is introduced in a separate sub-section, which states the purpose of the module, its key users and use cases, along with a step-by-step explanation of how to navigate it.

Chapter 4: Customer App consists of a working guide to the customer application. As with Chapter 3, each functionality is explained in depth, for the benefit of both customers and field agents who are assisting customers in using the app.

Chapter 2: Mini-grid Operations and Workflows. Key activities for customers, field agents, and managers

2.1. Introduction to Mini-grid Operational Activities

Mini-grid projects depend for their sustainability on delivering high quality of service to their customers, and value to the local community. This chapter details some of the day-to-day activities undertaken by mini-grid field teams to support smooth technical operations and responsive customer engagement. This information will be critical for fully understanding the MCOMS functionalities described in the chapters that follow.

2.2. Customer-related Operations

2.2.1. Creating Packages

Packages allow customers to prioritise their electricity needs and balance them against price for different levels of service. In designing and choosing packages, three major supply characteristics must be considered:

- The maximum power or load supported by the connection
- The timings during which the connection is active
- The tariff per unit of energy consumed, if any

A package combines allowances in these three dimensions, in a way that is designed to suit the consumption patterns of existing and potential customers, while covering the cost of electricity supply and business requirements. Multiple packages are generally offered at a given plant.

Post-paid packages are billed at the end of each billing period after energy has been consumed; these connections are typically metered and the bill depends on the amount of consumption. Pre-paid packages require the customer to pay a fixed amount in advance to maintain a given level of supply availability.

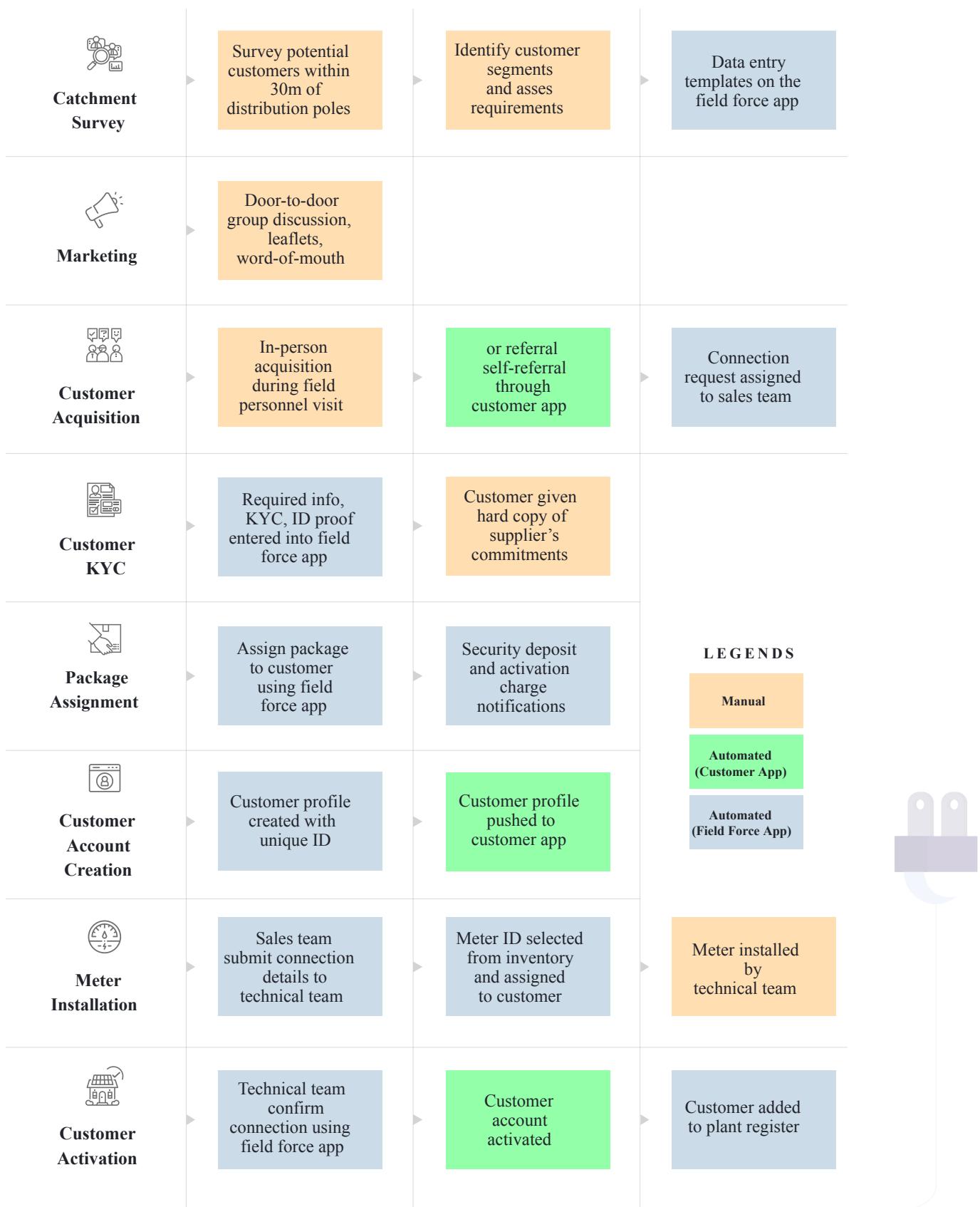
Figure 10: Package ID construction example.



2.2.1. Customer Acquisition

The step-by-step customer acquisition process is depicted in Figure 11. Note that all steps coloured green or blue are done through the MCOMS apps.

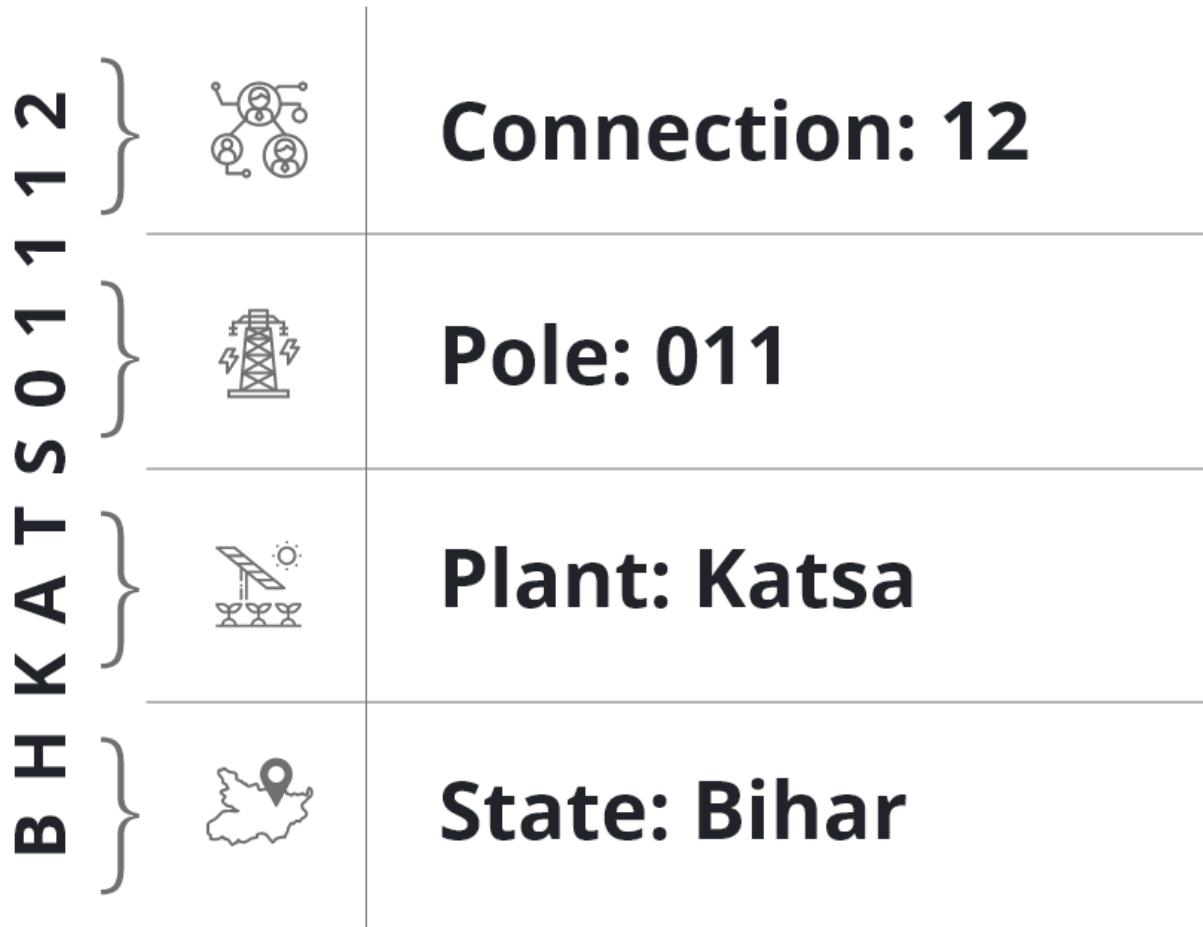
Figure 11: Adding customers detailed workflow.



2.2.2.1. Unique Customer IDs

Each customer is assigned a unique identification number the moment their account is created. These numbers play a pivotal role in the structure of MCOMS, as the databases for energy consumption, payment history, etc. are indexed according to this ID. An example customer ID is shown in Figure 12.

Figure 12: Customer ID construction example.



2.2.3. Customer Status

A customer's status can be either "active" or "inactive"/"banned":

- Active customers have kept up to date with bills (i.e. have not exceeded their credit limit), and are continuing to avail the services of the mini-grid.
- Inactive / banned customers are those whose connection has been terminated – either because of non-payment, or the customer's preference, or in rare cases because electricity demand is exceeding the plant capacity and customers must be dropped.

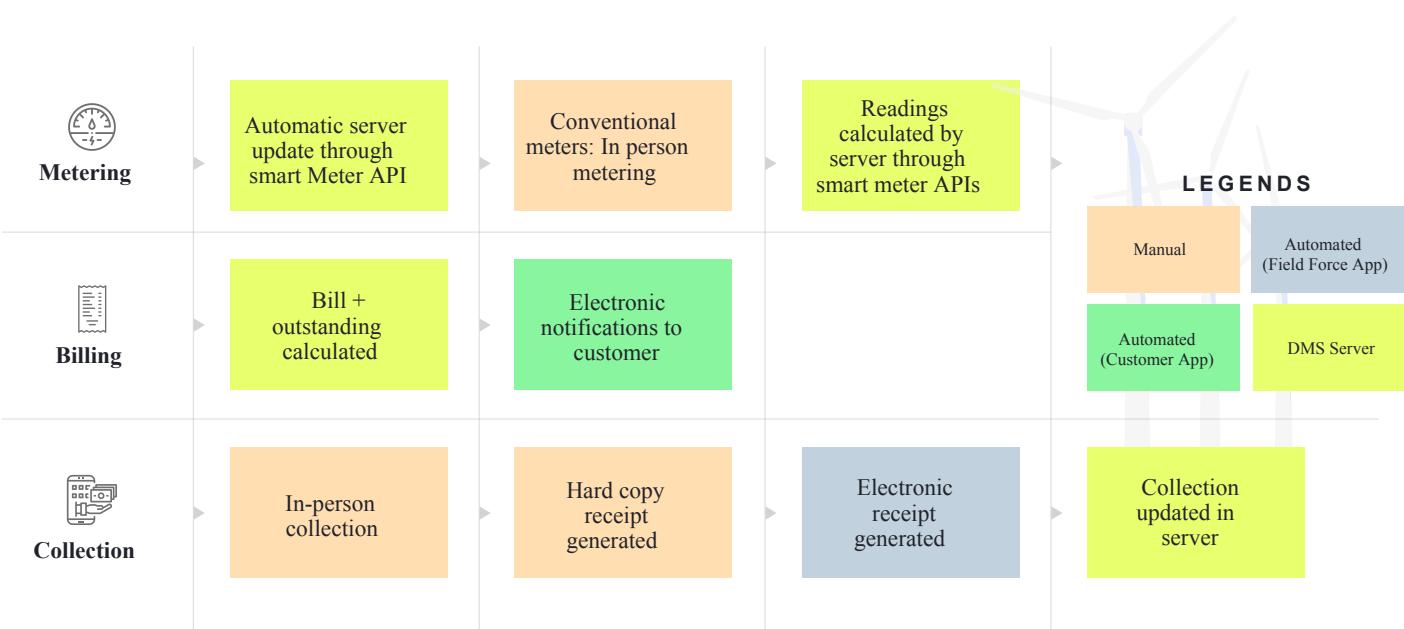
MCOMS automatically flags customers who are to be deactivated; when the customer is connected through a smart meter, this process can be automatic.

2.2.4. Metering, Billing, and Collection

Metering, billing, and collection (MBC) is the process by which a customer pays for the electricity they have consumed. The process is summarised below and illustrated in Figure 13.

- Metering
 - For customers with conventional energy meters, the new reading is noted at the end of the billing period.
 - For customers with smart meters (see [Section 1.3.2.3](#)), energy consumption is automatically calculated.
 - For customers with load limiters (pre-paid), no metering is necessary.
- Billing
 - For metered customers, energy consumption is multiplied by the appropriate tariff to arrive at the final bill.
 - For unmetered customers, the bill is a fixed amount per month so no calculation is necessary.
 - Bills are delivered to customers either electronically or in person by field agents.
- Collection
 - The customer makes payment against their bill, as well as any outstanding debt.
 - Payment can be made in person in cash (point of sale (POS)), through a mobile wallet (e.g. PayTM), or by card.
 - Partial payments are acceptable, but will require repeated field agent visits.

Figure 13: Metering, billing, and collection workflow.



2.2.5. Customer Receipts

Ensuring that company and customers alike have access to records of bills and payments is important for transparency and trust, and for forestalling / resolving payment disputes. Customer receipts are the

primary proof of billing for any active consumer, and come in a variety of formats:

- **Print-out:** a paper receipt of a transaction can be printed by field agents upon request, using a portable printer.
- **Digital record:** customers using the smartphone app gain access to their complete transaction history, as seen by company agents.
- **Screenshot:** customers without the app may request a screenshot of the receipt from a company agent, to be saved as an image file.
- **SMS:** customers may automatically receive SMS messages notifying them of bills and confirming payment received.

2.2.6. Editing Profiles

It is important to maintain up-to-date customer records, including information like address and contact number. This ensures that customers can receive bills and payment receipts, and be informed of any service disruptions or company promotions.

Customers may update their own information through the customer app, or field agents may do so with approval (and an OTP) from the customer.

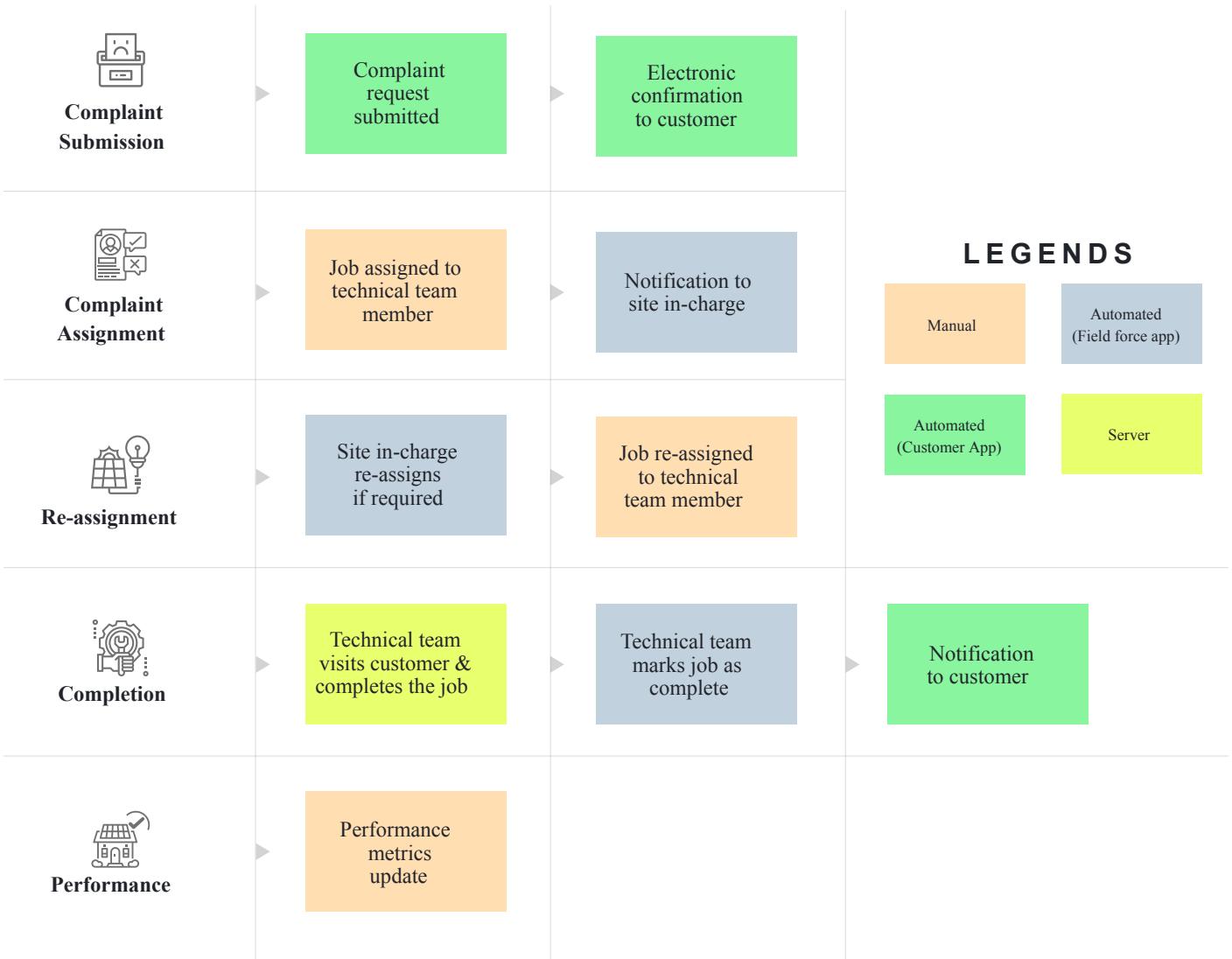
2.2.7. Service Requests

Service requests are made by customers when they experience supply disruptions or other issues with their electricity connection. Service requests can be made though:

- The customer app, which has an easy-to-use service request module
- The field agent app, where the customer contacts the company field agent directly, and the agent logs the service request on their behalf

The processing of every Service Request made by all customers is as follows:

Figure 14: Service requests workflow.



2.2.8. Security Deposits

A refundable security deposit is typically taken from every new customer, with the amount depending on their anticipated monthly bill. In the event of a lapse in regular payments, the company can recoup the outstanding amount from the deposit. Otherwise, the deposit is refunded in full when a customer discontinues their subscription.

2.2.9. Package Changes

Customers whose energy requirements or circumstances change may shift to a different package. For example, a household may upgrade to a higher load limit after buying new electrical appliances, or may opt for longer hours of access.

A package change can be initiated via the customer app, or by a field agent on behalf of the customer. The main steps of the process are:

- **Logging the request:** the package change request is registered in the system

- **Approval:** the request is screened by the appropriate mini-grid employee; in some circumstances the request may be rejected
- **Payment:** the customer and company settle necessary payments, such as changing the security deposit
- **Database update:** the customer's assigned package is updated; the change may be implemented immediately or at the beginning of the next billing period
- **Connection update:** smart meter or load limiter is reprogrammed with the new package details (namely load limit and timing), or the customer is connected to a different feeder

2.2.10. Complementary Business Services

Value-added services are those activities which go beyond the core role of providing electricity. These activities are intended to serve multiple purposes: to bring value and opportunities to customers, to positively impact the local community, to raise the profile of the mini-grid operator, and to increase electricity sales.

Some value-added services are geared towards businesses and micro-enterprise development, while others are more focussed on households and personal use. Two examples are given.

Example 1: Water Sales

Many mini-grid operators have established water treatment units at their plants. These provide the amenity of clean and chilled water to the local community, while generating economic activity and acting as a dependable electricity consumer for the mini-grid. Depending on the company's level of involvement, they may wish to keep track of the water treatment unit's throughput, sales and electricity consumption. Such functionalities are available through MCOMS.

Example 2: Appliance Promotion

Company-run schemes offering electrical appliances to customers have been successful in the past. Such schemes are intended to attract potential customers to avail an electricity connection, and increase the consumption levels of existing customers. Buyers can pay for their appliances as a package bundled with their electricity bill, which is much more attractive than paying the whole lump sum up front.

2.3. Technical Operations

Technical monitoring and maintenance keep the plant running efficiently with minimal service interruptions, while enabling managers to optimise the utilisation of the plant and hence deliver as much energy to consumers as possible.

2.3.1. Plant Technical Data Submission

Data from plant equipment yields important insights into technical performance. Part of the ground team's daily activities is observing and logging certain critical datapoints, including:

- Energy generated from each solar array
- Energy generated from backup generators
- Runtime of backup generators
- Energy dispatched from the plant (through each feeder)

Pre-programmed algorithms within MCOMS then update the plant utilisation, solar yield, and other relevant metrics which can be tracked by managers.

2.3.2 Plant Maintenance

Plant maintenance involves various operations to prevent and repair damage to plant equipment. Maintenance is scheduled by MCOMS at appropriate time intervals, with notifications pushed to the relevant personnel when the system detects that maintenance is required.

Some activities, such as changing the oil of diesel generators or cleaning solar panels, can be carried out by plant personnel. Others, like generator servicing or battery equalisation, may require external oversight arranged by the cluster or state in-charge.

2.3.3 Customer Connection

There are a number of stages to connecting new customers to the distribution network. Each stage requires different hardware and infrastructure.

- First, the distribution network—i.e. the poles and wires—must be within some minimum distance from the customer's property.
- Second, service wires connecting the property to the distribution network must be installed.

- Finally, the customer's electricity access points must be installed, and connected via a meter (or load limiter) to the service wire.

Meters may be mounted in the customer's property itself (which shields the meter from the elements), or on the nearest pole (which avoids possible tampering or accidental damage).

2.3.4. Meter Status

To connect new customers, a spare meter or load limiter must be available at the plant or at a nearby warehouse. It is important to keep track of how many are free and where they are stored.

Since meters may be in short supply, customers who have deactivated their accounts may have their meters removed and re-assigned to another customer, or sent to storage. This process is also called "releasing" the meter.

2.4. Site Financial Reporting

Site financial reporting encompasses all revenues, expenses, and deposits made at the site or cluster level. Diligent recording of cash flow is crucial for monitoring company finances, as well as accountability at each level of the hierarchy. Routine audit procedures carried out by the cluster in-charge and state in-charge are advisable.

2.4.1. Fuel Expenses

Fuel expenses incurred at the plant level must be logged and approved for reimbursement (this can be done through the field agent application). This allows fuel use and efficiency to be monitored, and pilferage to be automatically flagged.

Typically, fuel is purchased from stations with an established relationship with the company. The field agent may then upload an image of the receipt, along with other information such as the generator's meter reading at the time of the purchase. Once the registered expense has been checked and verified by the head office, costs can be reimbursed to the agent who made the payment.

2.4.2. Other Expenses

Other expenses include fixed monthly costs such as land lease and salaries, and variable costs such as maintenance. These are input into MCOMS for creating routine financial reports.

2.4.3. Cash Flow

Cash collected from customers must eventually be deposited in the company's bank account. The total collection is updated automatically every time a customer makes a payment; cash deposits to the bank are logged by field agents, and verified and approved by the head office; the remainder is tracked as cash in-hand at the plant.

Each company will have its own guidelines about how often field agents should make deposits, and limits on the permissible cash in-hand. MCOMS can be scheduled to push notifications to designated agents to keep these operations on time.

2.5. Data Verification Steps

To ensure the accuracy and validity of data in the system, several layers of checks can be implemented.

2.5.1. Input Checks

MCOMS applications may restrict the range of input to different data fields. Different mechanisms will be appropriate for different occasions. For example:

- Dropdown lists ensure the user can only select from a limited set of options, for example the list of plant names (so the user cannot write in an invalid name)
- Limited input value, where only certain inputs are deemed valid – for example, an energy meter reading must be greater than the previous reading to be registered as valid

2.5.2. User Review

The MCOMS applications invite users to review and confirm all information that they input into the applications, before submitting it to the central database.

2.5.3. Database Edit

Many database entries can be amended from the front-end of the web platform, provided the user has the appropriate access rights.

2.5.4. Change Logs

All edits to MCOMS databases are logged, along with the timestamp of the change and which user made the change. This ensures that all data can be restored in the case of accident, and it also guards against malicious meddling with stored information.

2.5.5. Numerical Checks

Certain automated checks are programmed into the MCOMS server to ensure that database entries make sense. An example would be ensuring that equipment efficiencies are between 0% and 100%, or that daily energy generation falls within expected ranges. There is some overlap between this and the checks in

[Section 2.5.1](#); the difference is that here, database calculations are scheduled on the server side, whereas in [Section 2.5.1](#) the input into the database is restricted before it is submitted.

2.5.6. Customer Validation

Where changes to customer information, or updates of customer accounts are involved, MCOMS will frequently require the customer themselves to validate the change. A common way to do this is for the customer to confirm the change with an OTP sent to their registered mobile number.

2.5.7. Chain of Approvals

Many operational workflows discussed in this chapter involve multiple levels of the mini-grid organisational hierarchy. For such multi-person processes, MCOMS automatically notifies different personnel when their input, approval, or action is needed.

For example, to change a customer's package, a customer must first submit a request, which passes to the cluster in-charge, who may push the request to a CSA for follow-up with the customer before approving it and handing over to a technician for implementation. Once the technician marks the task as complete, the cluster in-charge is notified; they must confirm that the work has been done properly, after which the change is finalised and logged in the central database for the state in-charge and upper management to see in their monthly reports.

2.5.8. Data Audit

Data audits represent an important consistency check of the MCOMS database. Independent in-situ copies of certain field data may be compared with values in the central database to ensure agreement. For example, the daily solar energy generation values are recorded through the field agent app and also noted down manually in a register in the plant control room. The cluster in-charge can compare the two records for consistency.

Chapter 3: Field Agent App. User guide for the MCOMS Field Agent App

3.1. Introduction

The field agent smartphone app is the portal through which intelligence from the ground is consolidated and communicated back to mini-grid management. It is also a critical tool for guiding and supporting field agents to carry out their duties.

3.2. Installation and Setup

- The field agent app runs on the Android operating system
- It can be downloaded from the Google Play store and other app repositories.

Figure: Field agent app icon.



TARA
TARA

- The user should type "Tara" into the search bar and select the app shown in the figure.
- Hardware requirements are shown below.

Table: Field agent app installation requirements.

App version	1.4.5
Operating system	Android
Storage	20.8 MB
Cache	16.8 kB
Web connectivity	Enabled

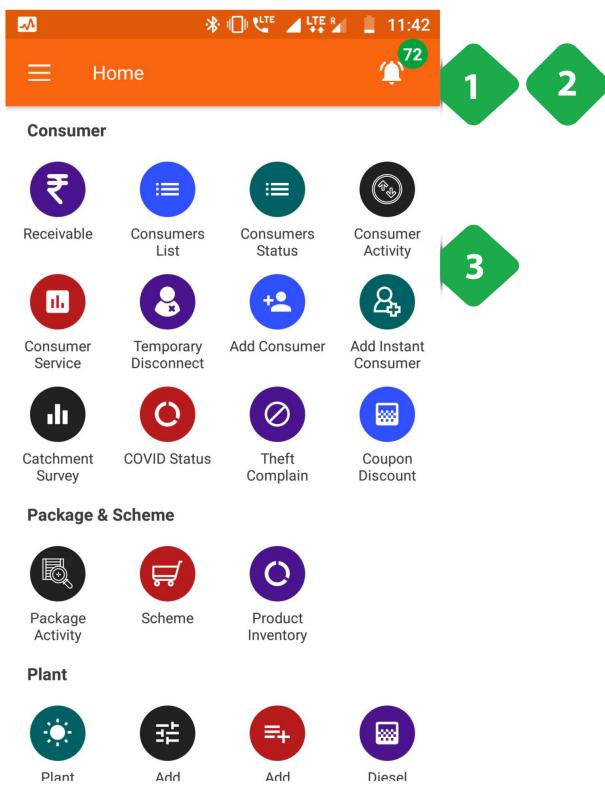
- Upon opening the application, the user is prompted for their login credentials.



3.3. Home Screen

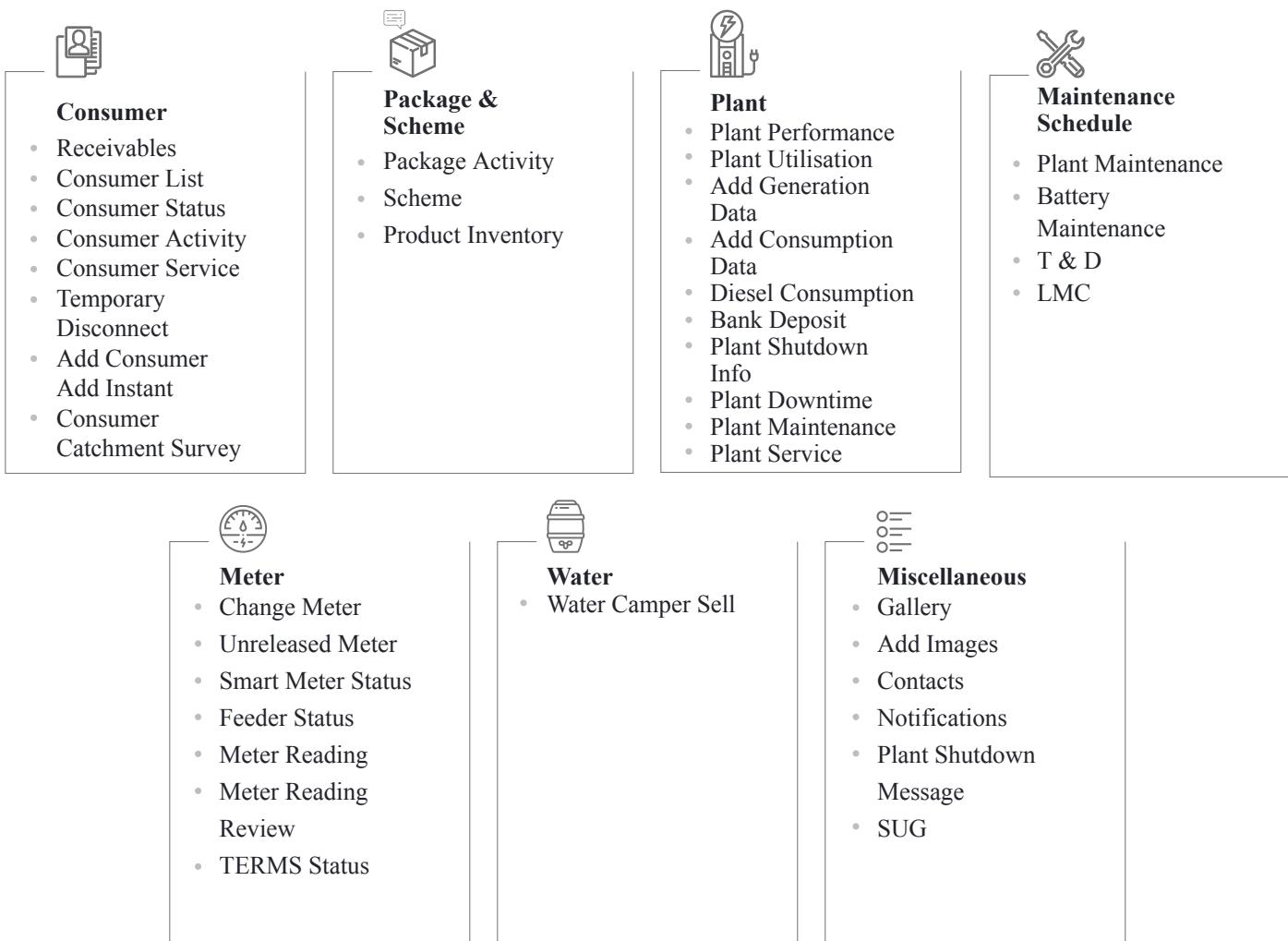
3.3.1. Overview

- The Home Screen is the first page the user views upon logging in.
- The various functionalities of the application are accessible via the circular module icons.
- These icons are organised under several headings for ease of navigation, see the figure



1. Notification Icon (the bell-shaped icon) is explained in [Section 3.3.3](#)
2. Main Menu (three horizontal lines) is explained in [Section 3.4](#)
3. Module Icons to access various app functionalities; icons are categorised under headings Consumer, Package and Scheme, etc.

FIGURE: FIELD AGENT APP SECTION HEADINGS.



3.3.2. Pop-up Notifications

Functionality

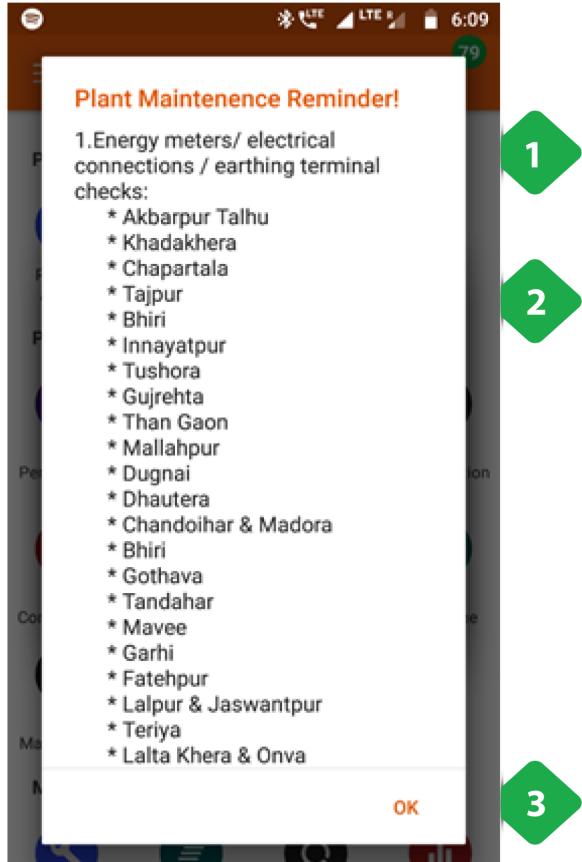
- Upon logging in, the user may see one or more automatic pop-ups.
- These pop-ups notify the user about outstanding tasks which require attention.
- The notifications may also alert the user of specific urgent issues like coronavirus precautions.

Page Details

The main types of pop-up notifications are elaborated below.

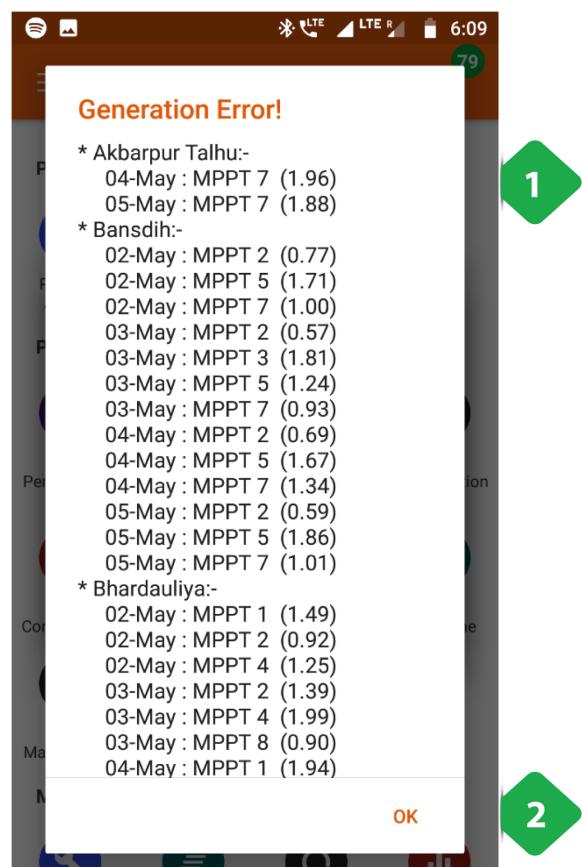
*Plant Maintenance Reminder	*Generation Error	*Consumption Data Reminder	*Generation Data Reminder
Concerns technical servicing issues across various plants	Alert users to anomalies in solar generation	Notifies a user on incomplete consumption data logging	Notifies a user on incomplete generation data logging

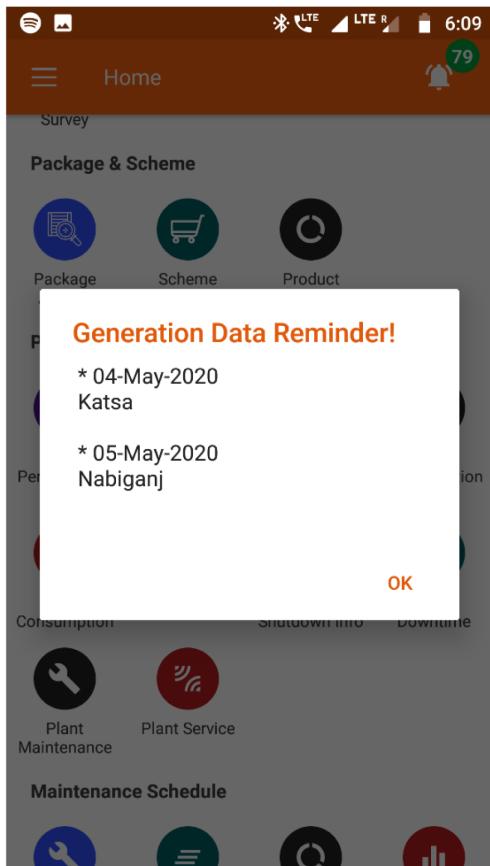
Plant Maintenance Reminder



1. List of Maintenance Items enumerates the various service issues that need attention
2. List of Plants which require the particular service
3. Tap OK to close the pop up

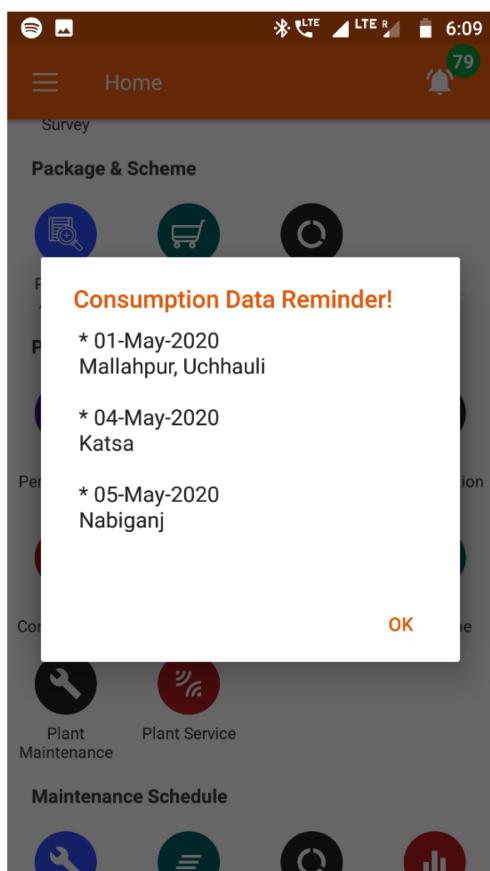
Generation Error





Generation Data Reminder

1. List of Plants and Dates for which generation data is missing
2. Tap OK to close the pop up



Consumption Data Reminder

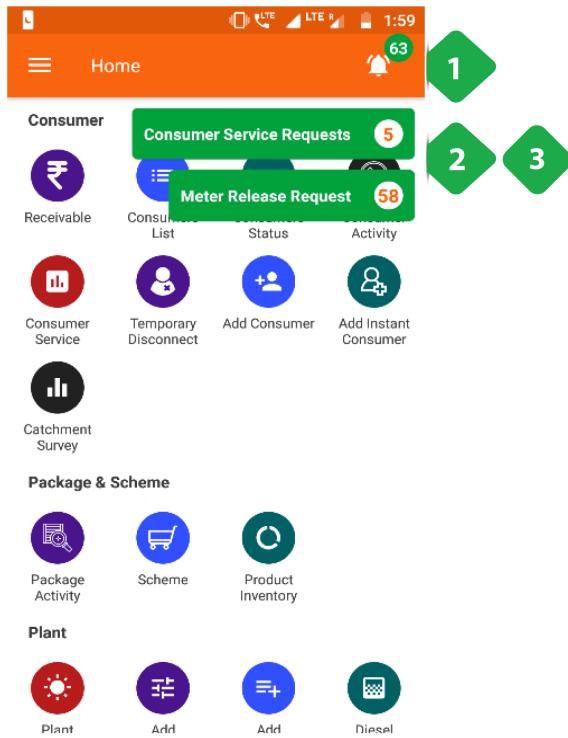
1. List of Plants and Dates for which dispatch data is missing
2. Tap OK to close the pop up

3.3.3. Notifications Icon

Functionality

- Shows the number of active Customer Service Requests and Meter Release Requests.
- Tapping navigates to a detailed list of requests.
- This icon is present on most pages.

Page Details



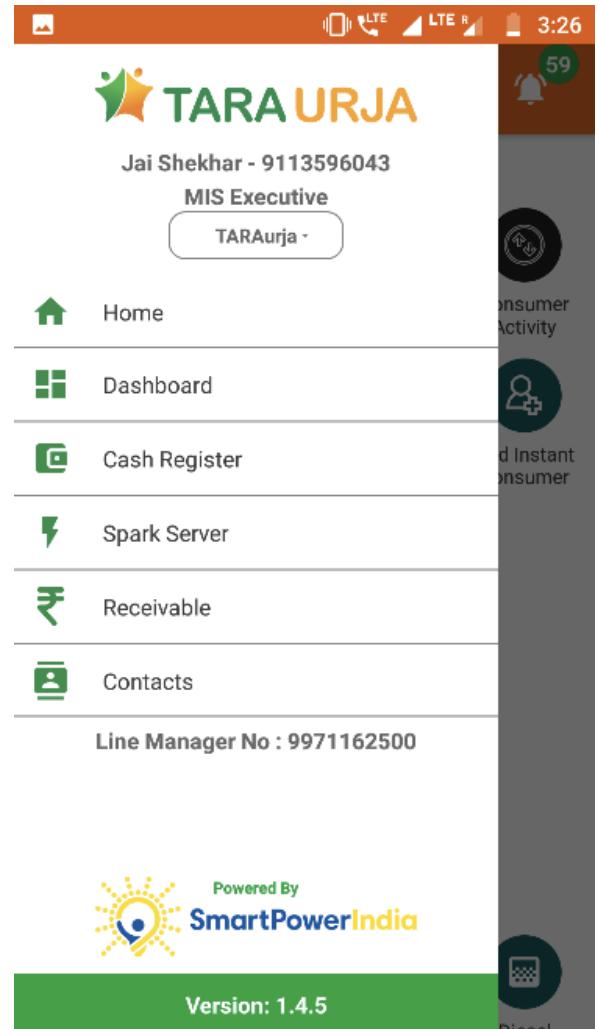
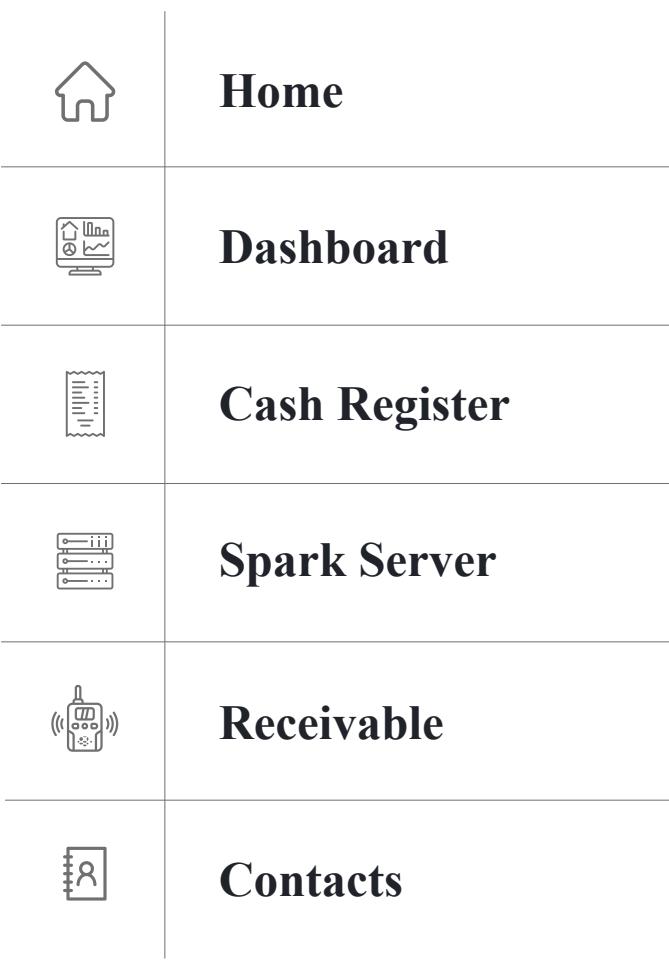
1. Notification Icon: shows the total number of pending requests; tapping the icon presents the following options
2. Customer Service Requests redirects to the service request section when tapped ([Section 3.5.7](#))
3. Meter Release Request redirects to the Unreleased Meter Section when tapped ([Section 3.8.3](#))

3.4. Main Menu

3.4.1. Overview

- The Main Menu provides shortcuts to the key sections, shown below.

FIGURE: MAIN MENU SHORTCUTS.



- It can be accessed from any page in two ways:
 - Tapping the icon at the upper left of the screen, or
 - Swiping right from the left edge of the screen



3.4.2. Home

Returns user to the Home Screen ([Section 3.3](#)).

3.4.3. Dashboard

Functionality

- Provides at-a-glance collection and billing data from various sources of the company
- Updated in real time as payments are made and recorded

Key Users

Designation	Main Purpose	Example Use Case
CSA	Reviewing the plant-wide collections that need to be made	Assessing the percentage of billed revenue which is still outstanding
Cluster In-charge	Summary of billing and collections in a specified time interval	Tracking amount collected for different services (energy, connection, water, etc.) in the cluster
State In-charge	View current billing and collection for the portfolio	Tracking total revenue, and the expected cash-flow from collections at each plant in the State

Page Details

Plant All Plants	From Feb-2020	To Jun-2020
Total Billing ⓘ		₹ 31,10,283
Total Collection ⓘ		₹ 19,68,842
ENERGY	ACTIVATION	
Billing: 29,72,258	Billing: 38,000	
Collection: 18,94,376	Collection: 22,200	
METER	WATER	
Billing: 51,750	Billing: 48,275	
Collection: 24,075	Collection: 28,191	
OTHERS	SECURITY DEPOSIT	
Billing: 0	Billing: 84,245	
Collection: 0	Collection: 84,245	
EeD/MeD	COUPON	
Billing: 6,88,500/0	Billing: 6,620	
Collection: 5,13,810/0	Collection: 6,620	

1. Total Billing is explained in [Section 3.4.3.1](#)
2. Total Collection is explained in [Section 3.4.3.2](#)
3. Amounts billed and collected for various services
4. Filter to select a specific plant and/or time interval



Plant All Plants	From Feb-2020	To Jun-2020
Total Billing ⓘ		₹ 31,10,283
Total Collection ⓘ		₹ 19,68,842
ENERGY	ACTIVATION	
Billing: 29,72,258	Billing: 38,000	
Collection: 18,94,376	Collection: 22,200	
METER	WATER	
Billing: 51,750	Billing: 48,275	
Collection: 24,075	Collection: 28,191	
OTHERS	SECURITY DEPOSIT	
Billing: 0	Billing: 84,245	
Collection: 0	Collection: 84,245	
EeD/MeD	COUPON	
Billing: 6,88,500/0	Billing: 6,620	
Collection: 5,13,810/0	Collection: 6,620	

5. Collection Detail details how the collection has been made:

- POS — Collected in person by a field agent
- Wallet — Payment made through an electronic wallet
- Cash Card — Payments made through credit/debit cards

6. YTD Outstanding refers to the outstanding payments that are yet to be made by customers from the beginning of the Calendar year

Collection Detail
POS ₹ 25,66,897
Wallet ₹ 0
Cash Card ₹ 0

YTD Outstanding	₹ 20,71,447
------------------------	-------------

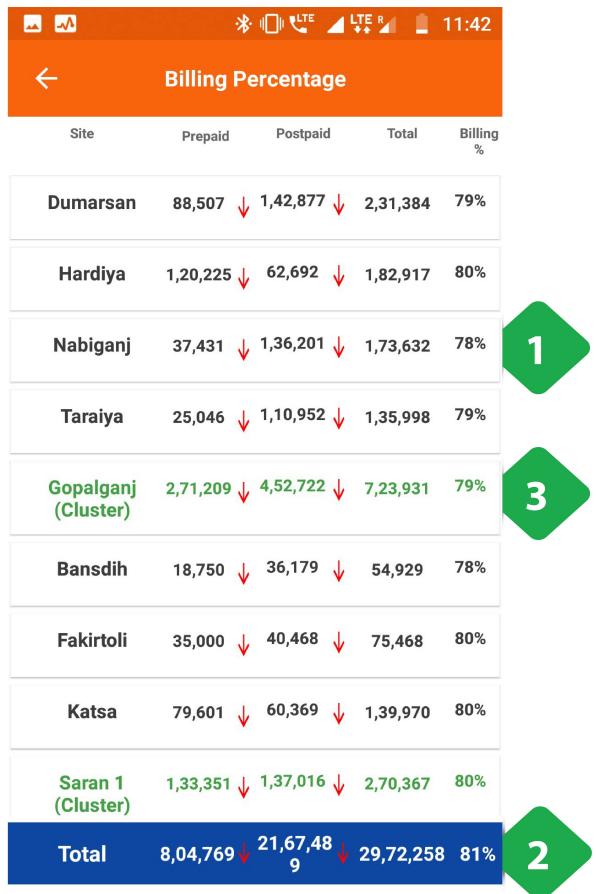
5. Collection Detail
6. YTD Outstanding

3.4.3.1. Total Billing

Functionality

- The Total Billing page summarises the revenue from each site

Page Details



Site	Prepaid	Postpaid	Total	Billing %
Dumarsan	88,507	1,42,877	2,31,384	79%
Hardiya	1,20,225	62,692	1,82,917	80%
Nabiganj	37,431	1,36,201	1,73,632	78%
Taraiya	25,046	1,10,952	1,35,998	79%
Gopalganj (Cluster)	2,71,209	4,52,722	7,23,931	79%
Bansdih	18,750	36,179	54,929	78%
Fakirtoli	35,000	40,468	75,468	80%
Katsa	79,601	60,369	1,39,970	80%
Saran 1 (Cluster)	1,33,351	1,37,016	2,70,367	80%
Total	8,04,769	21,67,48	29,72,258	81%

1. Tabular Data of each plant is described here. The columnar data includes:

- Amount billed to prepaid customers
- Amount billed to post-paid customers
- Total amount billed to all customers
- Percentage of customers billed

Arrows indicate month-on-month change in revenue:

- ↓ Red -- revenue decrease
- ↑ Green -- revenue increase

2. Total Bar shows the total amount for all plants

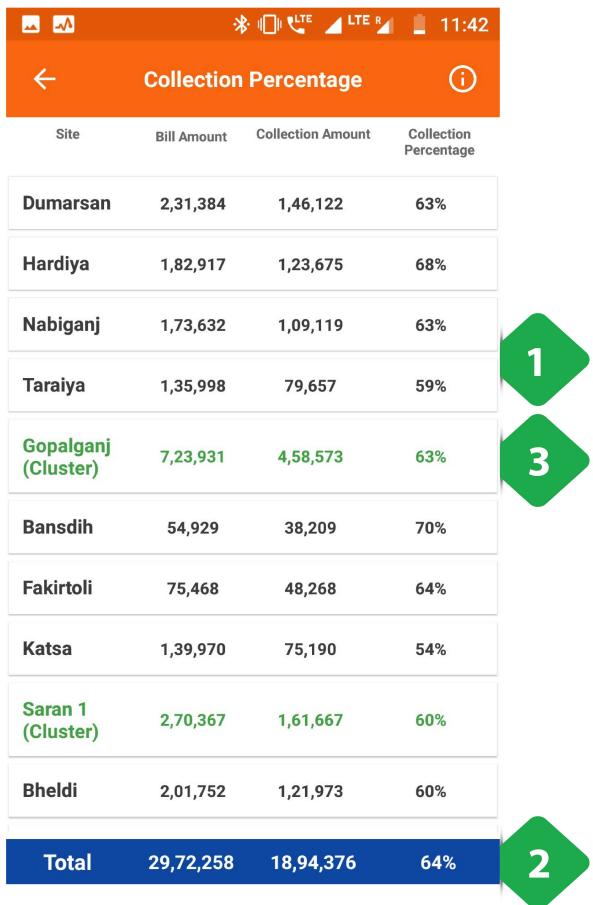
3. Green Rows show total amounts for each cluster of plants

3.4.3.2. Total Collection

Functionality

- The Total Collection page summarises collections at each site

Page Details



Site	Bill Amount	Collection Amount	Collection Percentage
Dumarsan	2,31,384	1,46,122	63%
Hardiya	1,82,917	1,23,675	68%
Nabiganj	1,73,632	1,09,119	63%
Taraiya	1,35,998	79,657	59%
Gopalganj (Cluster)	7,23,931	4,58,573	63%
Bansdih	54,929	38,209	70%
Fakirtoli	75,468	48,268	64%
Katsa	1,39,970	75,190	54%
Saran 1 (Cluster)	2,70,367	1,61,667	60%
Bheldi	2,01,752	1,21,973	60%
Total	29,72,258	18,94,376	64%

1. Tabular Data of each plant
2. Total Bar shows the total amount for all plants
3. Green Rows show the total amounts for each cluster of plants

3.4.4. Cash Register

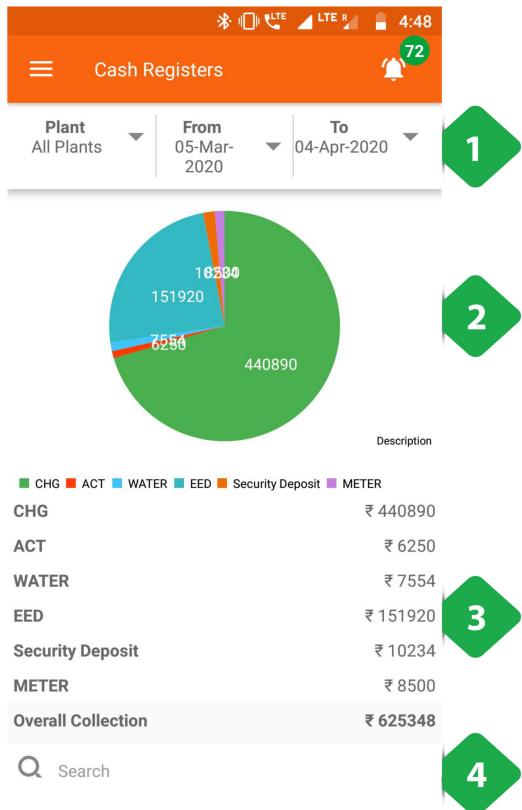
Functionality

- The Cash Register page provides a historical account of each customer's transactions
- It is updated in real time as payments are made and recorded
- A pie chart summarises the aggregate collections

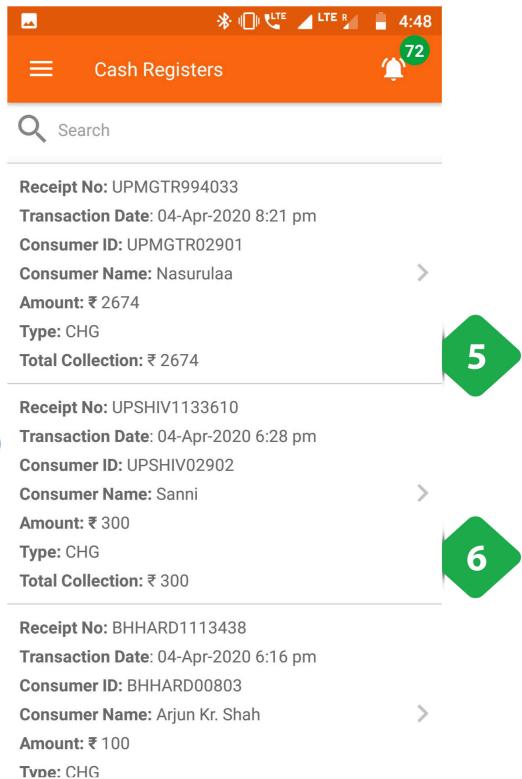
Key Users

Designation	Main Purpose	Example Use Case
CSA	Tracking customer bills and payments	Resolving disagreements about whether or when a bill was paid via a particular method or not
Cluster In-charge	Summary of collections in a specified time interval	Tracking amount collected for different services (energy, connection, water, etc.) for plants in the cluster
State In-charge	Summary of collections within the state	Tracking amount collected for different services for the entire state

Page Details



1. Filter Bar for selecting a plant and time interval
2. Pie Chart splits the total collection into contributions from different services
3. Numerical Data of amount collected for each service
4. Search Bar for quickly locating a particular customer: user can type the name or the unique customer ID
5. Transaction Details presents a list of all payments collected from customers in the selected time-frame, with most recent first
6. Tap any entry to view customer's account page (Section 3.5.2)



3.4.5. Spark Server

Functionality

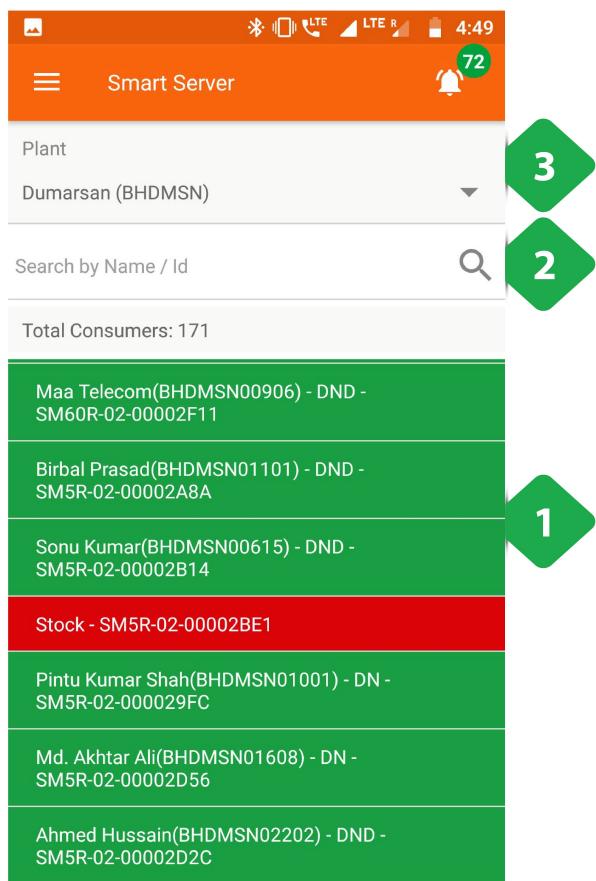
- Gives limited access to smart Spark meter data

- The user may remotely switch meters on and off from here

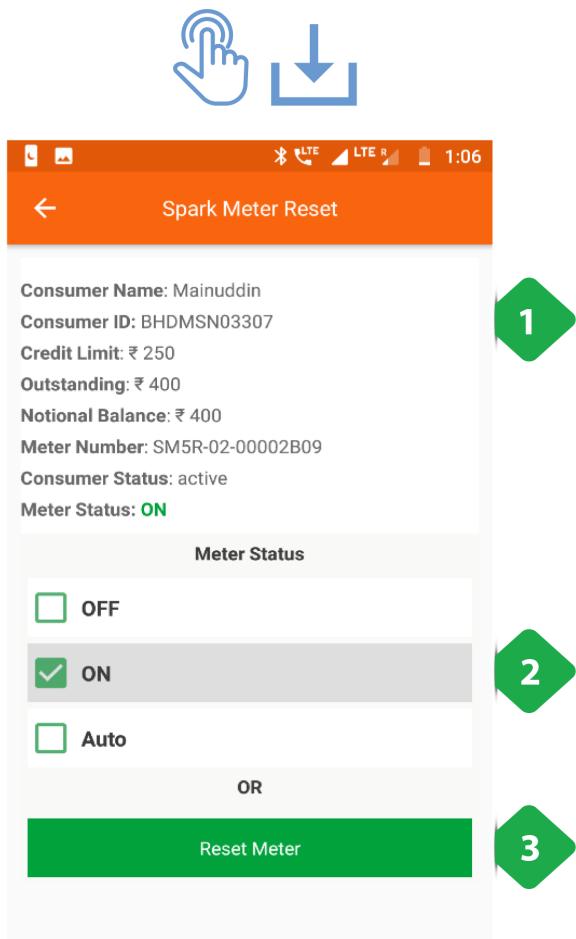
Key Users

Designation	Main Purpose	Example Use Case
Technician	Review the status of the meter associated with a particular customer at the plant	Checking whether the meter has automatically tripped into the off state
CSA	Same as Technician	Checking the status of a particular meter
Cluster In-charge	Control the state of the meter for a particular customer or group of customers	Shutting off the meter of a customer whose faulty appliance is impacting the whole distribution network
State In-charge	Same as Cluster In-charge	Shutting down multiple meters at one time in the state of a technical emergency

Page Details



1. Meter List, with one row per meter, shows the associated customer and meter state:
 - * Red - Inactive
 - * Green - Active
 - * Blue - Auto
2. Search Bar: find a specific entry by typing the customer name, ID, or meter number.
3. Plant Dropdown used to select a particular plant



On tapping any particular meter, the application redirects to the meter's page

1. Master Details includes key customer and meter information
2. Meter Status gives us the current meter activity status, and allows switching between ON, OFF, and AUTO
3. Reset Meter option used to reset meter settings and details to default

3.4.6. Receivable

Functionality

- The receivables section displays the bills and balance for every customer at a given plant
- Agents may register payments from customers to update their balance
- For users with access to multiple plants, information will only be displayed once a particular plant is selected

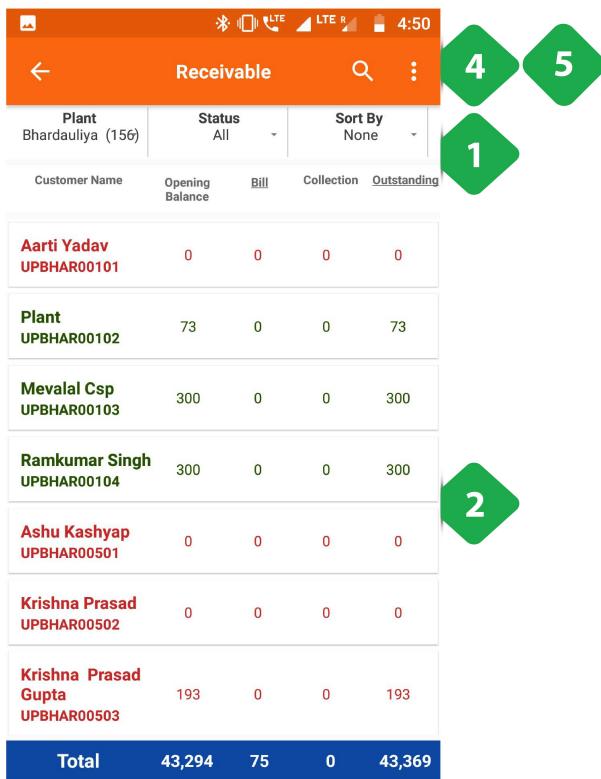
Key Users

Designation	Main Purpose	Example Use Case
Operator	Validate whether a customer is active	Checking the cause when a customer comes to the plant to complain of a connection issue
CSA	View the expected revenue and outstanding from each customer at the plant	Prioritising which customers (or ex-customers) the sales team should approach for settling arrears
Cluster In-	Summary of collections in a given	Comparing different plants' collection

charge	time interval	performance for the current month
State In-charge	View customers with high outstanding accounts	Reviewing customer payment history when deciding whether to deactivate or reactivate an account

Navigation Note that this page is also accessible directly from the Home Screen – see [Section 3.4.2](#)

Page Details



Receivable				
Plant	Status	Sort By		
Customer Name	Opening Balance	Bill	Collection	Outstanding
Arti Yadav UPBHAM00101	0	0	0	0
Plant UPBHAM00102	73	0	0	73
Mevalal Csp UPBHAM00103	300	0	0	300
Ramkumar Singh UPBHAM00104	300	0	0	300
Ashu Kashyap UPBHAM00501	0	0	0	0
Krishna Prasad UPBHAM00502	0	0	0	0
Krishna Prasad Gupta UPBHAM00503	193	0	0	193
Total	43,294	75	0	43,369

1. Filter Bar used to show information according to:
 - Plant (number of customers in brackets)
 - Active/inactive customers
 - List sorting by billed amount or outstanding amount
 - Which service is being billed
2. Billing Amounts listed for each customer (with customer ID)
 - **Green** : active customer
 - **Red** : inactive customer

Tapping a customer links to a menu of information explained in [Section 3.5.2](#)
3. Total Bar shows the sum of each column, given the selected filters
4. Search quickly for a particular customer by typing their name or customer ID
5. Dotted Icon tapped to show the following options
 - Send SMS

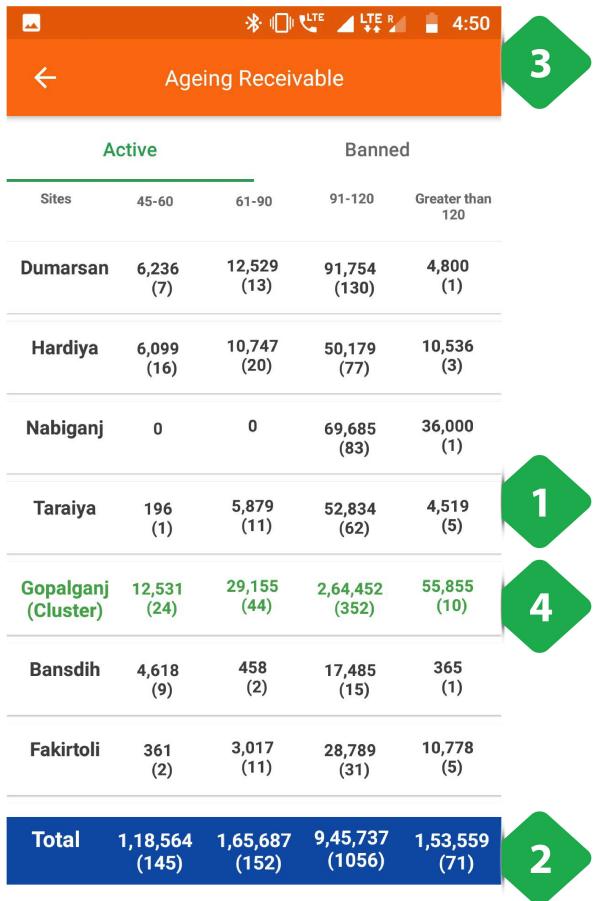
3.4.6.1. Aging Receivables

Functionality

- The Aging Receivables section displays separate lists of active and banned customers of a particular plant that are yet to pay their dues to the company.
- There are two lists – Active and Banned

The following are the pages that can be viewed through this functionality:

*Active	*Banned
Detailed list of Active consumer statistics for every plant	Detailed list of Banned consumers for every plant



Sites	Active				Banned			
	45-60	61-90	91-120	Greater than 120				
Dumarsan	6,236 (7)	12,529 (13)	91,754 (130)	4,800 (1)				
Hardiya	6,099 (16)	10,747 (20)	50,179 (77)	10,536 (3)				
Nabiganj	0	0	69,685 (83)	36,000 (1)				
Taraiya	196 (1)	5,879 (11)	52,834 (62)	4,519 (5)				
Gopalganj (Cluster)	12,531 (24)	29,155 (44)	2,64,452 (352)	55,855 (10)				
Bansdih	4,618 (9)	458 (2)	17,485 (15)	365 (1)				
Fakirtoli	361 (2)	3,017 (11)	28,789 (31)	10,778 (5)				
Total	1,18,564 (145)	1,65,687 (152)	9,45,737 (1056)	1,53,559 (71)				



On tapping Send SMS

The user must confirm that an SMS should be sent to all customers at a plant (see [Section 3.10.6](#)).

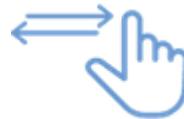
On tapping Aging Receivables

You will be directed to the active list of customers at the plant:

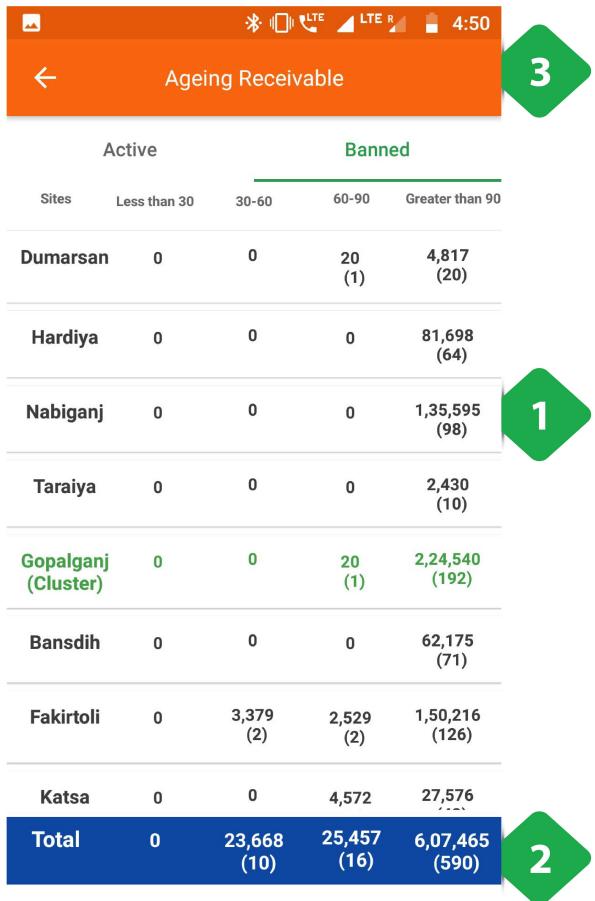
1. Tabular Column of all the active consumers at a particular site along with the total receivable that is still to be collected is displayed. The number in the brackets under the amount show the total number of consumers. The columnar data includes:

- 45-60 days
- 61-90 days
- 91-120 days
- Greater than 120 days

2. Total Bar displays the aggregated columnar results of the table.
3. Navigation Bar used to navigate between the Active consumer column and the Banned consumer column
4. Green Rows show total amounts for each cluster of plants



The next screenshot displays the result on tapping 'Banned'



Sites	Active				Banned
	Less than 30	30-60	60-90	Greater than 90	
Dumarsan	0	0	20 (1)	4,817 (20)	
Hardiya	0	0	0	81,698 (64)	
Nabiganj	0	0	0	1,35,595 (98)	
Taraiya	0	0	0	2,430 (10)	
Gopalganj (Cluster)	0	0	20 (1)	2,24,540 (192)	
Bansdih	0	0	0	62,175 (71)	
Fakirtoli	0	3,379 (2)	2,529 (2)	1,50,216 (126)	
Katsa	0	0	4,572	27,576 (1)	
Total	0	23,668 (10)	25,457 (16)	6,07,465 (590)	

1. Tabular Column of all the banned or inactive consumers at a particular site along with the total receivable that is still to be collected is displayed. The number in the brackets under the amount show the total number of consumers. The columnar data includes (Section XX):

- Less than 30 Days
- 30-60 Days
- 60-90 Days
- Greater than 90 Days

2. Total Bar displays the aggregated columnar results of the table.

3. Navigation Bar used to navigate between the Active consumer column and the Banned consumer column



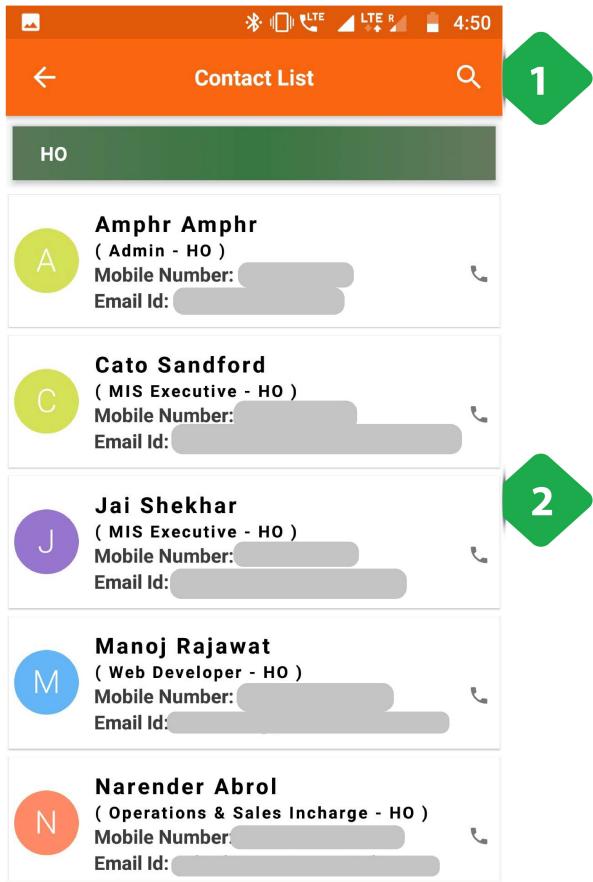
3.4.7. Contacts

Functionality

- The contacts page is a list of all company personnel, along with details such as their designation and mobile number
- The operators have been divided based on the company and the state they are working in

Key Users

Designation	Main Purpose	Example Use Case
All Employees	Access to individual employees contact	To verify a decision made by another agent working at the company

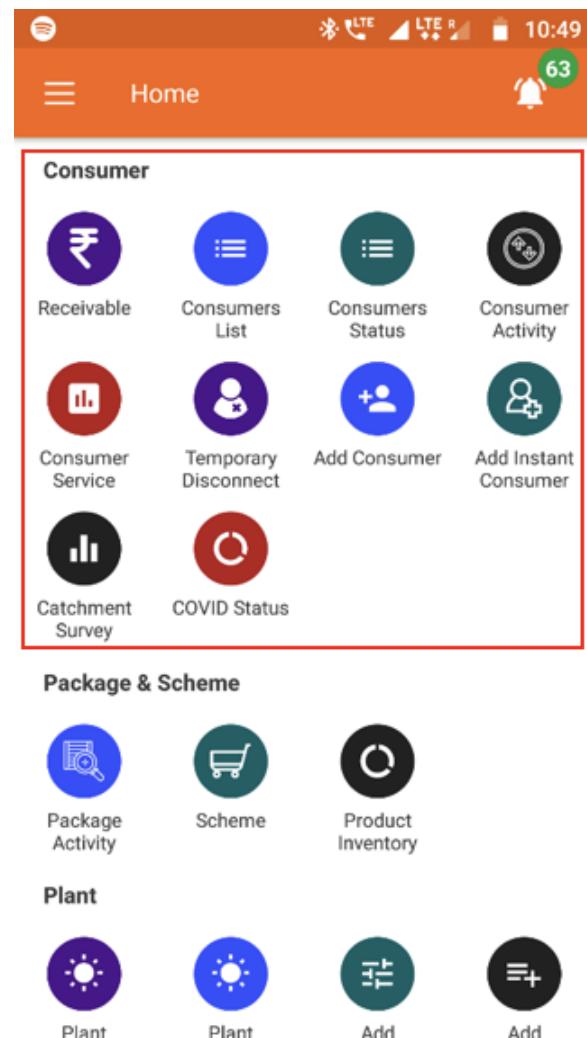


1. Search for a particular contact by name, plant, or designation
2. Contact Details of each operation is provided in alphabetical order

3.5. Consumers

3.5.1. Overview

	Receivable Overview of cash collection
	Consumer List View consumers at every plant
	Consumer Status Survey customer's connection status
	Consumer Activity Track active and inactive customers
	Consumer Service Navigate through service requests
	Temporary Disconnect Remote cut supply to customers
	Add Consumer Add a customer
	Add Instant Consumer Fast-track customer addition
	Catchment Survey An HCLF functionality



3.5.2. Account Details

Functionality

- The Account Detail page contains complete information on a customer's profile, their package, and payment history.

Key Users

Designation	Main Purpose	Example Use Case
Operator	Validating the activeness of a customer	Prioritising which customers (or ex-customers) the sales team should approach for settling arrears

Technician	Reviewing meter reading data for a specific consumer	Reviewing the meter reading data to check for overload on electrical apparatus
CSA	View the expected revenue and outstanding from each customer at the plant	Prioritising which customers (or ex-customers) the sales team should approach for settling arrears
Cluster In-charge	Summary of collections in a specified time interval	Comparing different plants' collection performance for the current month
State In-charge	View customers with high outstanding accounts	Confirming a customer's balance when collecting payment, and resolving confusion about when past bills were paid.

- Information is organised into several tabs, detailed below.

A Note on Navigating to this Page

This page is central to on-ground operations, and is frequently used by sales agents in managing the relationship with individual customers. However, there is no icon for this module on the Home Screen. Instead, field agents will be able to reach this page from:

- The cash register of a particular plant ([Section 3.4.4](#))
- The customer list ([Section 3.5.4](#))
- The customer status list ([Section 3.5.5](#))

Page Details

The Account Detail page is organised into several tabs, which summarise particular information about a given customer:

*Profile	*Transaction	*Cash Ledger	*Security and Deposit Ledger	*Meter Reading	*Service
detailed account information	chronological list of individual payments	running record of bills, payments, and balance	running record of security charges and payments	energy consumption data from meter reading	service request history and completion information

Switching between tabs can be done either using the top navigation bar, or simply swiping the screen horizontally.



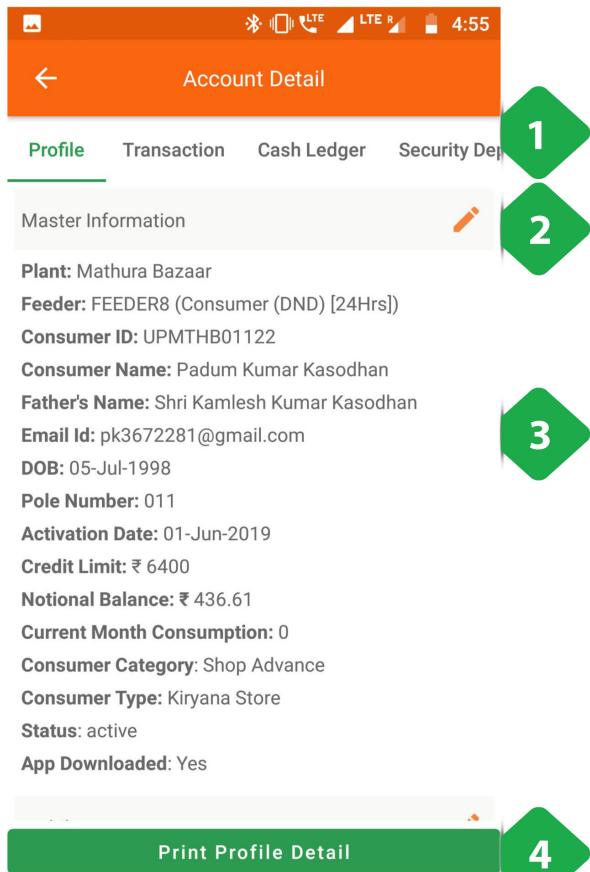
Each of these tabs will be discussed in the following sections.

3.5.2.1. Profile tab

Functionality

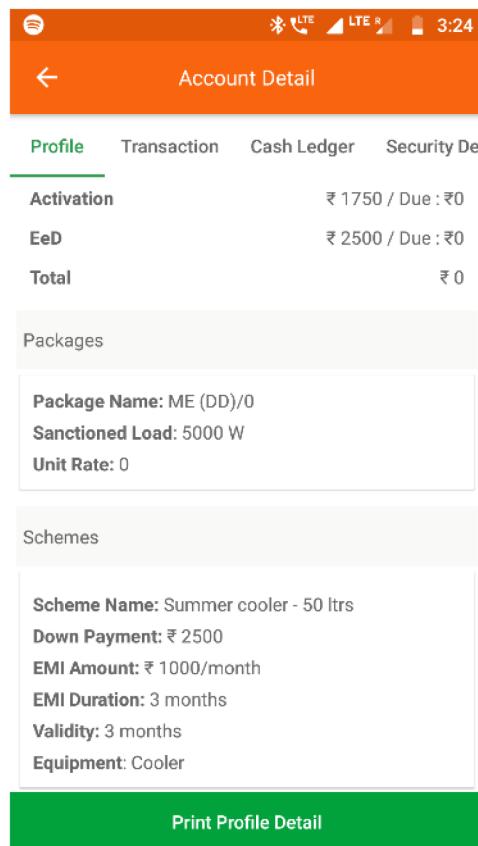
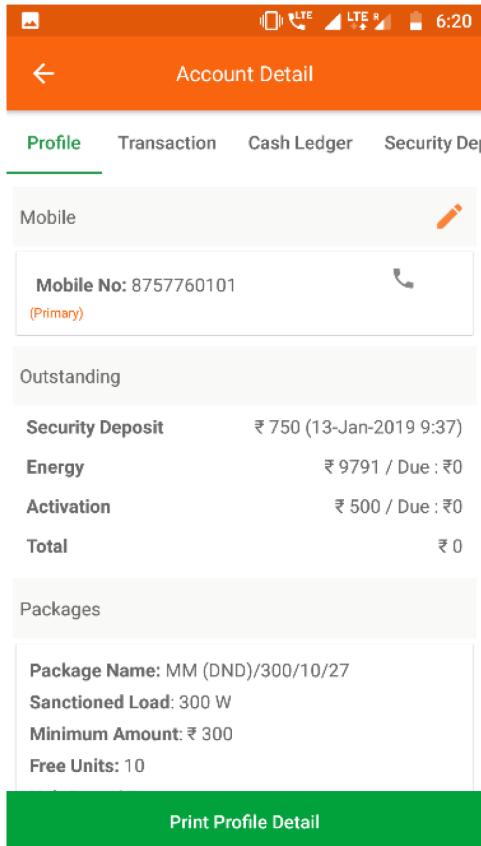
- The Profile tab shows detailed information about the selected customer and their account
- Some information can be updated/edited by the user

Page Details



1. Navigation Bar indicates the current tab and allows switching between tabs
2. Pencil Icon for editing selected details
3. Master Information gives basic information about the customer background and relationship with the company
4. Print Profile Detail tapping will send the page to a connected printer
5. Mobile shows the registered mobile number; tapping the phone icon starts a call
6. Outstanding details, the aggregate payment due for all services
7. Package details the customer's electricity package, including fees, load limit, and unit rates
8. Schemes contains information on any promotions in which the customer is participating, including EMI arrangements





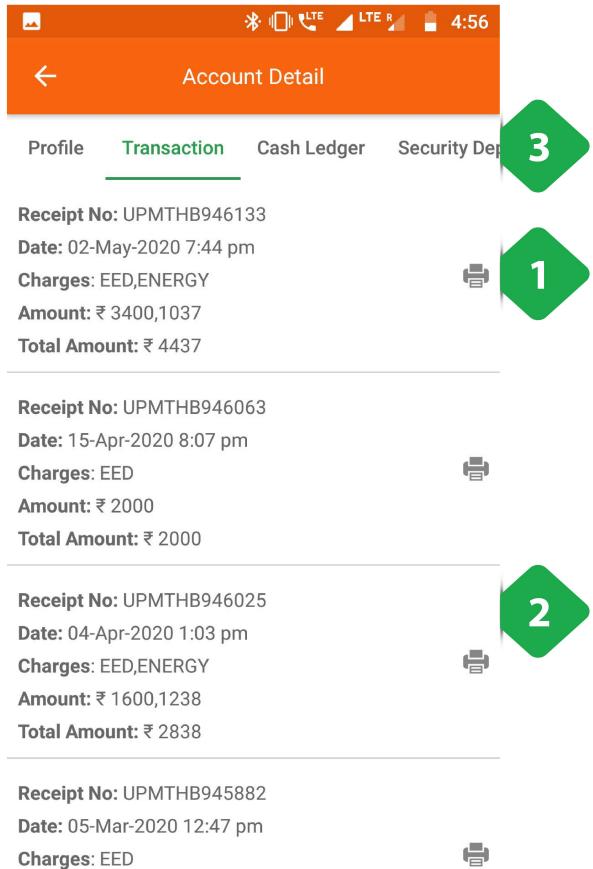
Edits must be confirmed via an OTP from the customer.

3.5.2.2. Transaction tab

Functionality

- The Transaction page provides a historical account of each customer's payments
- Updated in real time as payments are made and recorded

Page Details



1. Print Icon to print a receipt, or, if not printer is connected, take a shareable screenshot
2. List of Payments in chronological order, along with other relevant data
3. Navigation Bar used swipe right across different panels of the account details

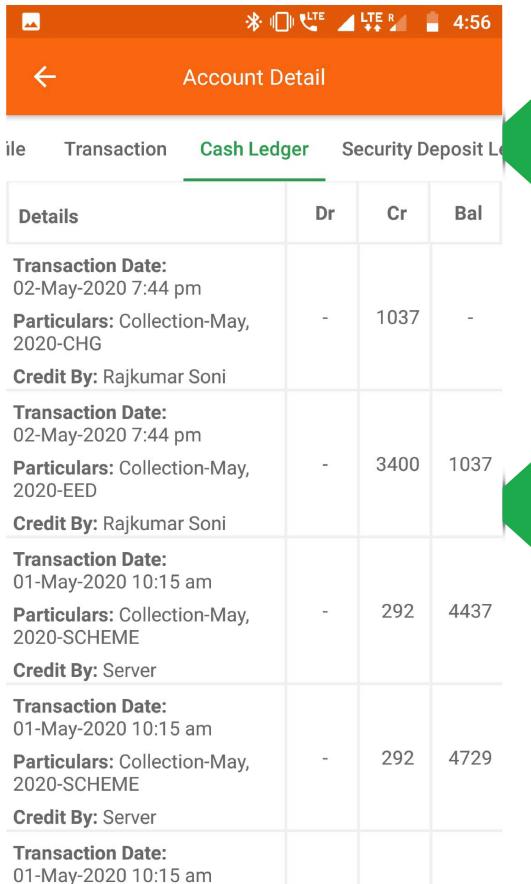


3.5.2.3. Cash Ledger tab

Functionality

- Provides a running record of historical bills, payments, and outstanding dues for the selected customer.

Page Details



Details	Dr	Cr	Bal
Transaction Date: 02-May-2020 7:44 pm		1037	
Particulars: Collection-May, 2020-CHG	-		
Credit By: Rajkumar Soni			
Transaction Date: 02-May-2020 7:44 pm		3400	1037
Particulars: Collection-May, 2020-EED	-		
Credit By: Rajkumar Soni			
Transaction Date: 01-May-2020 10:15 am		292	4437
Particulars: Collection-May, 2020-SCHEME	-		
Credit By: Server			
Transaction Date: 01-May-2020 10:15 am		292	4729
Particulars: Collection-May, 2020-SCHEME	-		
Credit By: Server			
Transaction Date: 01-May-2020 10:15 am			

1. List of Transactions including bills and payments/credits, along with the cumulative balance owed by the customer
2. Navigation Bar indicates the current tab and allows switching between tabs

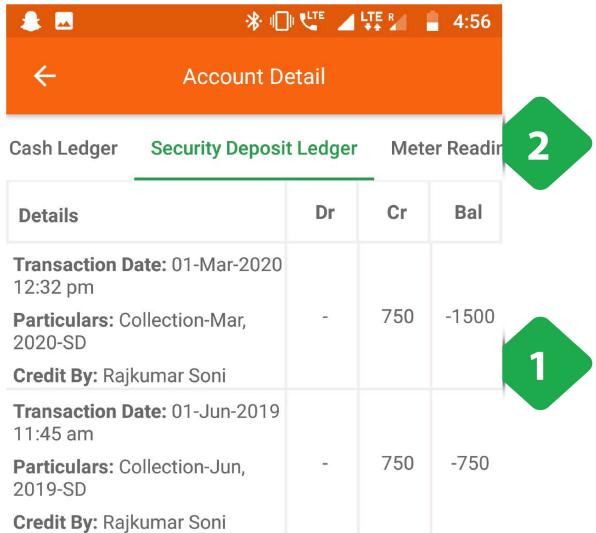


3.5.2.4. Security Deposit Ledger tab

Functionality

- Provides a record of security deposits for the selected customer.

Page Details



Details	Dr	Cr	Bal
Transaction Date: 01-Mar-2020 12:32 pm	-	750	-1500
Particulars: Collection-Mar, 2020-SD			
Credit By: Rajkumar Soni			
Transaction Date: 01-Jun-2019 11:45 am	-	750	-750
Particulars: Collection-Jun, 2019-SD			
Credit By: Rajkumar Soni			

1. List of Transactions including bills and payments/credits, along with the cumulative balance owed by the customer
2. Navigation Bar indicates the current tab and allows switching between tabs

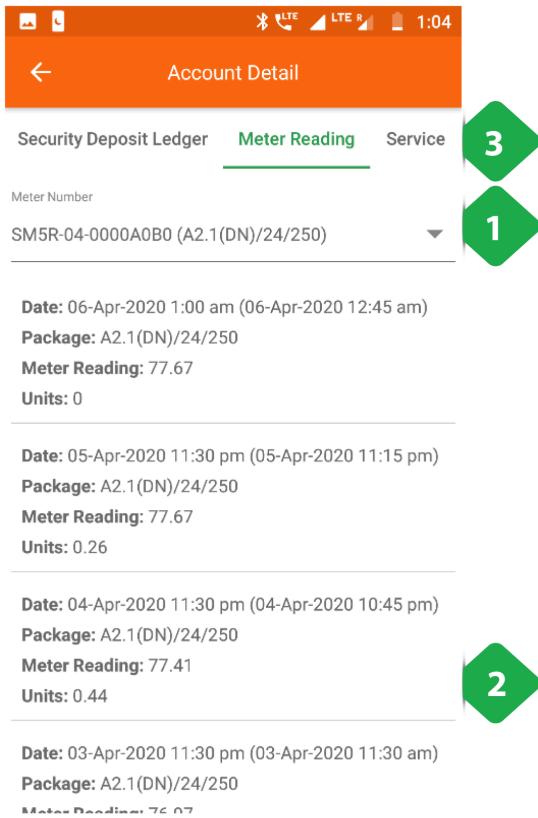


3.5.2.5. Meter Reading Ledger tab

Functionality

- A chronological list of the customer's energy meter readings.
- Only applies to metered customers.

Page Details



1. Meter Number Panel is a drop-down list of meters associated with the customer
2. Daily Meter Readings gives you important detail such as:
 - Date of the reading
 - Customer's electricity package
 - Meter reading (kWh)
 - Units consumed since the last reading (kWh)
3. Navigation Bar indicates the current tab and allows switching between tabs

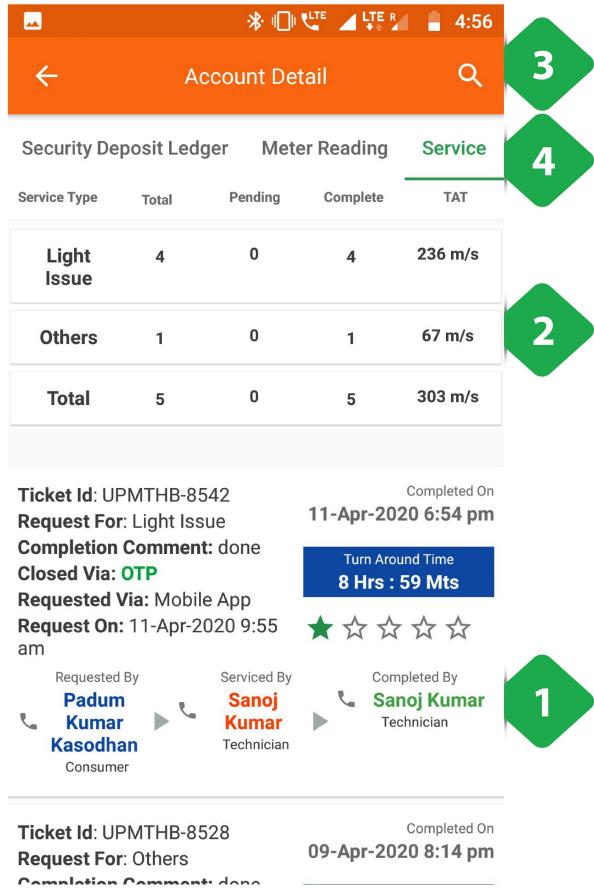


3.5.2.6. Service tab

Functionality

- Provides a record of the service requests made by the customer, and the response by the field team.

Page Details



1. Service Issue lists details about each service request made by the customer
2. Request Summary shows the total number of requests, along with a break-down into pending and completed requests of each type. The average turnaround time is also recorded.
3. Search allows the user to filter the list of requests by typing in specific information
4. Navigation Bar indicates the current tab and allows switching between tabs



3.5.3. Receivable

Functionality

- The receivables section displays customer balances and allows agents to register payments.

Navigation

This page is also accessible from the Main Menu. More details can be found in [Section 3.4.6](#).

3.5.4. Consumer List

Functionality

- The Consumer List displays the current number of active and inactive customers at each plant.
- After selecting a particular plant, the user is shown the list of customers, along with records of unpaid bills.

Key Users

Designation	Main Purpose	Example Use Case
Technician	Access to the list of active members on the plant	To check the consumer ID of a particular consumer
CSA	Same as Technician	To check the number of active customer
Cluster In-charge	Summary of total number of customers in the cluster	To create a report on the customers served at a cluster in a given time frame
State In-charge	Summary of the total number of customers in the state	To create a report on the customers served in a state in a given time frame

Page Details

Site	Banned	Active	Total
Dumarsan	157	169	326
Hardiya	86	143	229
Nabiganj	126	87	213
Taraiya	20	80	100
Gopalganj (Cluster)	389	479	868
Bansdih	93	41	134
Fakirtoli	166	61	227
Katsa	105	109	214
Saran 1 (Cluster)	364	211	575
Bheldi	168	90	258
Derni	37	97	134
Total	1722	1728	3450

1. List of Plants showing the number of banned, active and total customers in every plant
2. Green Rows show total amounts for each cluster of plants
3. Total Bar shows the sum of each column

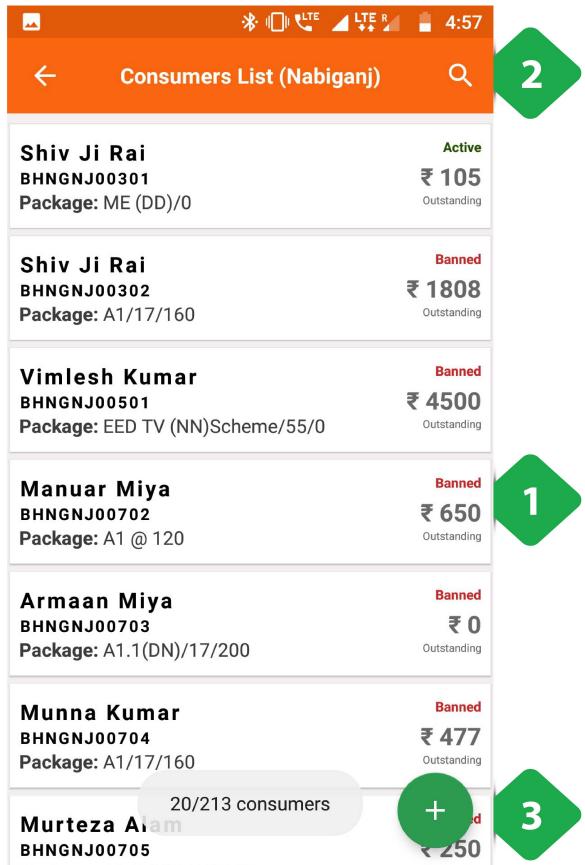
Tapping any plant will redirect you to the consumer list for that plant, as shown in the next screenshot



1

3

2



Consumers List (Nabiganj)		SEARCH
Shiv Ji Rai	BHNGNJ00301	Active ₹ 105 Outstanding
Shiv Ji Rai	BHNGNJ00302	Banned ₹ 1808 Outstanding
Vimlesh Kumar	BHNGNJ00501	Banned ₹ 4500 Outstanding
Manuar Miya	BHNGNJ00702	Banned ₹ 650 Outstanding
Armaan Miya	BHNGNJ00703	Banned ₹ 0 Outstanding
Munna Kumar	BHNGNJ00704	Banned ₹ 477 Outstanding
Murteza Aiam	BHNGNJ00705	20/213 consumers + ₹ 250

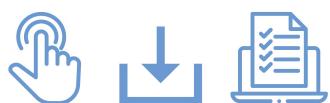
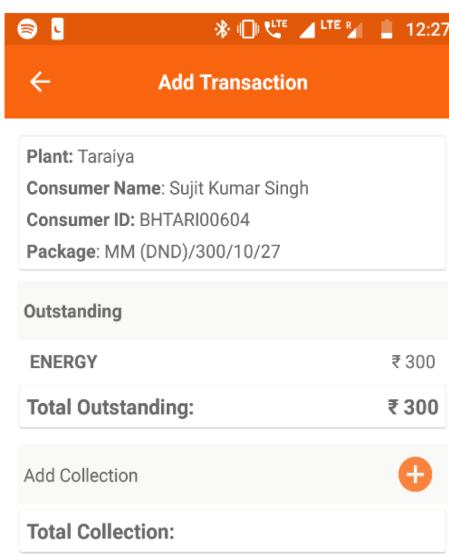
1. Individual Customer shown in each tab along with important information such as:

- Customer ID
- Package number
- Active/banned status
- Outstanding amount

2. Search Icon to filter out the customer list by typing in the name or customer ID

3. Adding Consumer explained in [Section 3.5.9](#)

Tapping a consumer allows the user to add a transaction, as explained in the next screenshot

Plant: Taraiya
Consumer Name: Sujit Kumar Singh
Consumer ID: BHTARI00604
Package: MM (DND)/300/10/27

Outstanding	ENERGY	₹ 300
Total Outstanding:		₹ 300
Add Collection	+	
Total Collection:		

Tapping on a consumer allows the user to choose from three options:

- Profile — links to account detail which is explained in [section 3.5.2](#)
- Add Transaction — explained below
- Cancel — returns to the previous page

1. Customer Details shown with important information
2. Outstanding Value that displays the total amount of money owed and for which service it was charged
3. Adding Collection to manually add any payments made by the customer, and for which service
4. Review Tab to finalise the transaction

REVIEW

4

3.5.5. Consumer Status

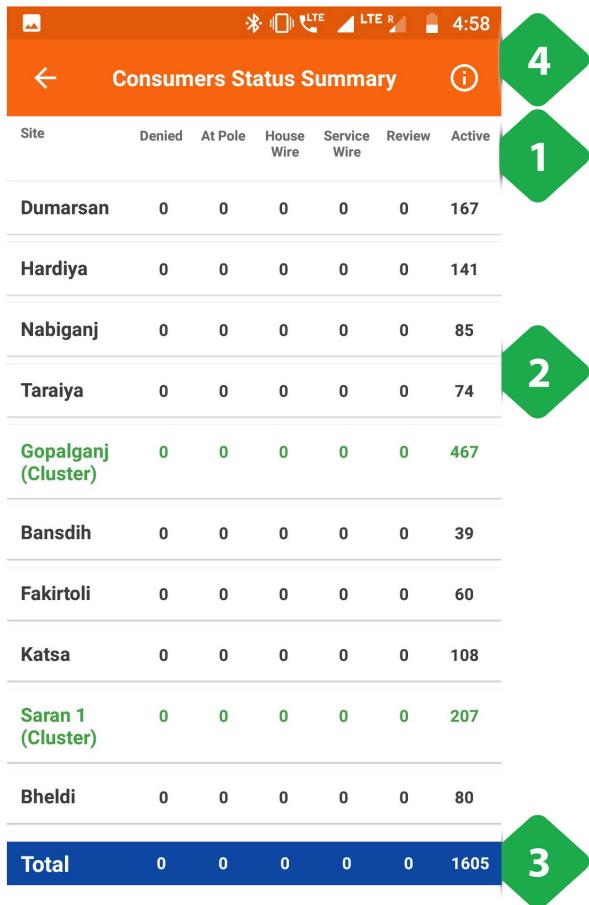
Functionality

- The Consumer Status section tracks progress towards connecting customers to the distribution network.
- Division of installation status is made into 4 parts namely – At Pole, House wire, Service Wire and Review
- The section also displays the number of denied package requests per plant
- This functionality is only available for HCLF users

Key Users

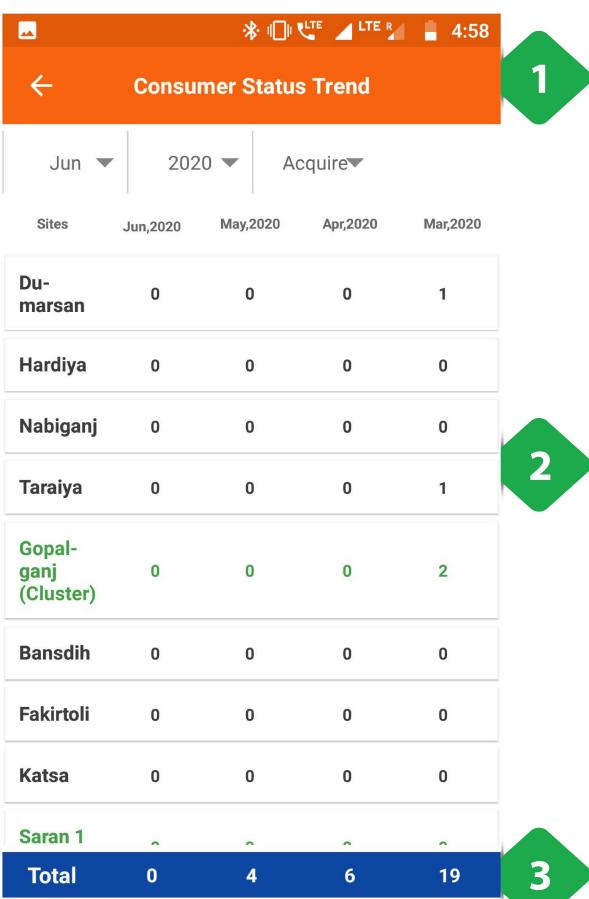
Designation	Main Purpose	Example Use Case
CSA	Assessing the installation status of the meters for all the customers	Reporting the number of pending meter reading reviews at the end of the month
Cluster In-charge	Same as CSA	Reviewing the status of hardware installation for customers within the cluster
State In-charge	Same as CSA	Launching an audit drive at a plant to improve customer service quality

Page Details



Site	Denied	At Pole	House Wire	Service Wire	Review	Active
Dumarsan	0	0	0	0	0	167
Hardiya	0	0	0	0	0	141
Nabiganj	0	0	0	0	0	85
Taraiya	0	0	0	0	0	74
Gopalganj (Cluster)	0	0	0	0	0	467
Bansdih	0	0	0	0	0	39
Fakirtoli	0	0	0	0	0	60
Katsa	0	0	0	0	0	108
Saran 1 (Cluster)	0	0	0	0	0	207
Bheldi	0	0	0	0	0	80
Total	0	0	0	0	0	1605

1. Filter Bar gives options for displaying results either cluster-wise or NTP-wise
2. List of Plants with number of customers at each stage of connection
3. Total Bar aggregates over plants
4. Information Icon redirects to the Customer Status Trend page, explained in the next screenshot



Sites	Jun,2020	May,2020	Apr,2020	Mar,2020
Dumarsan	0	0	0	1
Hardiya	0	0	0	0
Nabiganj	0	0	0	0
Taraiya	0	0	0	1
Gopalganj (Cluster)	0	0	0	2
Bansdih	0	0	0	0
Fakirtoli	0	0	0	0
Katsa	0	0	0	0
Total	0	4	6	19

Tapping on the information icon redirects to the Customer Status Trend page

1. Filter Bar modifies result display according to:
 - Cluster/NTP wise
 - Month and Year
 - Acquired/Active
2. List of Plants with the number of new active customers over four months
3. Total Bar aggregates over plants

3.5.6. Consumer Activity

Functionality

- Provides an interface for deactivating and reactivating customer electricity connections.
- Changes undergo a chain of approval before they are accepted.
- Activity changes are summarised for each plant.

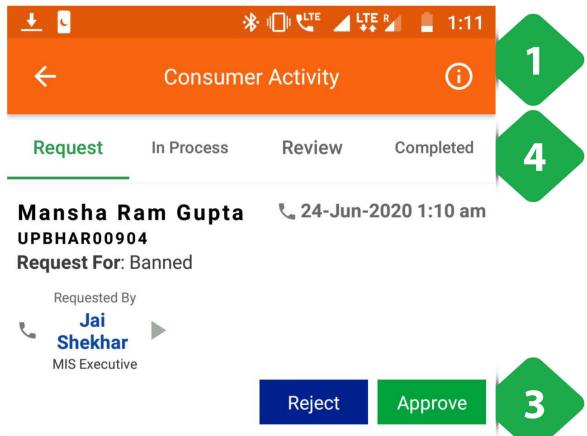
Key Users

Designation	Main Purpose	Example Use Case
Technician	To execute requested changes to customer status	Reviewing which customers need to be de-/re-activated, and making the necessary changes to their connection
CSA	Same as Technician	Same as Technician
Cluster In-charge	To register a change to customer status and assign to field personnel	Using the app to check with a field agent whether they are available for executing the change
State In-charge	Approve customer status requests at plants in the state	Checking how many status change requests are pending and at which plants

Page Details The Consumer Activity page is organised into several tabs, which follow the process of the account status change.

*Request	*In Process	*Review	*Completed
Register a customer for de-/re-activation	List of customers whose connection requires attention	Confirming the action has been completed	Historical list of all customer de-/re-activation details

3.5.6.1. Request tab



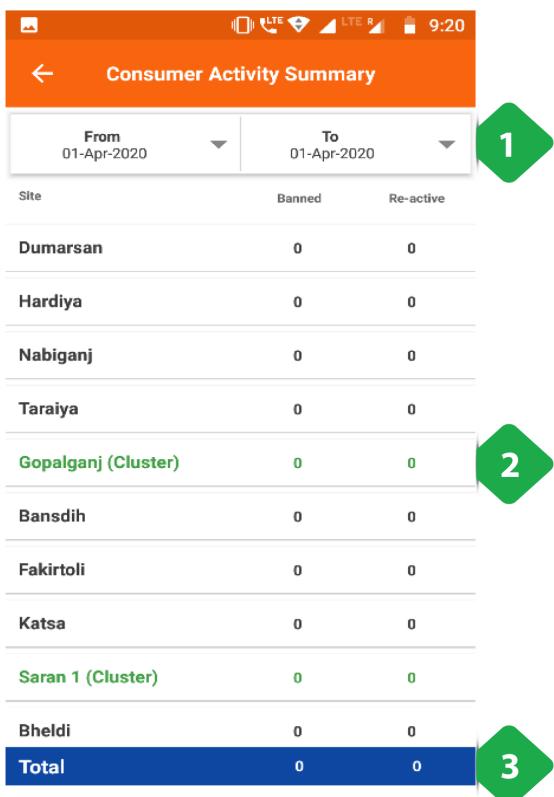
1. Information Icon redirects to a plant-by-plant breakdown of the number of customer de-activations and re-activations, as shown in a subsequent screenshot
2. Add Activity Icon used to register a customer status change, as explained in the next screenshot
3. Request Tab gives us more information on the requested customer request, this can be either rejected or approved
4. Navigation Bar used to navigate between various sections of the section



This screenshot shows the 'Consumer Activity' screen with a form for adding a new activity. The form includes fields for 'Plant' (dropdown menu 'Select Plant'), 'Activity Type' (dropdown menu 'Select Activity Type'), 'Consumer Name' (dropdown menu 'Select Consumer'), and a text area for 'Connection Id' with placeholder text 'Your Comments'. A green diamond-shaped callout with the number '1' is positioned above the 'Select Plant' dropdown. A green diamond-shaped callout with the number '2' is positioned above the 'Select Activity Type' dropdown. A green diamond-shaped callout with the number '3' is positioned above the 'Select Consumer' dropdown. A green diamond-shaped callout with the number '4' is positioned below the 'SUBMIT' button.

1. Select Plant dropdown list
2. Activity Type dropdown list
3. Consumer Number dropdown list of all eligible / relevant customers Additional comments can be added at this point
4. Submit Button completes the information submission

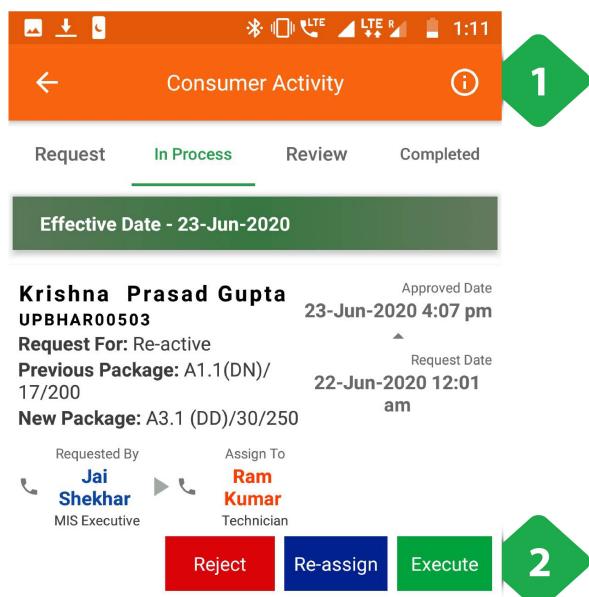




Site	Banned	Re-active
Dumarsan	0	0
Hardiya	0	0
Nabiganj	0	0
Taraiya	0	0
Gopalganj (Cluster)	0	0
Bansdih	0	0
Fakirtoli	0	0
Katsa	0	0
Saran 1 (Cluster)	0	0
Bheldi	0	0
Total	0	0

1. Filter Bar used to select a date range
2. List of plants showing the number of banned and reactivated customers in the selected time interval
3. Total Bar sums the values for all plants

3.5.6.2. In Process tab



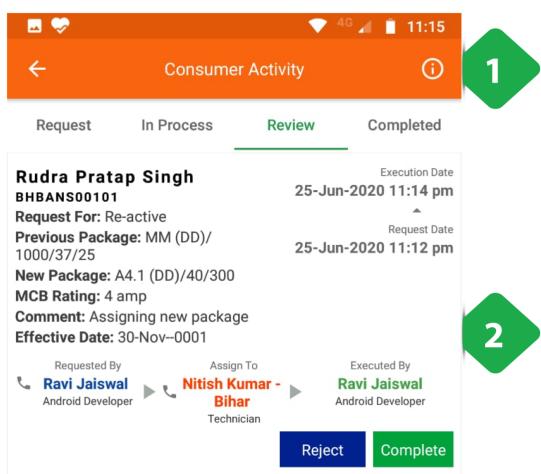
Request	In Process	Review	Completed
Effective Date - 23-Jun-2020			
Krishna Prasad Gupta UPBHK00503	Approved Date 23-Jun-2020 4:07 pm		
Request For: Re-active			
Previous Package: A1.1(DN)/17/200	Request Date 22-Jun-2020 12:01 am		
New Package: A3.1 (DD)/30/250			
Requested By Jai Shekhar MIS Executive	Assign To Ram Kumar Technician		
Reject	Re-assign	Execute	

1. Information Icon redirects to a plant-by-plant breakdown of the number of customer de-activations and re-activations
2. Request Tab gives us more information on the in process customer request, including who registered the request and who is tasked with dealing with it

The request can be either rejected, re-assigned to a different agent or executed (processed)



3.5.6.3. Review tab



1. Information Icon redirects to a plant-by-plant break-down of the number of customer de-activations and re-activations
2. Request Tab gives us more information on the completed customer request being reviewed, this can be either rejected or marked completed (processed)

3.5.6.4. Completed tab

1. Information Icon redirects to a plant-by-plant breakdown of the number of customer de-activations and re-activations
2. Request Details includes information on historical customer requests in the time period in question, including the personnel responsible

3.5.7. Consumer Service

Functionality

- View existing customer service requests—both technical and non-technical—at different stages of completion
- Add new service requests
- Assign outstanding requests to field personnel for follow-up
- Close requests which have been resolved

Key Users

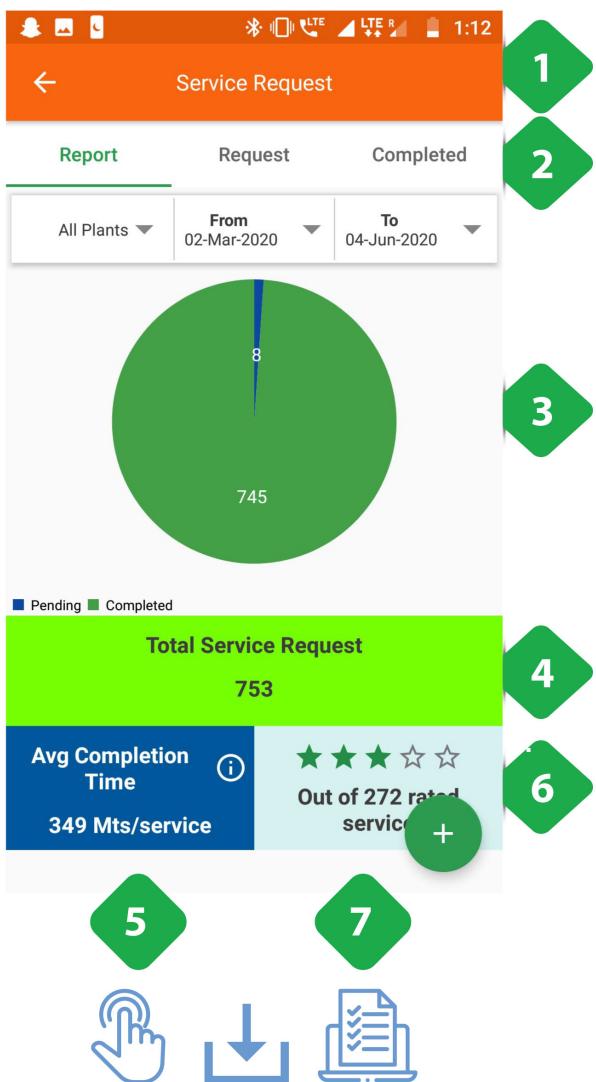
Designation	Main Purpose	Example Use Case
Technician	To review service requests assigned to them	Prioritising pending requests, depending on when they were registered and the nature of the work
CSA	Same as Technician	Phoning customers to understand what issue is being faced, and marking a request as complete when it has been resolved

Cluster In-charge	To view all requests from customers in the cluster	Reviewing pending requests and assigning them to personnel for follow-up
State In-charge	To gain an overview of service request statistics in the state	Tracking targets on personnel response time and customer satisfaction

Page Details

*Report	*Request	*Completed
Overview statistics on completed and pending service requests	Detailed list of pending requests and personnel assignments	Record of all completed requests

3.5.7.1. Report tab



1. Navigation Bar indicates current tabs; user can switch tabs by tapping or swiping horizontally
2. Filter Bar for selecting particular plants and changing the time interval
3. Pie Chart summarises service request numbers:
 - **Blue** — Pending Requests
 - **Green** — Completed Requests
4. Total Service Request is the number of requests registered in the selected time-frame
5. Average Completion Time between the customer registering a request and marking it complete
6. Rating of customer satisfaction
7. Add Service Requests icon to register a new request; explained in the next screenshot

Plant

Select Plant

Consumer Name

Select Consumer

Request For

Request For

Remark

Your Comments

SUBMIT

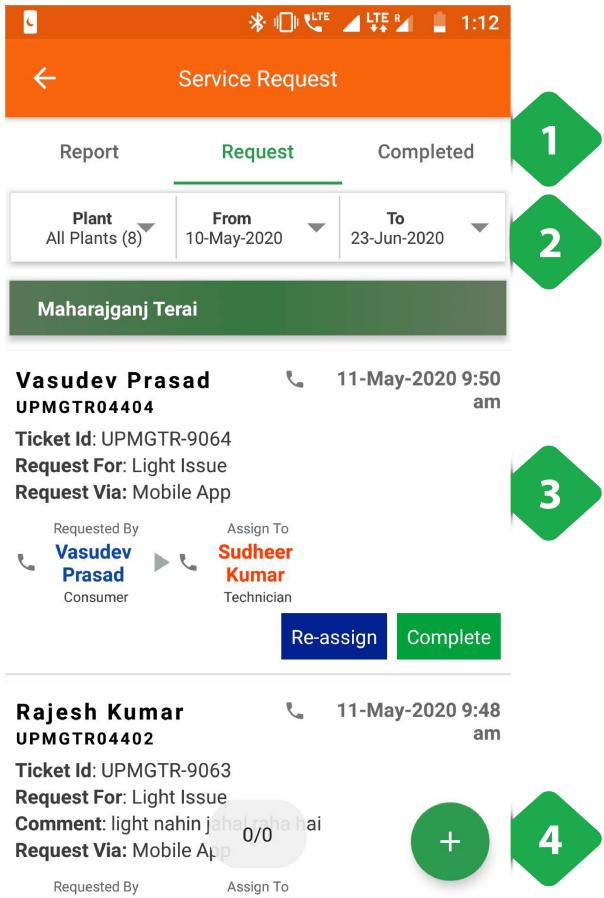
Tapping the add service request Icon leads to the new service request page

1. Add Service Information to input details of the new service request, including

- Plant name (dropdown list)
- Consumer name
- Type of issue
- Other comments

2. Submit Icon tapped when all information is complete

3.5.7.2. Request tab

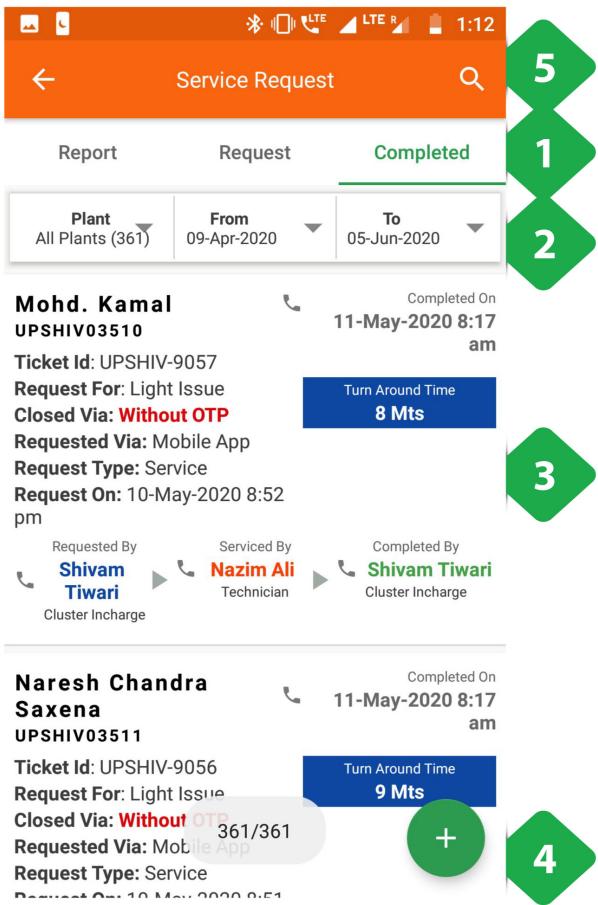


1. Navigation Bar (same as previous tab)
2. Filter Bar (same as previous tab)
3. Service Request List where pending requests are shown chronologically, along with current personnel assignment. Complete/Re-assign Users may manually close the request or assign it to a different agent

Tap an agent's name to call them

4. Add Service Request (same as previous tab)

3.5.7.3. Completed tab



1. Navigation Bar (same as previous tab)
2. Filter Bar (same as previous tab)
3. Completed Service Requests shown chronologically, with specific details including the turnaround time along with the names of each agent handling the request
4. Add Service Request (same as previous tab)
5. Search Icon to filter the list according to customer name, field agent name, or any other relevant parameter

3.5.8. Temporary Disconnect

Functionality

- Allows a user to remotely disconnect the supply of particular customers
- This functionality is only available for TaraUrja users

Key Users

Designation	Main Purpose	Example Use Case
Technician	Disconnecting specific customers at a plant	Disconnecting high-load customers when a demand surge causes the plant to trip, until system stability is restored
Cluster In-charge	Disconnecting all customers at a plant	Disconnecting all customers for safety during network maintenance

Page Details



1. Plant Dropdown to show customers of a particular plant
2. Plant Master Switch used to temporarily disconnect all customers of the plant
3. Individual Customer Switch displaying the customer name, customer ID, package, and meter number, along with the master power switch
4. Search for specific customers by typing in their name, customer ID, package ID, or meter number

3.5.9. Add Consumer

Functionality

- Create a new customer account in the MCOMS system

Key Users

Designation	Main Purpose	Example Use Case
Technician	To add a consumer into the company database	Manual addition of a customer who cannot request an account through the customer smartphone app
CSA	Same as Technician	Same as Technician
Cluster In-charge	Same as Technician	Same as Technician
State In-charge	Same as Technician	Same as Technician

Page Details

State
Select State

Consumer Category
Select Consumer Category

Consumer Type
Select Consumer Type

Consumer Initiator
Anil Shukla

Pole Number
|

Consumer Name

Father's Name

NEXT

**1**

1. Customer Information required is specified line by line



Pole Number

Consumer Name

Father's Name

Email Id

Select Date Of Birth

Mobile

Packages

Schemes

2

2. Customer Information continues, and includes which package they have selected

3. Next Button completes the data submission

3

3.5.10. Add Instant Consumer

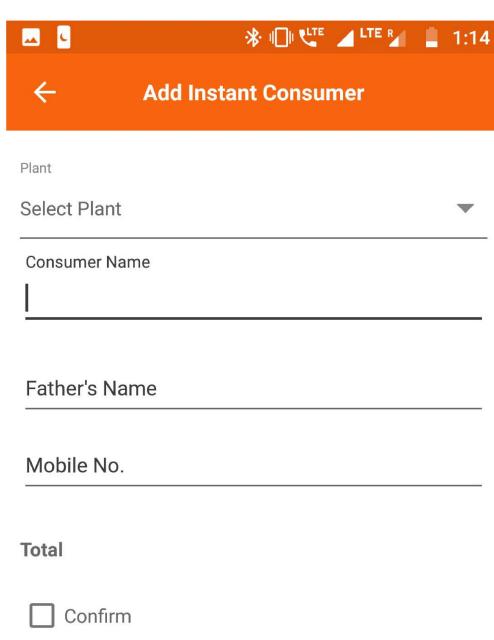
Functionality

- Quickly create a new customer account in the MCOMS system, with only critical information recorded
- This functionality is only available for TaraUrja users

Key Users

Designation	Main Purpose	Example Use Case
CSA	To quickly add a new customer into the company database	During a recruitment drive in a public place, many prospective customers may need registration in a short period of time
Cluster In-charge	Same as CSA	Same as CSA
State In-charge	Same as CSA	Same as CSA

Page Details



Plant
Select Plant

Consumer Name
1

Father's Name

Mobile No.

Total

Confirm



1. Customer Information to be added includes only the most critical data
2. Confirm tapped once data has been reviewed for accuracy
3. Submit tapped to complete the process



3.5.11. Catchment Survey

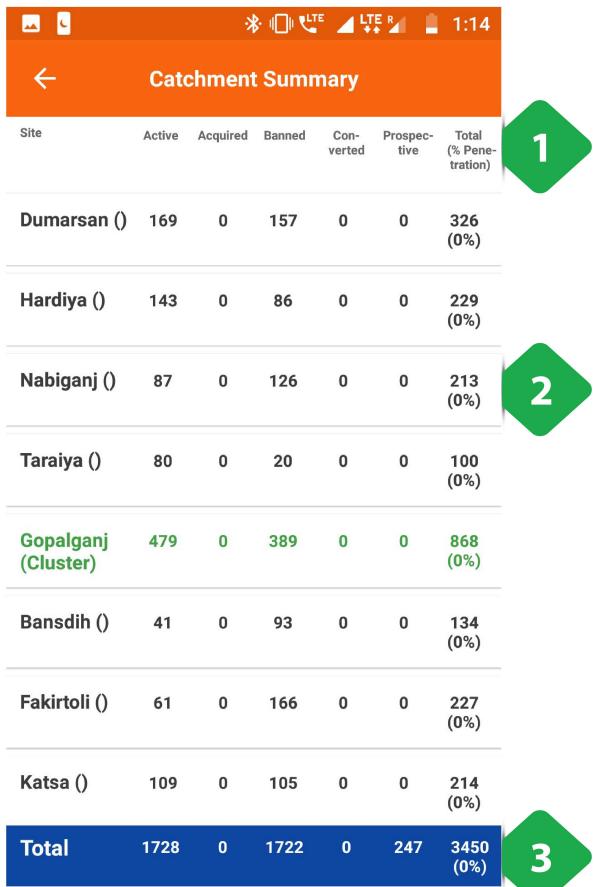
Functionality

- The Catchment Survey Section showcases an overview of all the customers and potential customers present at a plant
- The 'catchment' created intends to assist in reviewing customer behaviour over a period of time
- It also gives a detailed list on the penetration made into the potential customer base

Key Users

Designation	Main Purpose	Example Use Case
Operator	To record survey responses of energy consumers	Interviewing a local who comes to the plant to enquire about getting a connection
Technician	Same as Operator	Updating an existing customer's profile and contact information
CSA	Same as Operator	Interviewing locals in the catchment area to understand energy needs and use patterns
Cluster In-charge	Same as Operator	Reviewing the number of active, inactive, and prospective customers in the cluster

Page Details



Site	Active	Acquired	Banned	Converted	Prospective	Total (% Penetration)
Dumarsan ()	169	0	157	0	0	326 (0%)
Hardiya ()	143	0	86	0	0	229 (0%)
Nabiganj ()	87	0	126	0	0	213 (0%)
Taraiya ()	80	0	20	0	0	100 (0%)
Gopalganj (Cluster)	479	0	389	0	0	868 (0%)
Bansdih ()	41	0	93	0	0	134 (0%)
Fakirtoli ()	61	0	166	0	0	227 (0%)
Katsa ()	109	0	105	0	0	214 (0%)
Total	1728	0	1722	0	247	3450 (0%)

1. Filter Section to show customer data Cluster Wise or NTP wise
2. List of Plants shows the segregation between the 'status under' which customers have been grouped, plant wise
3. Total Bar aggregates the columnar data in the tabular column

Tapping on a particular plant will redirect the user to its consumer list page



Consumer List - Nabiganj ()	
Status	Type
All	All
Abdul Gaffar (ro Plant) BHNGNJ03601	Active
Profile Update	Survey
Acchhelal Prasad BHNGNJ01914	Active
Profile Update	Survey
Achhelal Prasad BHNGNJ03310	Banned
Profile Update	Survey
Aditya Mobile BHNGNJ02503	Banned
Profile Update	Survey
Aftab Alam BHNGNJ02209	Banned
Profile Update	Survey
Ajay Kr Gupta BHNGNJ03317	Ac
	+

1. Filter Bar used to narrow down the results
2. List of Consumers showing their activity status, and whether their profile has been updated / survey administered
3. The green tick validates the completion
4. Update Profile option will allow the user to update the profile of any consumer (both active customers and others)
5. Tapping a consumer will allow the user to: * Update Profile * Complete Survey

Tapping any of these options will redirect you to either the update profile page or the survey page, both of which have been explained in the following screenshots



Update Profile

Consumer Name
Jai Shekhar

Father's Name

Mobile Number

Email Address

Pole Number

Date of birth 

Gender
 Male Female

Consumer Status

UPDATE

1

Update Profile

1. Consumer Profile Information to be filled by the field agent



Update Profile

Email Address

Pole Number

Date of birth 

Gender
 Male Female

Consumer Status
 Active Banned Prospective

Consumer connection status at ground
 House Wire Service Wire At Pole None

Consumer Category
Select Consumer Category 

Consumer Type
Select Consumer Type 

UPDATE

2

2. Submit tapped to complete the update

The Survey page allows the user to record information about an existing/prospective customer's energy usage needs

1. Survey Information to be filled by the agent

Address

Distance from nearest pole (meter)

Main occupation

MED
Select MED

Products available in home

TV	<input type="checkbox"/>	FAN	<input type="checkbox"/>
Ceiling Fan	<input type="checkbox"/>	Freezer	<input type="checkbox"/>
Refrigerator	<input type="checkbox"/>	Cooler	<input type="checkbox"/>
Washing Machine	<input type="checkbox"/>	None	<input type="checkbox"/>

Wattage

SUBMIT



2. Submit tapped to complete the survey

Main occupation

MED
Select MED

Products available in home

TV	<input type="checkbox"/>	FAN	<input type="checkbox"/>
Ceiling Fan	<input type="checkbox"/>	Freezer	<input type="checkbox"/>
Refrigerator	<input type="checkbox"/>	Cooler	<input type="checkbox"/>
Washing Machine	<input type="checkbox"/>	None	<input type="checkbox"/>

Wattage

Interested in buying a product on EMI
 Yes No

Why have you disconnected our connection ?

SUBMIT



3.5.12. Theft Complaint

Functionality

- Used to register possible pilferage from the mini-grid, for follow-up investigation
- This functionality is only available for HCLF users

Key Users

Designation	Main Purpose	Example Use Case
Operator	To register a possible theft for follow-up	Registering a complaint from a customer who visits the plant
Technician	To view pending theft complaints	Checking the distribution network cables as directed by the Cluster In-charge
CSA	Same as Operator	Registering a complained after noticing new unsanctioned cables
Cluster In-charge	To review logged theft complaints and assign them to field agents for investigation	Reviewing the total number of theft complaints within a given time frame

Page Details

*Pending	*In Process	*Completed
The theft reports that are reported	Theft reports that are currently being investigated	Theft reports that have been appropriately dealt with

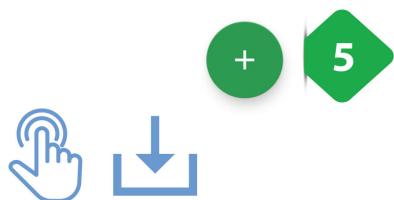
3.5.12.1. Pending tab

1. Information Icon tapped for plant-wise overview of complaints, as explained in the next screenshot

2. Navigation Bar indicates the current tab and allows switching between tabs

3.

4. Filter Bar allows the user to restrict attention to a specific plant and time frame
5. Complaint Tab contains relevant information regarding the theft complaint lodged by a user
6. Add Complaint Button redirects the user to the New Theft Report page, detailed below



1. Filter Bar allows the user to produce results between a given period of time at a plant

2. Tabular Information on the theft complaints at various plants is shown

3. Total Bar gives the user a representation of the aggregated columnar data

2

3

Theft Complaint Summary



Plant
Select Plant

Consumer Name
Select Consumer

Power Supply Status
 On Off

Connection removed from cadera
 Yes No

Informed to consumer
 Yes No

Meter/accessories damaged by consumer
 Yes No

Any misbehave by consumer
 Yes No

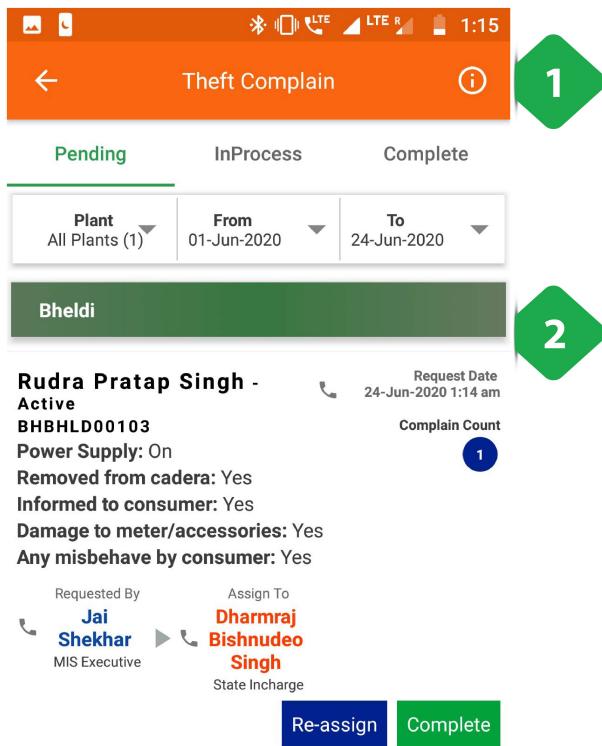


1

New Theft Report

1. Plant Selection must be made before filling in the form
2. Complaint Information itemised line by line, including possibility of adding a photograph
3. Submit completes the registration process

3.5.12.2. In Process tab



1

1. Information Icon tapped for plant-wise overview of complaints
2. Complaint Tab gives the user relevant information on a complaint request that is currently being investigated. It can either be rejected or completed

3.5.12.3. Completed tab

Plant
Select Plant

Consumer Name
Select Consumer

Power Supply Status
 On Off

Connection removed from cadera
 Yes No

Informed to consumer
 Yes No

Meter/accessories damaged by consumer
 Yes No

Any misbehave by consumer
 Yes No

Theft image

SUBMIT

1. Information Icon tapped for plant-wise overview of complaints
2. Complaint Tab gives the user relevant information on a complaint request that has been completed.

3.5.13. Coupon Discount

Functionality

- Allows plant personnel to generate coupons for customers
- Tracks the number of redeemed coupons

Key Users

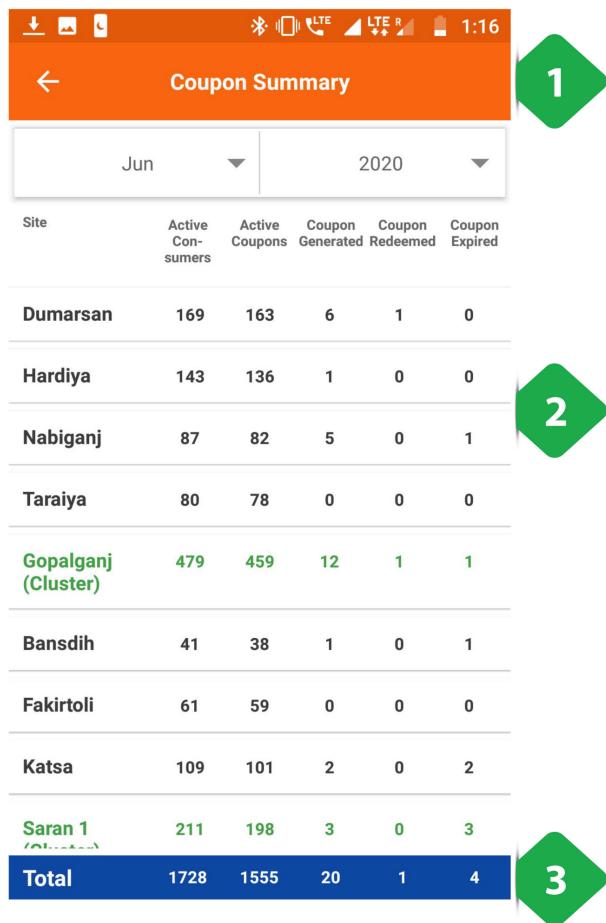
Designation	Main Purpose	Example Use Case
Operator	To generate coupon codes on behalf of customers	Assisting a customer who doesn't have a smartphone to avail a company promotion
Technician	Same as Operator	Same as Operator
CSA	Same as Operator	Same as Operator
Cluster In-charge	To track the customers whose coupons are going to expire	Following up with customers who have generated coupons but not redeemed them

State In-charge

To monitor the results of coupon schemes at different plants

Calculating the proportion of eligible customers who participated in the initiative

Page Details



Site	Active Consumers	Active Coupons	Coupon Generated	Coupon Redeemed	Coupon Expired
Dumarsan	169	163	6	1	0
Hardiya	143	136	1	0	0
Nabiganj	87	82	5	0	1
Taraiya	80	78	0	0	0
Gopalganj (Cluster)	479	459	12	1	1
Bansdih	41	38	1	0	1
Fakirtoli	61	59	0	0	0
Katsa	109	101	2	0	2
Saran 1	211	198	3	0	3
Total	1728	1555	20	1	4

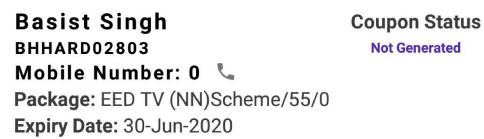
1. Filter Bar narrows to a given time period
2. List of Plants showing the number of coupons generated and redeemed at each plant
3. Total Bar aggregates over all plants

Tapping on any plant will redirect the user to a list of customers at that plant, as explained in the next screenshot



1. Search Icon can be used to find a specific customer
2. Filter Bar allows narrowing the results to a given time period and plant
3. Generate Coupon Code allows an agent to enable the customer to generate a coupon code that could be redeemed

The particular customer can be contacted by tapping on the phone icon present in every tab



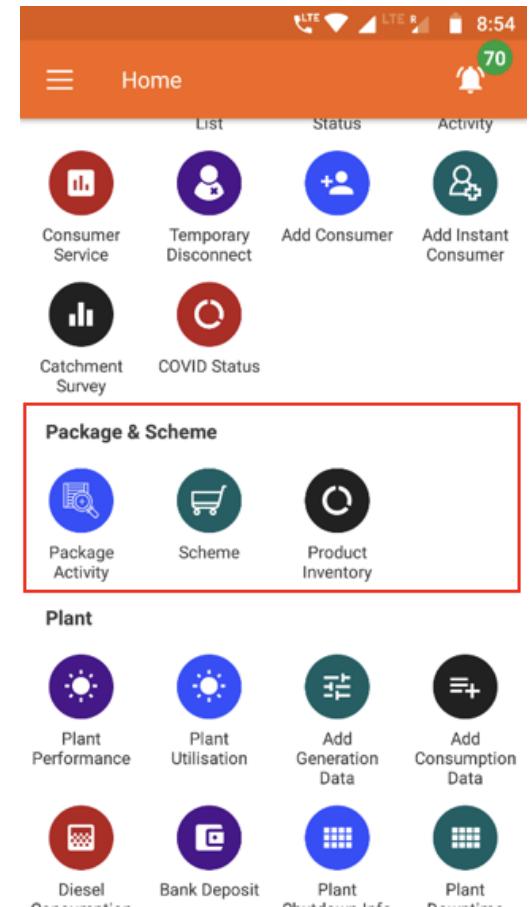
3



3.6. Package and Scheme

3.6.1. Overview

	Package Activity <ul style="list-style-type: none">Get an overview of the package statusAdd a package activity request
	Scheme <ul style="list-style-type: none">Get an overview of the schemes being usedAdd a scheme
	Product Inventory <ul style="list-style-type: none">Get an overview of leased productsCheck availability of a product



3.6.2. Package Activity

Functionality

- The Package Activity section is an interface for changing the package assigned to customers
- Changes undergo a chain of approval, with details passed to the relevant agent
- Package changes are summarised for each plant

Key Users

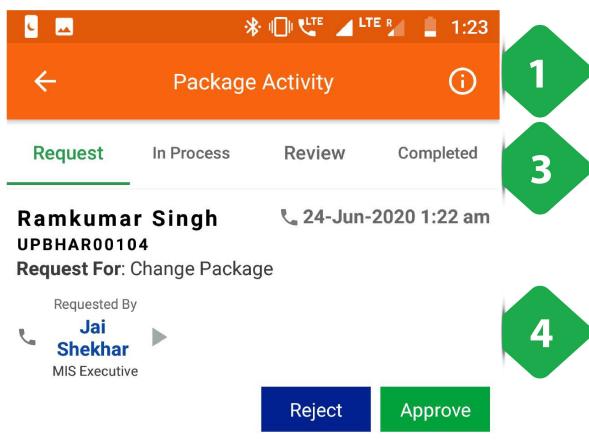
Designation	Main Purpose	Example Use Case
Technician	To implement package changes requested by customers	Reviewing the list of customers who require up/downgrades to their connection
CSA	To register and view package change requests	Registering a change on behalf of a customer who isn't using the customer smartphone app

Cluster In-charge	To check the number of requests and assign to field personnel	Notifying a field agent that they are responsible for following up with the customer
State In-charge	To check the number of requests at plants in the state	Checking how many package change requests are pending and at which plants

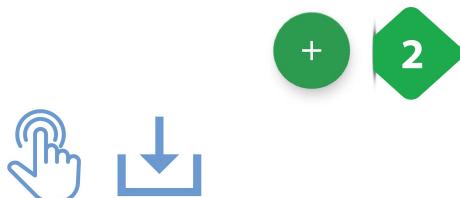
Page Details

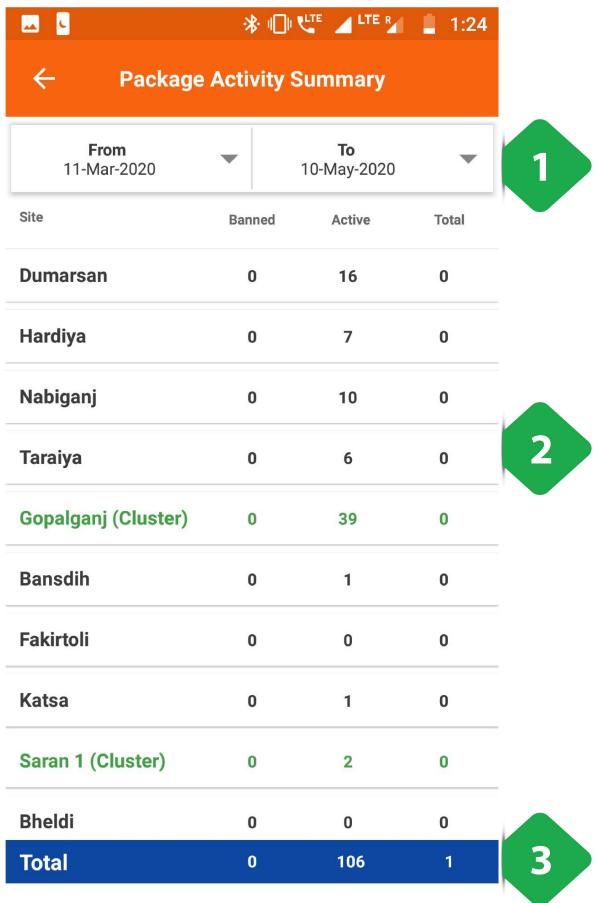
*Request	*In Process	*Review	*Completed
Information on package request	Lists requests that are being worked on	Completed requests that are awaiting approval	Details of historical package requests

3.6.2.1. Request tab



1. Information Icon redirects to a plant-by-plant package activity summary, explained in the next screenshot
2. Add Package Activity redirects to the add package activity page explained below
3. Navigation Bar used to navigate between the Active consumer column and the Banned consumer column
4. Package Change Request Tab that gives relevant details on the latest package change requests





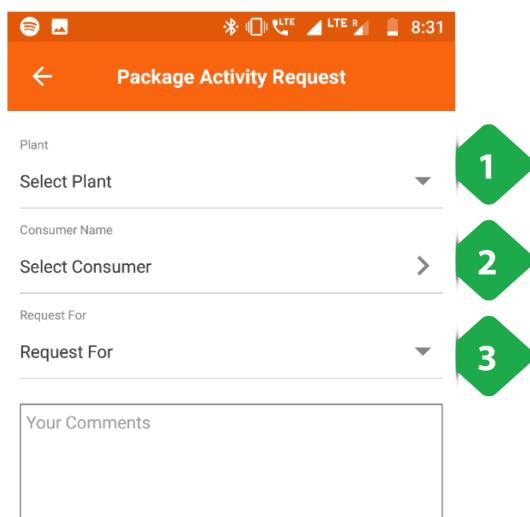
1. Filter Bar selects the time interval

2. Plant List with data on the number of banned and active customers in the time interval

3. Total Bar aggregating the columnar data in the table

Site	Banned	Active	Total
Dumarsan	0	16	0
Hardiya	0	7	0
Nabiganj	0	10	0
Taraiya	0	6	0
Gopalganj (Cluster)	0	39	0
Bansdih	0	1	0
Fakirtoli	0	0	0
Katsa	0	1	0
Saran 1 (Cluster)	0	2	0
Bheldi	0	0	0
Total	0	106	1

Tapping the information icon redirects to the Package Activity Summary



1. Select Plant from a dropdown list

2. Select Consumer for whom the request is being added

3. Request For for the particular service

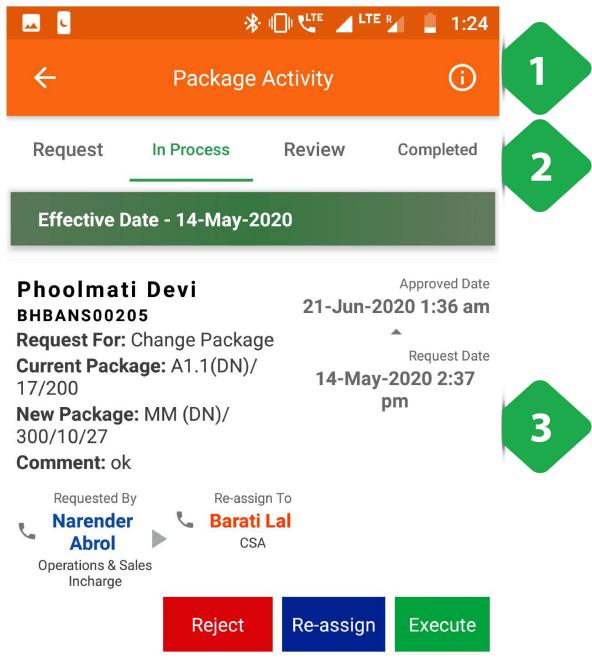
4. Submit Button finalises and logs the request



Tapping the add package activity icon redirects to Package Activity Request

1. Select Plant from a dropdown list
2. Select Consumer for whom the request is being added
3. Request For for the particular service
4. Submit Button finalises and logs the request

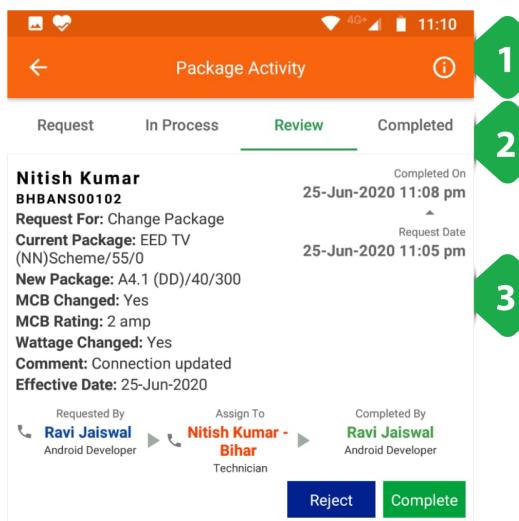
3.6.2.2. In Process tab



1. Information Icon redirects to a plant-by-plant package activity summary
2. Navigation Bar for switching between tabs
3. Request Details provides relevant details on the request, including who is tasked with dealing with it

The request can be Rejected, Re-assigned or executed (Processed) using the buttons at the bottom

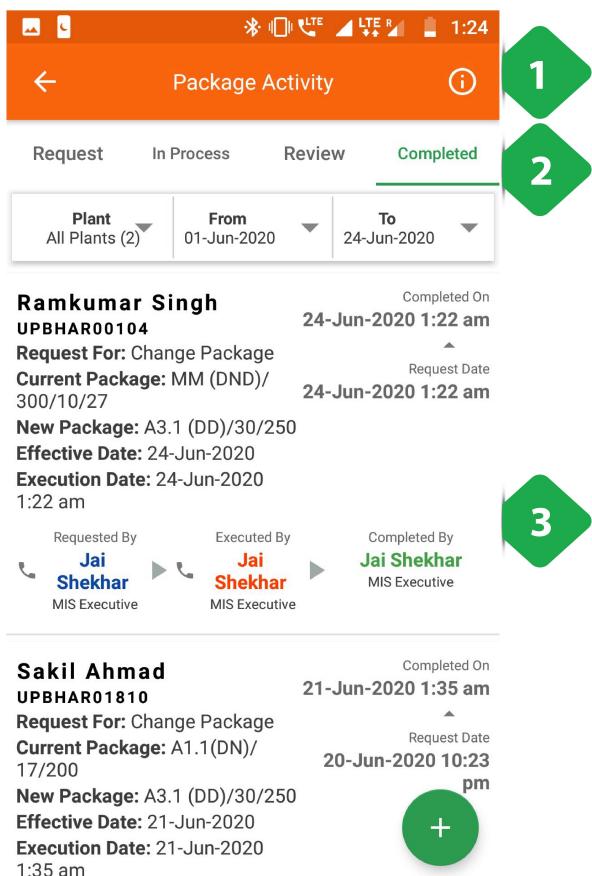
3.6.2.3. Review tab



1. Information Icon redirects to a plant-by-plant package activity summary
2. Navigation Bar for switching tabs
3. Request Details provides relevant details on the completed request that must be reviewed, including the personnel responsible for executing each stage of the process

Tapping Complete will close the request and add it to the historical database, while Reject re-opens it and notifies the relevant personnel.

3.6.2.4. Completed tab



1. Information Icon redirects to a plant-by-plant package activity summary
2. Navigation Bar for switching tabs
3. Request Details provides relevant details on each historical completed request in the time period in question

3.6.3. Scheme

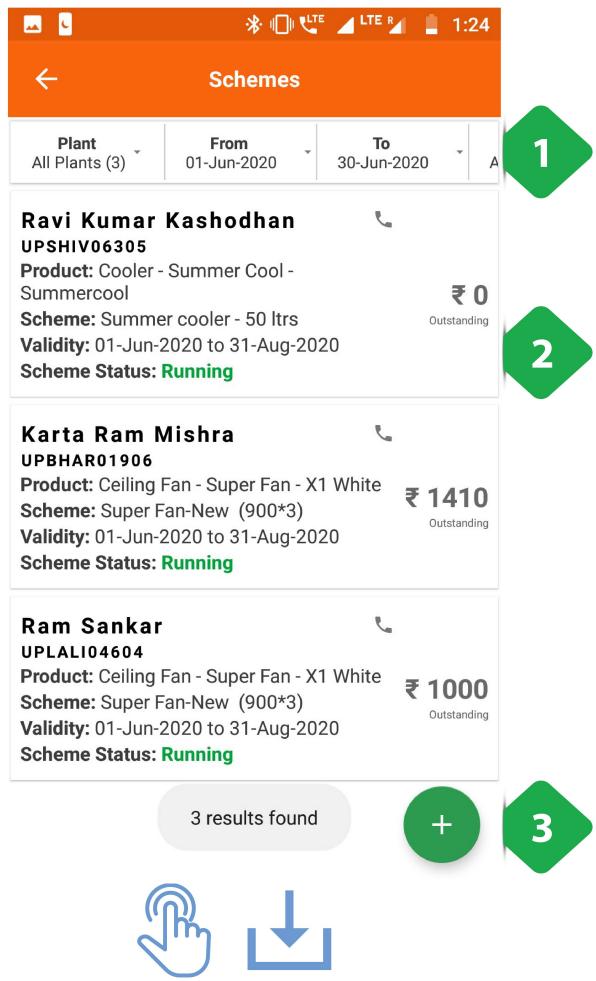
Functionality

- List of customers who are participating in a promotional scheme which offers electrical appliances along with an electricity connection
- Option to add new customers to a scheme

Key Users

Designation	Main Purpose	Example Use Case
CSA	To check the list of participating customers	Enrolling a customer in a scheme upon their request
Cluster In-charge	Same as CSA	Checking which customers are falling behind on their scheme repayments
State In-charge	To assess the schemes ongoing within the state	Assessing the popularity of different schemes

Page Details



The screenshot shows a mobile application interface for managing consumer schemes. At the top, there is a filter bar with fields for 'Plant' (All Plants (3)), 'From' (01-Jun-2020), 'To' (30-Jun-2020), and a search bar. Below the filter bar, three consumer entries are listed:

- Ravi Kumar Kashodhan**
UPSHIV06305
Product: Cooler - Summer Cool - Summercool
Scheme: Summer cooler - 50 ltrs
Validity: 01-Jun-2020 to 31-Aug-2020
Scheme Status: **Running**
Outstanding: ₹ 0
- Karta Ram Mishra**
UPBHAR01906
Product: Ceiling Fan - Super Fan - X1 White
Scheme: Super Fan-New (900*3)
Validity: 01-Jun-2020 to 31-Aug-2020
Scheme Status: **Running**
Outstanding: ₹ 1410
- Ram Sankar**
UPLALI04604
Product: Ceiling Fan - Super Fan - X1 White
Scheme: Super Fan-New (900*3)
Validity: 01-Jun-2020 to 31-Aug-2020
Scheme Status: **Running**
Outstanding: ₹ 1000

At the bottom of the list, there is a message '3 results found' and a green circular button with a '+' sign. To the right of the list, there are two icons: a hand with a call icon and a download icon.

1. Filter Bar narrows results by plant, time frame, scheme type, and customer status:
2. List of Customers registered for different schemes, along with important information and the amount still to be paid
A consumer can be called by tapping
3. Add Scheme redirects to a page for enrolling customers, as shown in the next screenshot



Plant
Select Plant

Consumer Name
Select Consumer

Product
Select Product

Brand
Select Brand

Model
Select Model

Quantity
Select Quantity

Serial Number

Confirm

Cancel **Add**



4. Add Customer Information
 5. Submit the information to generate a scheme code for the customer

3.6.4. Product Inventory

Functionality

- Displays all the electrical appliances (for customer schemes) in the company's warehouse

Key Users

Designation	Main Purpose	Example Use Case
Operator	To view available appliances in the company warehouse	Checking on behalf of a customer whether a particular appliance is available as part of a scheme
Technician	Same as Operator	Same as Operator
CSA	Same as Operator	Same as Operator
Cluster In-charge	Same as Operator	Requesting purchase of an appliance which is in demand
State In-charge	Same as Operator	Checking inventory levels and whether new purchase orders are required

Page Details

1

Total	Available	Assigned	Fresh	Defective
689	14	658	672	17

2

Product	Available Qty: 2	Purchase Qty: 3
LG - GLB201APZY Refrigerator - Bihar		
Summer Cool - Summercool Cooler - UP	Available Qty: 3 Purchase Qty: 10	
Super Fan - X1 White Ceiling Fan - UP	Available Qty: 3 Purchase Qty: 25	
LG - GL-B20 APZY APZZEBN Refrigerator - UP	Available Qty: 2 Purchase Qty: 5	
LG - 32LK526 TV - Bihar	Available Qty: 2 Purchase Qty: 30	

3

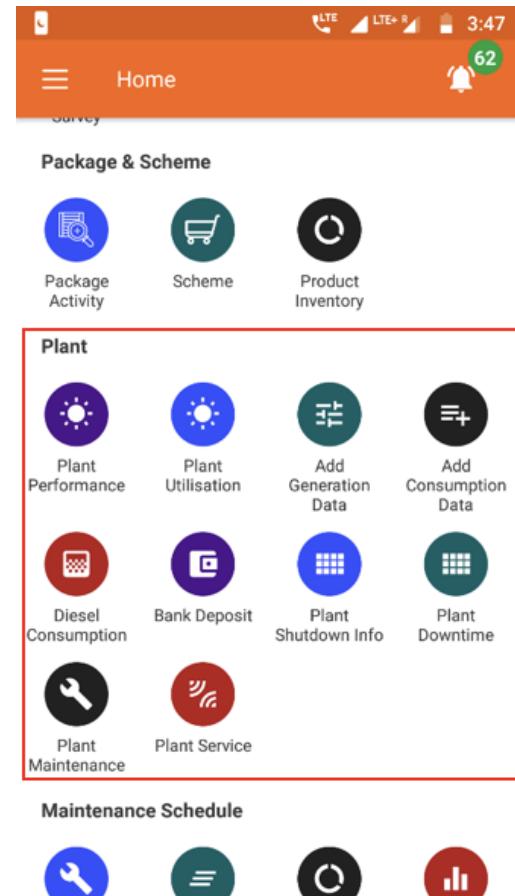
1. Filter Bar allows selection of state and type of product
2. Information Bar gives an overview of the product list
3. Product List shows information on each type of product in the inventory, including number currently available and location

3.7. Plant

3.7.1. Overview

The section consists of the following functionalities:

	Plant Performance Plant technical performance metrics
	Plant Utilization Plant technical performance metrics
	Add Generation Data Record and submit plant generation data
	Add Consumption Data Record and submit plant consumption data
	Diesel Consumption Record and submit diesel consumption
	Bank Deposit Bank deposits and plant cash balance
	Plant Shutdown Information Remote access to plant shutdowns
	Plant Downtime Overview plant downtime details
	Plant Maintenance Record plant maintenance activities
	Plant Service Overview status on plant service request



3.7.2. Plant Performance

Functionality

- The Plant Performance Section summarises technical performance metrics for each plant

Key Users

Designation	Main Purpose	Example Use Case
Operator	To check data logs for a particular plant	Ensuring that the database agrees with ground measurements
Technician	To assess the performance of	Calculating in-plant and distribution efficiency

	the equipment at the plant	
CSA	To check units sold in a particular timeframe	Comparing units sold in one month with the previous month
Cluster In-charge	To compare technical performance of multiple plants	Same as Technician
State In-charge	Same as Cluster In-charge	Calculating the utilisation of the plant to inform whether more customers should be connected

Page Details



1. Filter Bar selects a time interval
2. List of Plants and associated technical information, including:
 - Plant PV capacity
 - Units generated, dispatched, and billed
 - Solar generation utilisation
 - In-plant and distribution efficiencies
3. Total Bar aggregates the columnar values

Tapping a plant opens an option of viewing detailed generation or dispatch ("consumption") data. This is explained in the next screenshots.

Generation Data



Generation Data - Nabiganj

Max PV Generation - 2020-04-20(53.25) :: Min PV Generation - 2020-04-11(28.71)

Date	Total	DG	PV Sub Total	MPPT 1	MPPT 2	MPPT 3	MPPT 4	MPPT 5	MPPT 6	MPPT 7
20-Apr-20	53.25	0.00	53.25	7.27	4.18	7.99	5.56	5.43	14.10	5.56
19-Apr-20	30.59	0.00	30.59	3.34	1.71	4.19	2.77	2.43	11.49	2.20
--	--	--	--	--	--	--	--	--	--	--

The energy generated at a particular plant is shown date-wise

The number of PV MPPTs will differ from plant to plant

Consumption Data



Consumption Data - Taraiya

Max Consumption - 2020-04-16(43.00) :: Min Consumption - 2020-04-15(6.00)

Date	Total	FEEDER1	FEEDER2	FEEDER4	FEEDER6
	Plant (DN)	Consumer (DD) [10am-8pm]	Consumer (NN) [5pm-11pm]	Consumer (DN) [10am-11pm]	
22-Apr-2020	24.00	1.00	1.00	2.00	20.00
21-Apr-2020	24.00	2.00	2.00	1.00	19.00
--	--	--	--	--	--

The energy dispatched ("consumed") from a particular plant is shown date-wise

The number of feeders will differ from plant to plant

3.7.3. Plant Utilisation

Functionality

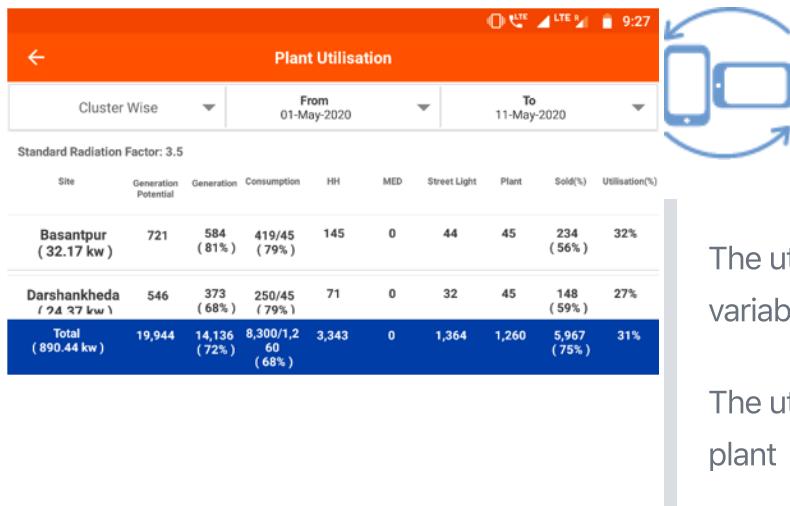
- The Plant Utilisation Section summarises technical performance metrics and energy consumption for each plant
- This functionality is only available for HCLF agents

Key Users

Designation	Main Purpose	Example Use Case
Technician	To assess the performance of equipment at the plant	Calculating in-plant and distribution efficiency

Cluster In-charge	To check units consumed by different user groups	Comparing month-on-month electricity demand from micro-enterprises
State In-charge	To compare technical performance of multiple plants	Calculating the utilisation of the plant to inform whether more customers can be connected

Page Details



The utilization data for each component and variable is showcased.

The utilization percentage will differ from plant to plant

3.7.4. Add Generation Data

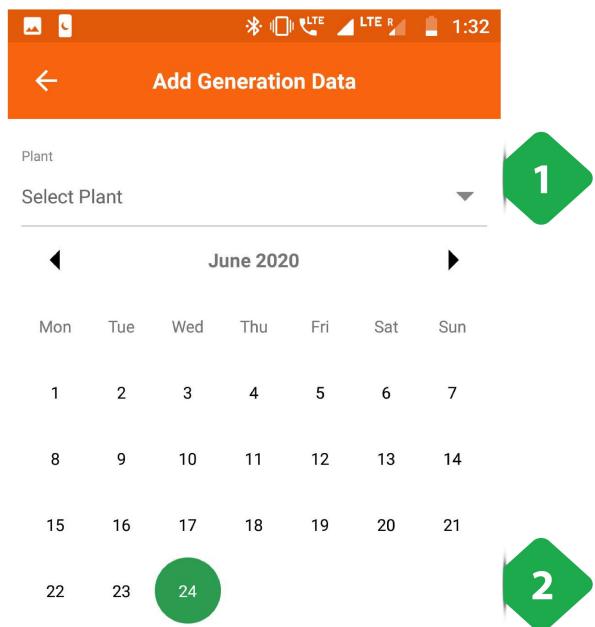
Functionality

- The Add Generation Data module allows the user to input energy generation data into the company database

Key Users

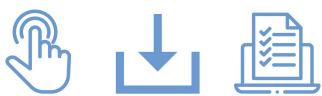
Designation	Main Purpose	Example Use Case
Operator	To add generation data for a particular date	Reading units generated at each solar MPPT daily, and recording in the app
Technician	Same as Operator	Same as Operator
Cluster In-charge	Same as Operator	Same as Operator
State In-charge	Same as Operator	Same as Operator

Page Details



1. Plant Selection must be done as the first step
2. Date Selection for data input (only the dates with orange dots can be selected, and the oldest data must be entered first)

Tapping the desired date redirects to the data addition page shown in the next screenshot



1:33

← Add Generation Data

Plant: Bhedi (BHBHLD)
Selected Date: 24-May-2020

MPPT 1
Last Reading: 4.83 Last Updated On: 05-May-2020
Enter New Reading

MPPT 2
Last Reading: 4.97 Last Updated On: 05-May-2020
Enter New Reading

MPPT 3
Last Reading: 8.17 Last Updated On: 05-May-2020
Enter New Reading

MPPT 4
Last Reading: 4.46 Last Updated On: 05-May-2020
Enter New Reading

MPPT 5
Last Reading: 5.61 Last Updated On: 05-May-2020

...

1. Generation Data Entry is done MPPT-wise
2. Data Header consisting of the plant and date are given at the top of the page

2

1



1. Confirm and Submit having checked the accuracy of the entered data

9:29

← Add Generation Data

MPPT 8
Last Reading: 2.27 Last Updated On: 26-Apr-2020
Enter New Reading

MPPT 9
Last Reading: 1.79 Last Updated On: 26-Apr-2020
Enter New Reading

MPPT 10
Last Reading: 3.22 Last Updated On: 26-Apr-2020
Enter New Reading

DG
Last Reading: 123.4 Last Updated On: 26-Apr-2020
Enter New Reading

Same as last reading

Confirm

1

3.7.5. Add Consumption Data

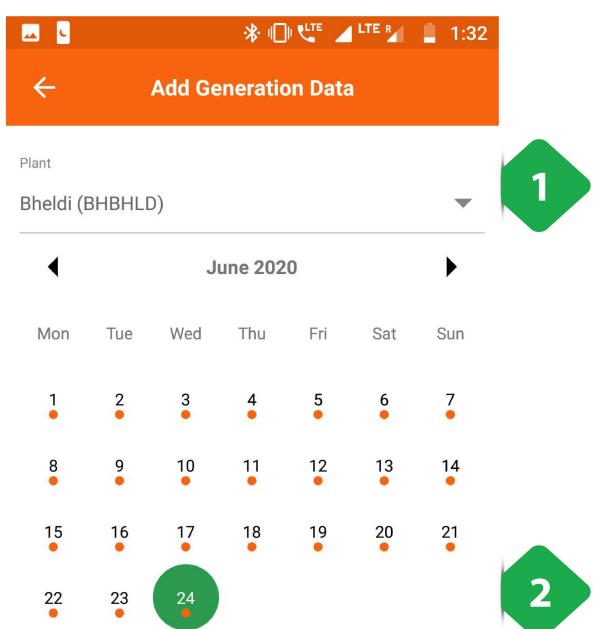
Functionality

- The Add Consumption Data module allows the user to input energy dispatch data into the company database

Key Users

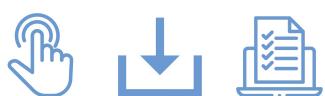
Designation	Main Purpose	Example Use Case
Operator	To add dispatch data for a particular date	Reading units through each feeder daily, and recording in the app
Technician	Same as Operator	Same as Operator
Cluster In-charge	Same as Operator	Same as Operator
State In-charge	Same as Operator	Same as Operator

Page Details



- Plant Selection must be done as the first step
- Date Selection for data input (only the dates with orange dots can be selected, and the oldest data must be entered first)

Tapping the desired date redirects to the data addition page shown in the next screenshot



1. Data Header consisting of the plant and date are given at the top of the page
2. Consumption Data Entry is done feeder-wise, with details of the previous reading shown for reference
3. Confirm and Submit having checked the accuracy of the entered data

3.7.6. Diesel Consumption

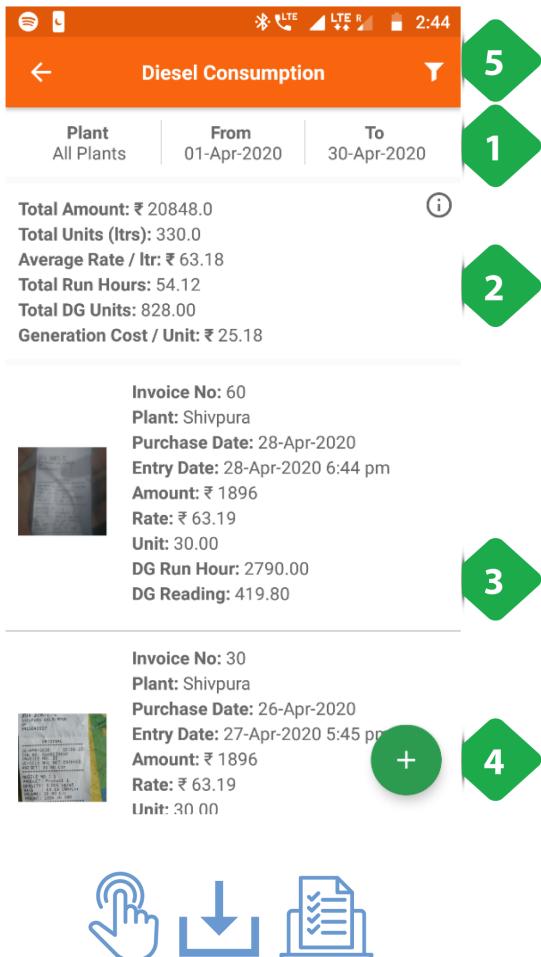
Functionality

- The Diesel Consumption Section allows the user to input details on plant fuel expenses, along with photos of receipts
- Past expenses and DG usage data can also be reviewed
- Fuel bills are to be reimbursed by the Head Office

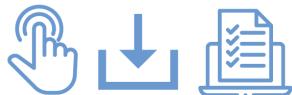
Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To maintain a record of diesel expenses and fuel use	Adding a diesel purchase made at a particular plant within the cluster
State In-charge	To review diesel expenses and DG usage at different plants	Checking for fuel pilferage by comparing fuel efficiencies at different plants / times

Page Details



1. Filter Bar selects a time interval for reviewing fuel expenses and use
 2. Summary gives key data-points surrounding fuel use and expenses
 3. List of Purchases details diesel purchases
 4. Add Consumption Data button allows user to submit a new fuel expense, as explained in a subsequent screenshot
 5. Filter Button has the same functionality as the Filter Bar
- The information icon in the top right redirects to a plant-by-plant comparison, as explained in the next screenshot.



Plant
Select Plant

Purchase Date

Invoice Number

Total Amount

Rate

DG Run Hour

DG Reading

Attachment



The Add Diesel Consumption page allows the user to record new fuel expenses

3. Consumption Data must be added for company records and for reimbursement
4. Invoice Number can be found on the bill
5. Bill Picture must be added as proof



Invoice Number

Total Amount

Rate

DG Run Hour

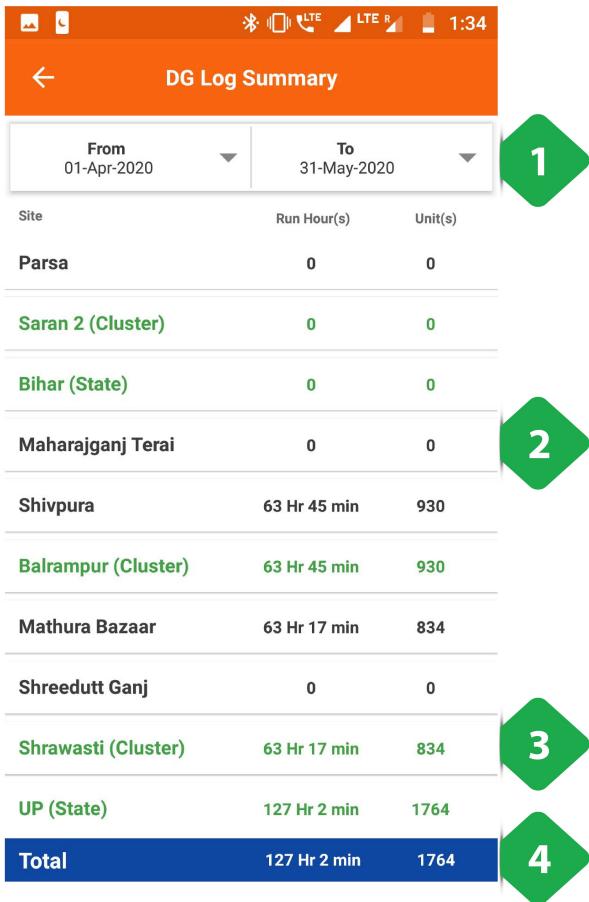
DG Reading

Attachment

Confirm

Submit

4. Confirm must be tapped after information is reviewed
5. Submit tapped to complete data entry



DG Log Summary		
From	To	
Site	Run Hour(s)	Unit(s)
Parsa	0	0
Saran 2 (Cluster)	0	0
Bihar (State)	0	0
Maharajganj Terai	0	0
Shivpura	63 Hr 45 min	930
Balrampur (Cluster)	63 Hr 45 min	930
Mathura Bazaar	63 Hr 17 min	834
Shreedutt Ganj	0	0
Shrawasti (Cluster)	63 Hr 17 min	834
UP (State)	127 Hr 2 min	1764
Total	127 Hr 2 min	1764

This page allows user to view recent diesel expenses for each plant

1. Filter Bar for specifying date of interest
2. List of Plants with monthly data on fuel expenses
3. Green Rows show aggregated cluster data
4. Total Bar aggregates all plants

3.7.7. Bank Deposit

Functionality

- Interface for registering a deposit of collected cash into the company bank account
- Record and summary of past deposits can be viewed, along with in-plant cash records

Key Users

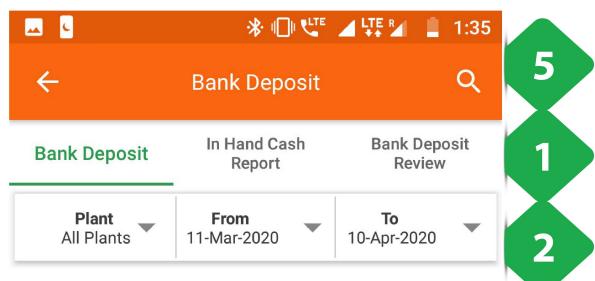
Designation	Main Purpose	Example Use Case
CSA	To register new deposits	Depositing cash collected from customers into the company bank account
Cluster In-charge	To view the cash flow for plants in the cluster	Checking the amount of collected cash is still with field agents and is yet to be deposited
State In-charge	To view the cash flow for plants in the state	Ensuring bank deposits are going through correctly, and are happening on schedule

Page Details

The page is organised into the following tabs.

*Bank Deposit	*In Hand Cash Report	*Bank Deposit Review
Detailed list of historical bank deposits	Plant-wise overview of collections and deposits	Overview of all the bank deposits made and confirmed

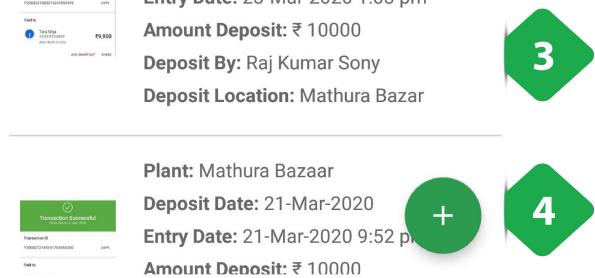
3.7.7.1. Bank Deposit tab



1. Navigation Bar indicates current tab and allows switching by tapping or swiping



2. Filter Bar selects a particular plant and time duration
3. List of Deposits details each bank deposit along with a receipt photo
4. Add Bank Deposit Data redirects to a page that allows the user to input a new bank deposit, shown in the next screenshot
5. Search Icon used to search for a particular record



Plant

Select Plant

Deposit Date

Amount Deposit

Deposit By

Deposit Location

Attachment

Confirm

Submit

1. Bank Deposit Details to be filled by the agent
2. Submit tapped to complete the form

3.7.7.2. In Hand Cash Report tab

Bank Deposit

In Hand Cash Report

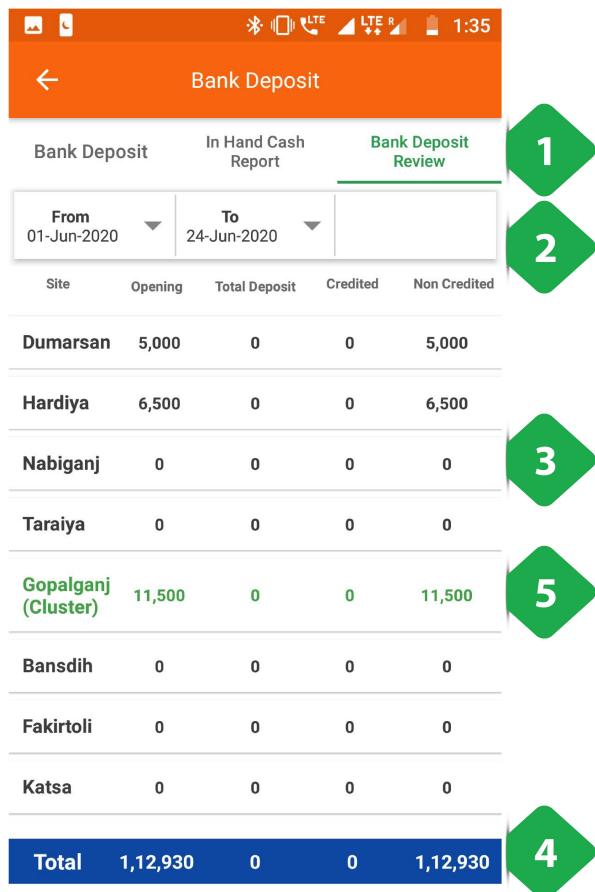
Bank Deposit Review

From 01-Jun-2020 To

Site	Opening	Collection	Deposit	Cash In Hand
Dumarsan	47,397	0	0	47,397
Hardiya	7,463	0	0	7,463
Nabiganj	42,839	0	0	42,839
Taraiya	7,108	0	0	7,108
Gopalganj (Cluster)	1,04,807	0	0	1,04,807
Bansdih	15,386	0	0	15,386
Fakirtoli	16,253	0	0	16,253
Katsa	2,944	0	0	2,944
Total	5,25,021	0	0	5,25,021

1. Navigation Bar indicates current tab and allows switching by tapping or swiping
2. Filter Bar selects a particular time duration
3. List of Plants with total collections, deposits, and amount of cash remaining at the plant
4. Total Bar aggregates over all plants
5. Green Rows aggregate over clusters

3.7.7.3. Bank Deposit Review tab



1. Navigation Bar indicates current tab and allows switching by tapping or swiping



2. Filter Bar selects a particular time duration

3. List of Plants with total deposits registered and deposits received, along with any anomalies

4. Total Bar aggregates over all plants

5. Green Rows aggregate over clusters

3.7.8. Plant Shutdown Info

Functionality

- The Plant Shutdown Info allows the users to manually shutdown a particular feeder at a specific plant

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To temporarily shut down electricity supply	Shutting a feeder down for maintenance, for a specified time duration
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

Page Details



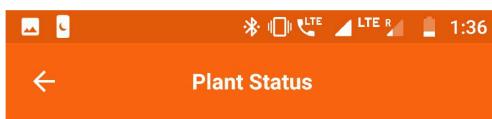
1. Plant Details (plant name and feeder) selected from drop-down lists
2. Submit must be tapped after filling in all the plant details

Plant
Bhardauliya (UPBHAR)

Feeder
Consumer (DN) [9am-11pm]

Confirm

SUBMIT



1. Date Filter must be applied to view the plant status on a particular date
2. Plant Status On tapping a particular date, the user will be redirected to the Plant Feeder Status page explained in the following screenshot
3. Submit must be tapped after filling in all the plant details

Site: Bheldi (BHBHLD)
Feeder: Consumer (NN) [6pm-11pm]

◀ June 2020 ▶

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24				

SUBMIT



Site: Bheldi (BHBHLD)
Feeder: Consumer (NN) [6pm-11pm]

Date: 24-Jun-2020

Please uncheck in case of plant shutdown.

18 - 19	<input checked="" type="checkbox"/>
19 - 20	<input checked="" type="checkbox"/>
20 - 21	<input checked="" type="checkbox"/>
21 - 22	<input checked="" type="checkbox"/>
22 - 23	<input checked="" type="checkbox"/>

1. Feeder Status for a particular date is displayed, the feeders must be individually switched off by unchecking their corresponding checkboxes
2. Submit to complete the process

3.7.9. Plant Maintenance

Functionality

- Allows the users to log technical maintenance activities which have happened at a plant

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To register a plant maintenance activity	Creating a log of DG servicing or PV panel repair
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

Page Details

Plant Maintenance

Plant

Select Plant

Activity Type

Select Activity Type

Date of Activity

Next Schedule Date

DG Run Hour

Activity By

Supervised By

Remark*



1

1. Add Maintenance Activity information (the form updates depending on the type of activity)



Plant Maintenance

DG Run Hour

Activity By

Supervised By

Remark*

Attachment

Confirm

Submit

2. Remark addition to be made by the user to give additional information regarding the issue
3. Attachment photo must be added as a proof of issue

On completion of the data input, confirm and submit to complete the process



3.7.10. DG Log

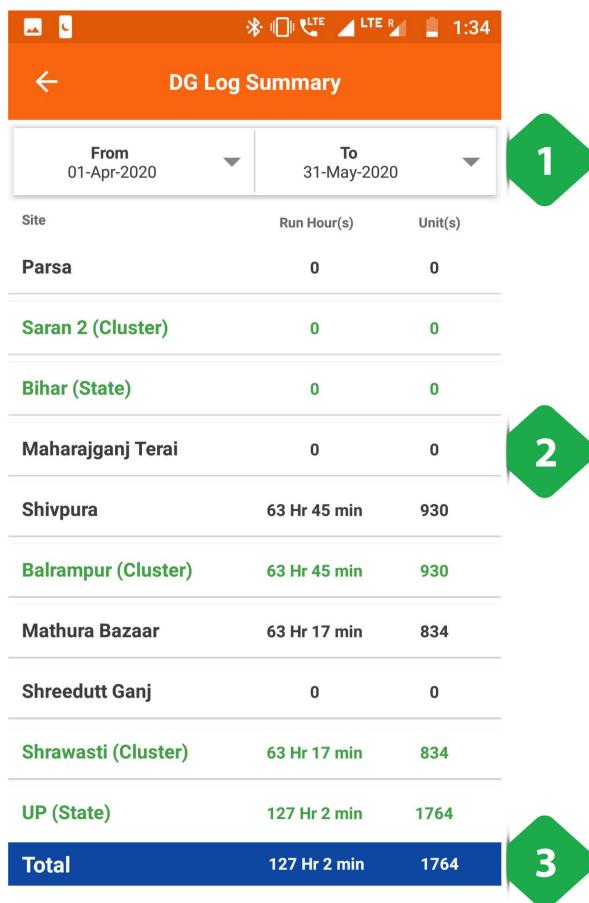
Functionality

- The DG Log Section allows users to track diesel generator performance and runtime

Key Users

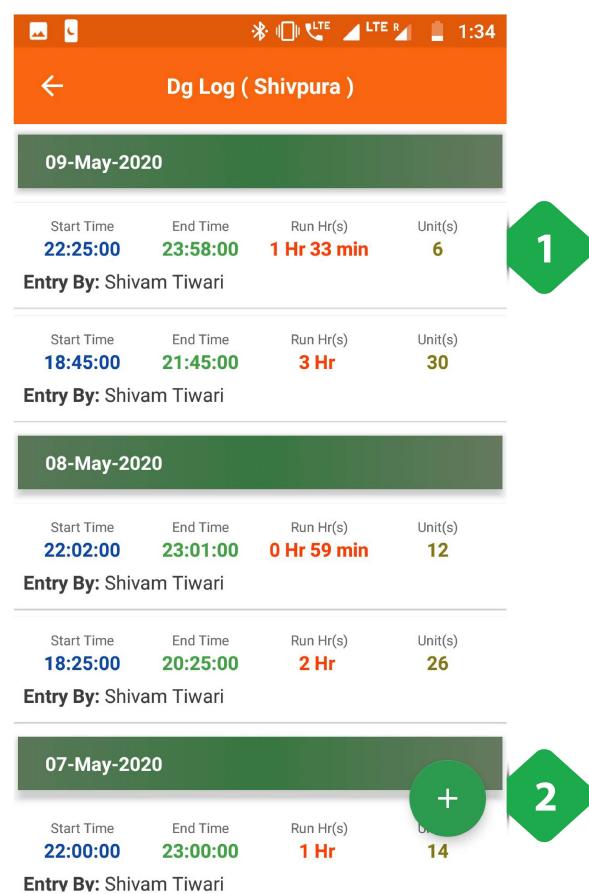
Designation	Main Purpose	Example Use Case
Operator	To log diesel generator runtime and units output	Recording each time the DG is switched on and off
Technician	Same as Operator	Same as Operator
CSA	Same as Operator	Same as Operator
Cluster In-charge	To view generator usage at different plants	Checking how reliance of different plants on backup generators changes over time
State In-	Same as Cluster In-charge	Same as Cluster In-charge

Page Details



From	Run Hour(s)	Unit(s)
01-Apr-2020	0	0
Parsa	0	0
Saran 2 (Cluster)	0	0
Bihar (State)	0	0
Maharajganj Terai	0	0
Shivpura	63 Hr 45 min	930
Balrampur (Cluster)	63 Hr 45 min	930
Mathura Bazaar	63 Hr 17 min	834
Shreedutt Ganj	0	0
Shrawasti (Cluster)	63 Hr 17 min	834
UP (State)	127 Hr 2 min	1764
Total	127 Hr 2 min	1764

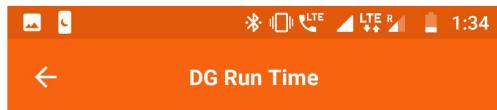
1. Filter Bar for selecting the time period
2. List of Plants showing run hours and units generated in the time interval
3. Total Bar aggregates over all plants



Start Time	End Time	Run Hr(s)	Unit(s)
22:25:00	23:58:00	1 Hr 33 min	6
Entry By: Shivam Tiwari			
Start Time	End Time	Run Hr(s)	Unit(s)
18:45:00	21:45:00	3 Hr	30
Entry By: Shivam Tiwari			
08-May-2020			
Start Time	End Time	Run Hr(s)	Unit(s)
22:02:00	23:01:00	0 Hr 59 min	12
Entry By: Shivam Tiwari			
Start Time	End Time	Run Hr(s)	Unit(s)
18:25:00	20:25:00	2 Hr	26
Entry By: Shivam Tiwari			
07-May-2020			
Start Time	End Time	Run Hr(s)	Unit(s)
22:00:00	23:00:00	1 Hr	14
Entry By: Shivam Tiwari			

Tapping a particular plant redirects to a detailed DG run log

1. DG Log details all instances of DG being run
2. Add DG Log Entry allows users to input DG runtime data, explained in the next screenshot

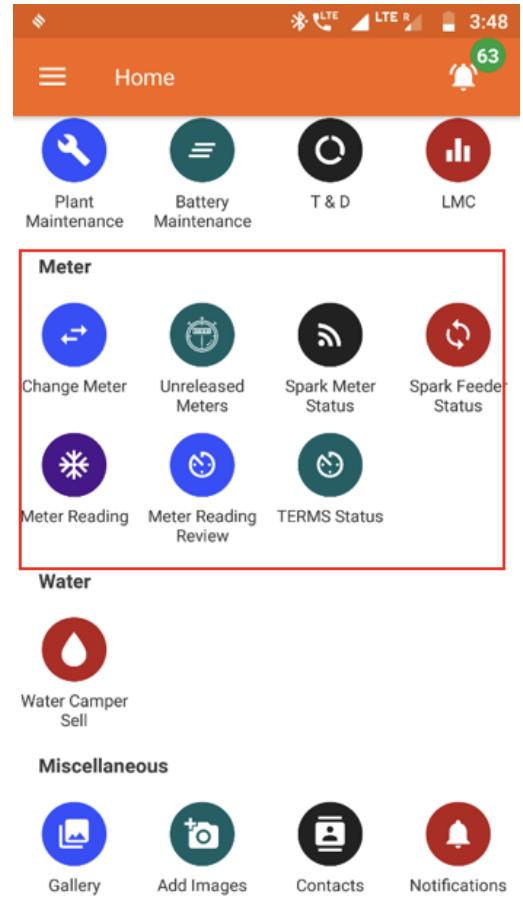


1. DG Logging information added by the user
2. Submit tapped to complete the entry

3.8. Meter

3.8.1. Overview

	Change Meter Review a meter status
	Unreleased Meter Review the status of a meter replacement issue
	Smart Meter Status Review the status of a Smart meter
	Feeder Status Review the status of a feeder
	Meter Reading Enter diesel consumption data
	Meter Reading Review Overview proof of bank deposits
	TERMS Status Review all TERMS meters



3.8.2. Change Meter

Functionality

- Allows users to request replacement of a customer's energy meter

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To request a change of meter for a customer	Registering and switching out a malfunctioning meter
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

Page Details

Plant: Bhardauliya (UPBHAR)

Consumer Name: Ramkumar Singh

Connection Id: UPBHAR00104

Package: A3.1 (DD)/30/250

Meter Number:
Previous Reading: 0
Last Updated Date: 0

Closing Reading: 3

Reason For Change: Meter burned

Add New Meter Number: >

REVIEW



1

1. Customer Information to be input
2. Meter Information will automatically populate, along with option to select anew meter
3. Review tapped to complete the process

2

3

3.8.3. Unreleased Meter

Functionality

- Tracks pending and completed meter change tasks
- These meters are to be unmounted, either because of a malfunction or expiry of the customer's subscription
- The meter is then taken to the warehouse or assigned to a different customer's subscription

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To view pending meter change requests and assign to field agents	Contacting the agent who worked on a particular meter assignment
State In-charge	To view and acknowledge meter changes	Checking the number of pending meter assignments

Page Details

The page is organised into the following tabs

*Pending

View of pending meter requests, assign to agent, and mark completed

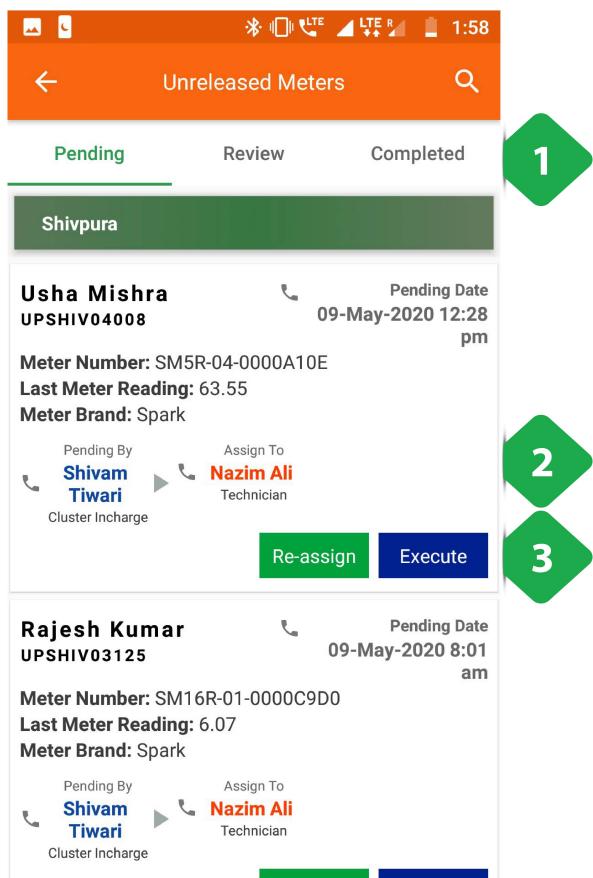
*Review

List of completed meter requests

*Completed

List of historical completed and acknowledged meter requests

3.8.3.1. Pending tab



1. Navigation Bar indicates current tab and allows switching by tapping or swiping



2. Pending Meter List with information on each meter. Agents can be called by tapping on their names

3. Task Buttons are used to allocate tasks to field agents and register the new location of a meter

The task can be either reassigned to a different agent or executed (processed) towards reviewing on completion

3.8.3.2. Review tab

Nitin Kumar
UPSONW07401
Meter Number: 448911
Last Meter Reading: 165.01
Meter Brand: Indotech- MF
Meter Owner: Consumer

Pending By: Lakan Gupta (Cluster Incharge)
Re-assign To: Nitesh Kumar (Technician)

Executed On: 07-May-2020 7:51 am
Pending Date: 02-May-2020 6:50 pm
Executed By: Nitesh Kumar (Technician)

Vinod Kumar Sahu
UPMTTHB05008
Meter Number: SM5R-04-00009FE5
Last Meter Reading: 0.00
Meter Brand: Spark
Meter Owner: Company
Meter Location: Pole
Meter Status: Usable

Pending By: Lakan Gupta (Cluster Incharge)
Assign To: Sanoj Kumar (Technician)

Executed On: 15-Apr-2020 11:47 am
Pending Date: 13-Apr-2020 2:15 pm
Executed By: Sandeep Kumar Singh (Service Incharge)

1. Navigation Bar indicates current tab and allows switching by tapping or swiping



2. Review Meter List with information on each completed meter activity that is pending review
3. Task Buttons used to confirm completed tasks

3.8.3.3. Completed tab

Progressive Public School
BHBHLD05901
Meter Number: SM60R-02-00002EB8
Last Meter Reading: 425.02
Meter Brand: Spark
Meter Owner: Company
Meter Location: Pole
Meter Status: Usable
Comment: OK
Execution Date: 08-May-2020 8:35 am

Pending By: Pashupati Nath Sah (Cluster Incharge)
Executed By: Dharmraj Bishnudeo Singh (State Incharge)

Completed On: 08-May-2020 8:35 am
Pending Date: 04-May-2020 2:21 pm
Completed By: Dharmraj Bishnudeo Singh (State Incharge)

Pradeep Chaudhary
UPBHAR05508
Meter Number: SM16R-01-0000CAF5
Last Meter Reading: 36.11

1. Navigation Bar indicates current tab and allows switching by tapping or swiping



2. Released Meter List with information on each completed meter release activity
3. Filter Bar to narrow results by plant and time interval

3.8.4. Smart Meter Status

Functionality

- Gives limited access to smart meter data
- The user may remotely switch meters on and off from here
- Refer to [Section 3.4.5](#) for more information

3.8.5. Smart Feeder Status

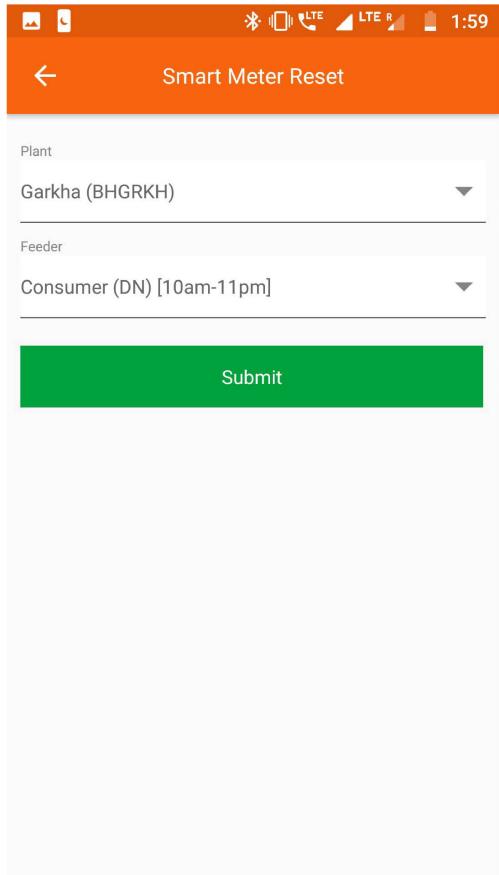
Functionality

- The Smart Feeder Status Section allows a user to reset or change configuration of a Smart Feeder through the application

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	Control the state of the meter for all customers on a particular feeder	Shutting off a large number of meters in case of a technical emergency
State In-charge	Same as Cluster In-charge	Shutting off the meter of a customer whose faulty appliance is impacting the whole distribution network

Page Details



Smart Meter Reset

Plant
Garkha (BHGRKH)

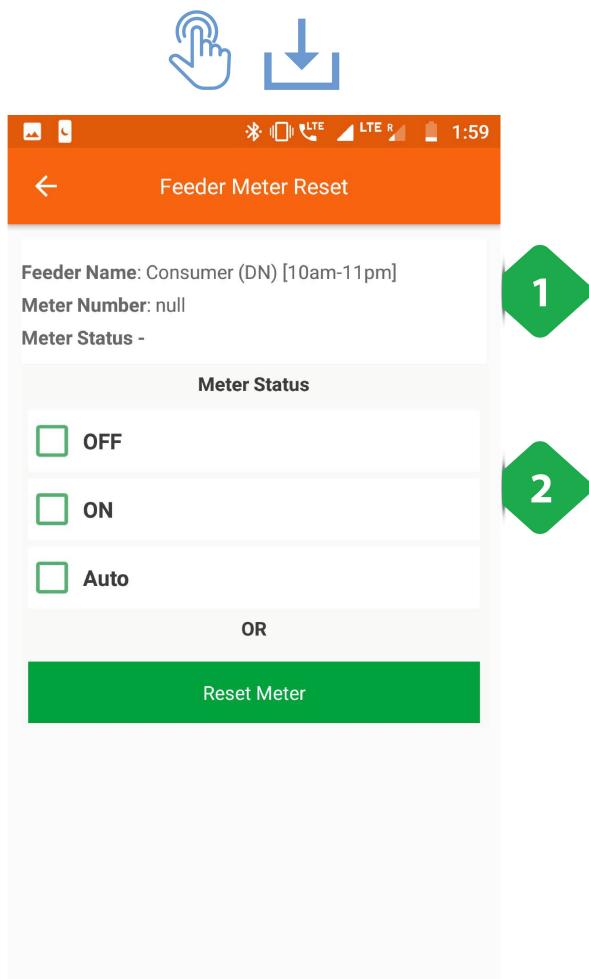
Feeder
Consumer (DN) [10am-11pm]

Submit

This screen shows the initial step of a two-step process. It requires the user to select a plant and a feeder. The 'Submit' button is available for the next step.

1. Enter Details for plant and feeder number
2. Submit to continue to the next page

Note that the feeder entry tab will only show once the plant has been selected



Feeder Meter Reset

Feeder Name: Consumer (DN) [10am-11pm]
Meter Number: null
Meter Status -

Meter Status

OFF

ON

Auto

OR

Reset Meter

Two large green numbered callouts are present: '1' points to the 'Feeder Name' field, and '2' points to the 'Reset Meter' button. Below the screen, two blue icons are shown: a hand with a touch screen and a downward arrow.

1. Feeder Information shown
2. Meter Status can be chosen between:
 - Off
 - On
 - Auto

The user can also reset the meter to its default state by tapping the reset button

3.8.6. Meter Reading

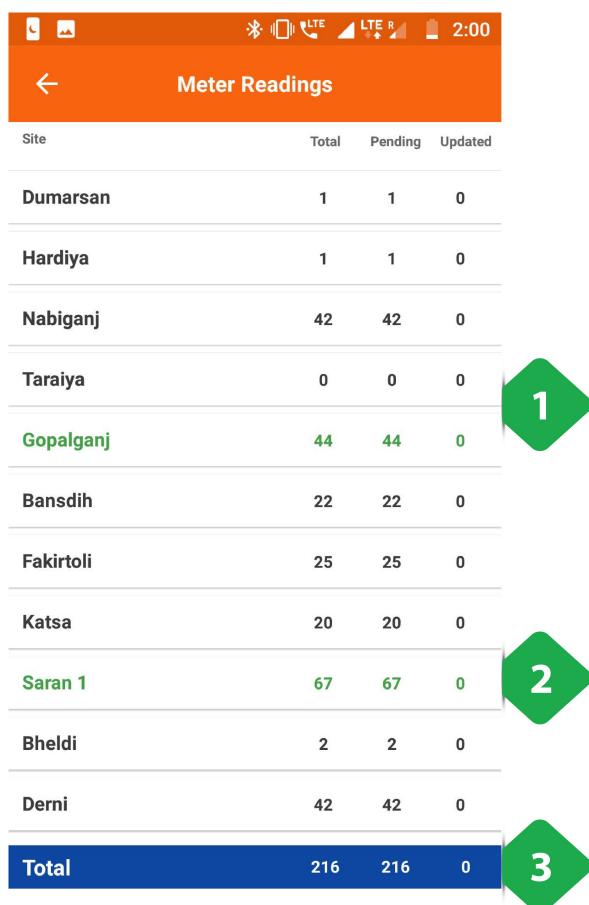
Functionality

- The Meter Reading Section shows the electricity meter readings which are required at each plant

Key Users

Designation	Main Purpose	Example Use Case
Technician	To view which customer meters need to be read	Planning which customers to visit for metering before the end of the month
CSA	Same as Technician	Same as Technician
Cluster In-charge	To check the number of pending meter readings	Contacting field agents to remind them about incomplete meter readings
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

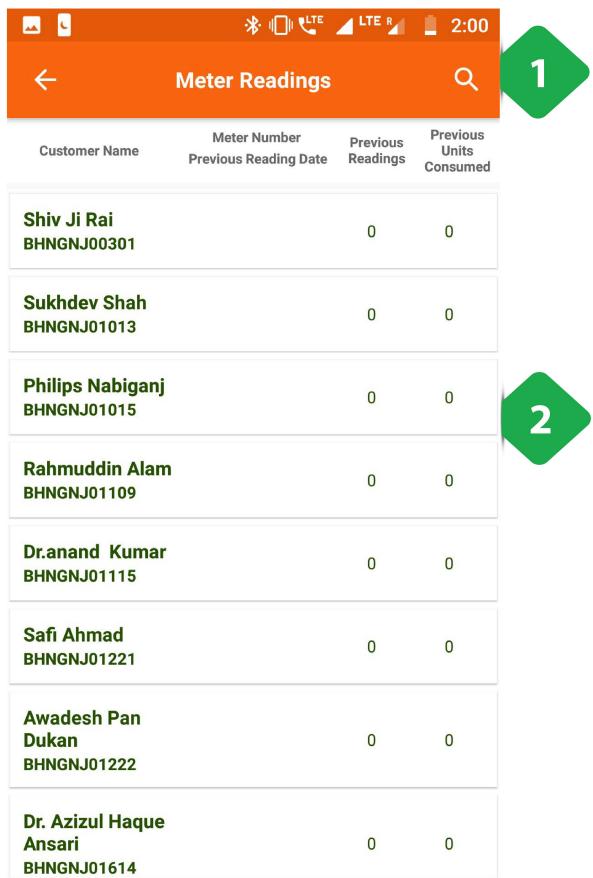
Page Details



Site	Total	Pending	Updated
Dumarsan	1	1	0
Hardiya	1	1	0
Nabiganj	42	42	0
Taraiya	0	0	0
Gopalganj	44	44	0
Bansdih	22	22	0
Fakirtoli	25	25	0
Katsa	20	20	0
Saran 1	67	67	0
Bheldi	2	2	0
Derni	42	42	0
Total	216	216	0

- List of Plants along with number of manually read meters at each plant, and number of meters still pending reading
- Green Rows aggregates data for the cluster
- Total Bar aggregates over all plants

Tapping a particular plant shows the user a list of pending meters, as shown in the next screenshot (note that this functionality is only available after the 24th of the month)



Customer Name	Meter Number	Previous Reading Date	Previous Readings	Previous Units Consumed
Shiv Ji Rai BHNGNJ00301			0	0
Sukhdev Shah BHNGNJ01013			0	0
Philips Nabiganj BHNGNJ01015			0	0
Rahmuddin Alam BHNGNJ01109			0	0
Dr.anand. Kumar BHNGNJ01115			0	0
Safi Ahmad BHNGNJ01221			0	0
Awadesh Pan Dukan BHNGNJ01222			0	0
Dr. Azizul Haque Ansari BHNGNJ01614			0	0

1. Search Icon allows the user to segregate the listed consumers at a plant
2. Consumer List enables the agent to review the consumer consumption history in terms of the previous reading values and the units consumed

3.8.7. Meter Reading Review

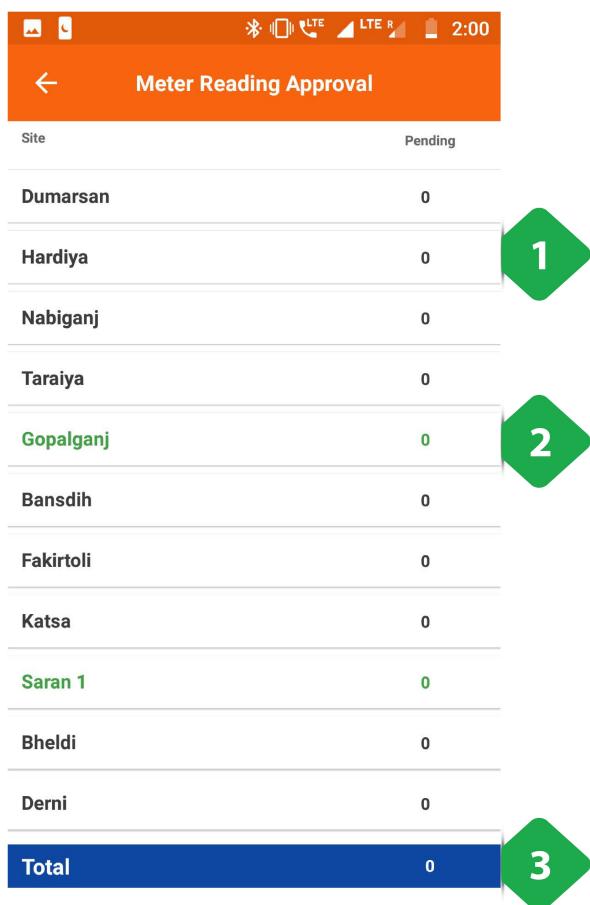
Functionality

- The Meter Reading Review Section displays the number of pending meter readings reviews, plant wise
- The meter reading process is completed by agents at the beginning or end of a month to record the electricity consumption of households that do not have a smart meter

Key Users

Designation	Main Purpose	Example Use Case
CSA	To assess the number of consumers who are yet to undergo the meter reading	Assessing the number of completed reading reviews in a month
Cluster In-charge	To conduct a review on the consumers whose meter readings are still pending	Assessing the number of pending reviews within the cluster
State In-charge	Same as Cluster In-charge	Assessing the number of pending reviews at a plant

Page Details



Site	Pending
Dumarsan	0
Hardiya	0
Nabiganj	0
Taraiya	0
Gopalganj	0
Bansdih	0
Fakirtoli	0
Katsa	0
Saran 1	0
Bheldi	0
Derni	0
Total	0

1. Meter Readings Approvals are shown in a tabular column with relevant data given plant wise
2. Green Rows aggregate the data for each cluster they represent
3. Total Bar aggregates the columnar data

Tapping onto a particular plant will give the user a functionality that is only available after the 24th of every month

3.8.8. TERMS Status

Functionality

- Gives access to smart TERMS meter data
- The user may remotely switch customer meters on and off from here

Key Users

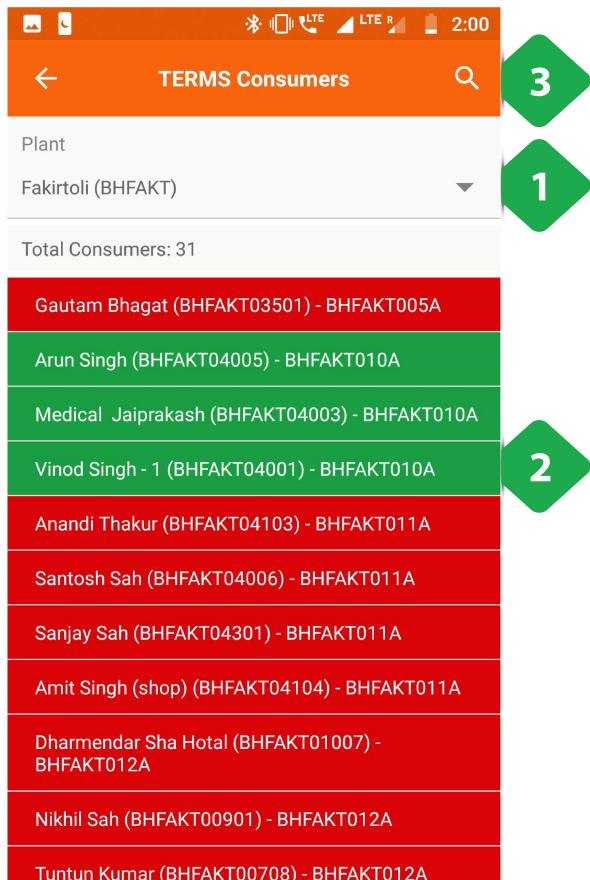
Designation	Main Purpose	Example Use Case
Operator	To access information about and control of a customer's meter	Investigating why a customer meter may have tripped off – e.g. they are deactivated
Technician	Same as Operator	Switching a meter on or off
CSA	Same as Operator	Same as Technician
Cluster In-charge	Same as Operator	Same as Technician

State In-charge

Same as Operator

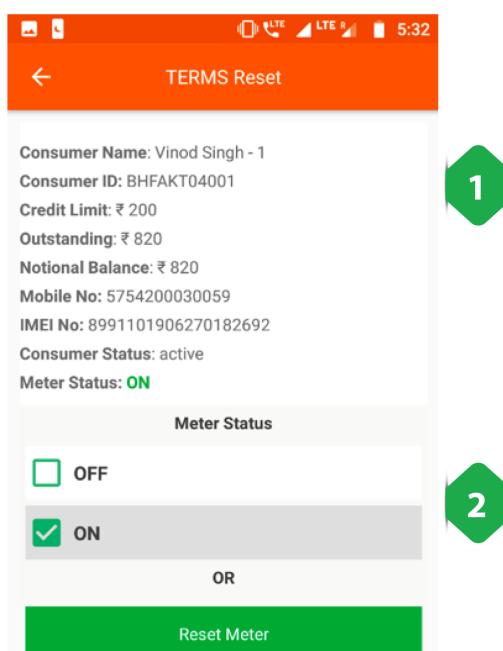
Same as Technician

Page Details



1. Plant Selection must be made for the customer list to show
2. Customer List of a particular plant
 - **Red** - Inactive customer
 - **Green** - Active customer
3. Search Icon used to filter the consumer list by typing in a name or meter number

Tapping a customer redirects to that meter's meter control page, shown in the next screenshot



1. Customer Information provides relevant information on the customer and the assigned TERMS meter
2. Meter Status can be changed by tapping ON, OFF or the Reset button

3.8.9. Battery Maintenance

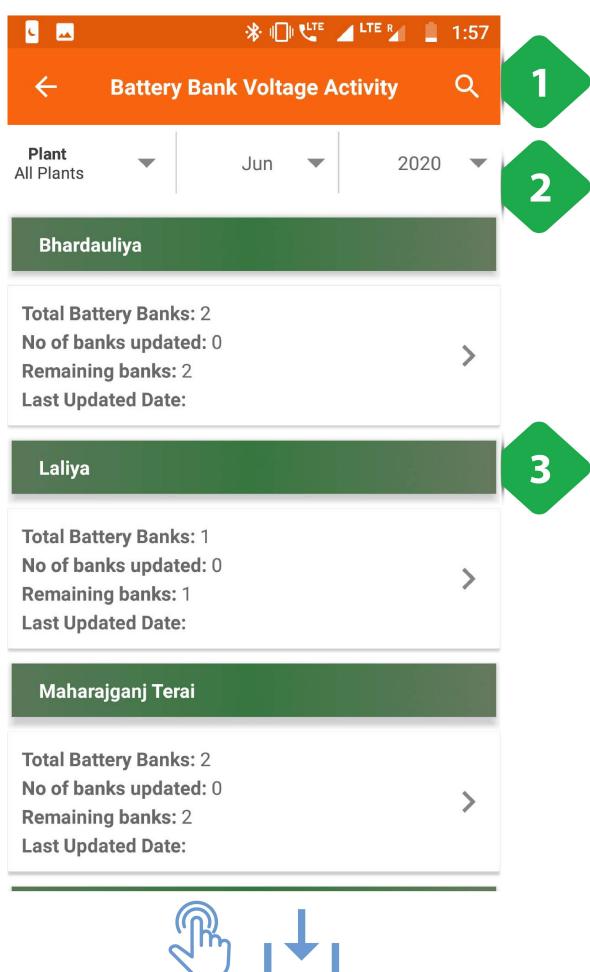
Functionality

- The Battery Maintenance Section gives an overview on the battery banks at every plant
- The section allows the user to switch the battery pack on or off

Key Users

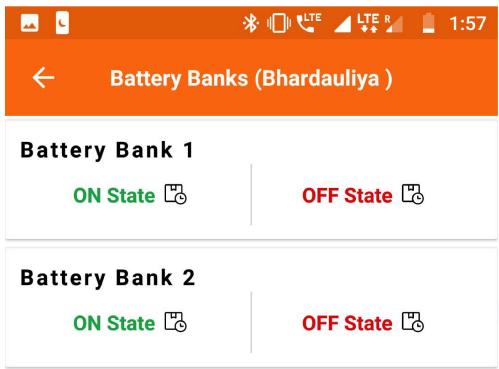
Designation	Main Purpose	Example Use Case
Technician	To change the state of a battery bank	Switching the battery status of a plant between on and off
Cluster In-charge	Same as Technician	Same as Technician
State In-charge	To check which batteries are online	Creating a report on the number of battery packs available at each plant

Page Details



1. Search Icon can be used to filter out the list of plants shown
2. Filter Bar selects a particular plant and time period
3. Plant List displays relevant information on the battery status of each plant

Tapping on a plant tab will redirect the user to the plant's battery bank control page, explained in the next screenshot



1. Battery Bank Status can be used to switch a battery bank at the plant on and off

3.9. Water

3.9.1. Water Camper Sale

Functionality

- Gives an overview of water sales at relevant plants

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To monitor the water sales within the state	Understanding the number and value of water sales at different plants
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

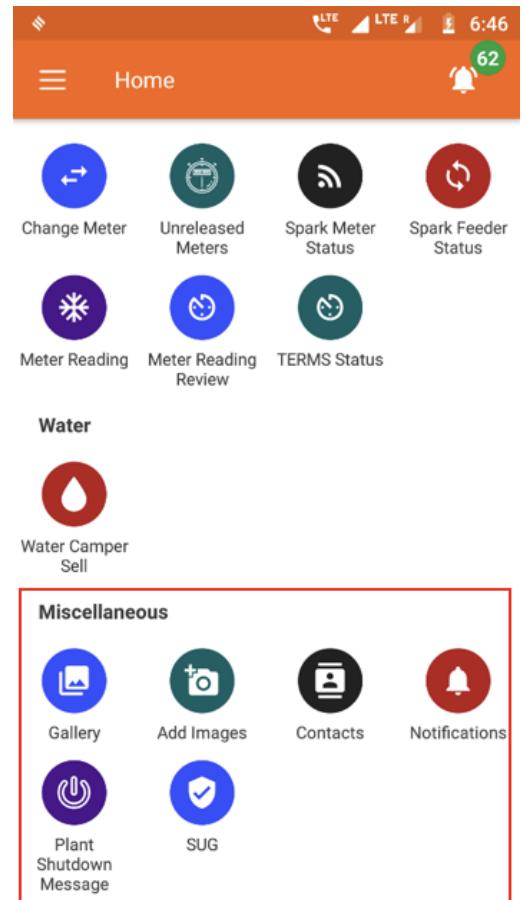
Page Details

Coming Soon

3.10. Miscellaneous

3.10.1. Overview

	Gallery View photos taken at different plants
	Add Images Upload images from plants
	Contacts Search for employee contact details
	Notification View SMS being sent or received
	Plant Shutdown Message Send SMS alerts to customers
	SUG Information to be added



3.10.2. Gallery

Functionality

- The Gallery Section contains images of each plant

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To view pictures from various plants within the state	Viewing photos of an activity at the plant
State In-charge	Same as Cluster In-charge	Showing external stakeholders the plant layout

Page Details



1. Gallery Section used to display pictures from each plant
2. Filter used to display pictures with respect to:
 - Nature of Activity
 - Date

3.10.3. Add Images

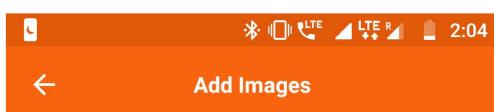
Functionality

- For uploading photos relevant to a particular plant

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To add pictures onto the application data base	To add pictures based on a particular type of an activity
State In-charge	Same as Cluster In-charge	To add pictures from a visit that had taken place to a plant in the state

Page Details



Plant

Select Plant

Activity Date

Nature of Activity



1

1. Add Images along with relevant supporting information
2. Image Upload from the phone gallery or the camera

Note that only 5 images can be added at a time

Attach maximum five images at a time to upload



2

3.10.4. Contacts

Functionality

- Lists every operator working for the company along with their contact details

Navigation

This page is also accessible from the Main Menu: Refer to [Section 3.4.7](#) for details.

3.10.5. Notifications

Functionality

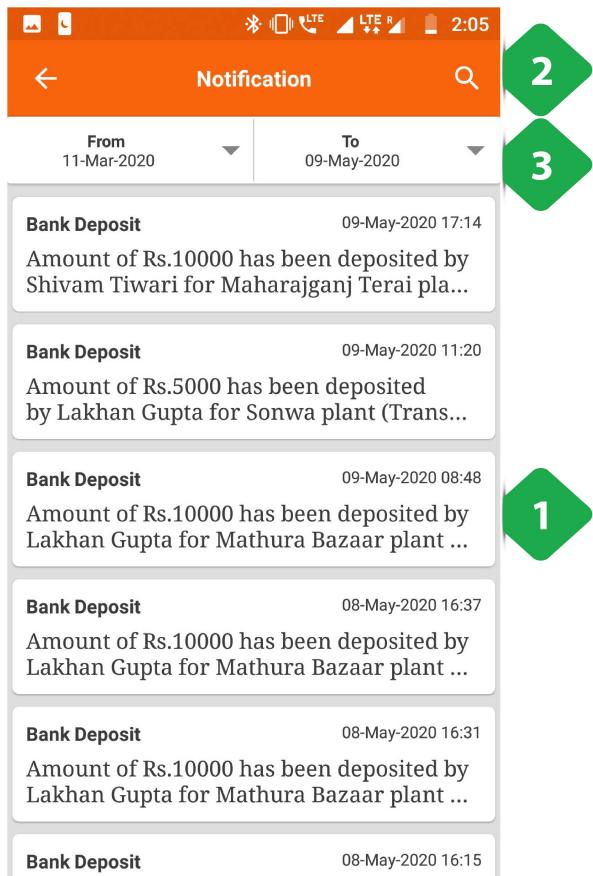
- The Notification Section allows the user to view all the SMS messages that have been sent or received

Key Users

Designation	Main Purpose	Example Use Case

All Employees	Access to the SMS messages sent by the company	To verify an SMS sent by the company even if the agent might have deleted the SMS off the phone memory
---------------	--	--

Page Details



1. Message List displays the content of a particular SMS along with the date and time it was sent
2. Search Icon that helps finding a particular SMS by typing in the topic name
3. Filter Bar used to narrow results displayed by giving from and to dates

3.10.6. Plant Shutdown Message

Functionality

- Allows user to send an SMS to a subset of customers, warning them of a plant shutdown

Key Users

Designation	Main Purpose	Example Use Case
Cluster In-charge	To notify customers at a plant about a scheduled shut down	Messaging all customers that the plant requires maintenance for the next three hours
State In-charge	Same as Cluster In-charge	Same as Cluster In-charge

Page Details

Plant Shutdown SMS

Site

Select Plant

Date

Select Date

Start Time

Select Start Time

End Time

Select End Time

SMS Template

प्रिय ग्राहक, ताराऊर्जा प्लॉट के मैटिनेंस कार्य के लिए आज सप्लाई --:- से --:- तक बंद रहेंगी। असुविधा के लिए खेद है।

Submit

1. Input Details to complete the submission of data to send an SMS
2. SMS Template which describes the message that would be sent
3. Submit sends the message

3.10.7. SUG

Functionality

- The SUG Section identifies and creates consumer pools in various plants
- The section is only available for HCLF agents

Key Users

Designation	Main Purpose	Example Use Case
Operator	Maintaining a report on all the active SUGs at a plant	Reviewing the list of SUG members and contacting the relevant member
CSA	Same as Operator	Same as Operator
Cluster In-charge	Same as Operator	Same as Operator

Page Details

Brahm Dev Ji Saur Urja Samiti
(Basantpur)
A/C No.: 743310110005426
IFS Code: BKID0007433
Branch Name: BOI-Tikari

Shri Bhuihare Baba Saur Urja Samiti
(Bhiri)
A/C No.: 743310110005434
IFS Code: BKID0007433
Branch Name: BOI-Tikari

Bhure Baba Saur Urja Samiti
(Darshankheda)
A/C No.: 743310110005428
IFS Code: BKID0007433
Branch Name: BOI-Tikari

Hari Dev Raja Saur Urja Samiti
(Fatehpur)
A/C No.: 743310110005427
IFS Code: BKID0007433

1. [SUG List](#) showing the SUG name and bank details
2. [Members Button](#) redirects to the list of SUG members, as shown in the next screenshot
3. [Search Icon](#) to find a particular SUG by typing the name



Amphr Amphr
(Admin - HO)
Mobile Number: 1111111111
Email Id: amphr@gmail.com

Cato Sandford
(MIS Executive - HO)
Mobile Number: 8800674659
Email Id: csanford@smartpowerindia.org

Jai Shekhar
(MIS Executive - HO)
Mobile Number: 9113596043
Email Id: jaishekhar130@gmail.com

Manoj Rajawat
(Web Developer - HO)
Mobile Number: 9650081863
Email Id: mk58877@gmail.com

Narender Abrol
(Operations & Sales Incharge - HO)
Mobile Number: 9899895969
Email Id: nabrol@smartpowerindia.org

SUG Member List

1. [Member List](#) contains the name and details of the members of the SUG
The member can be called by tapping
2. [Search Icon](#) used to narrow down the results of the member list by typing

3.11. FAQ

How do I register a customer's payment?

- Navigate to the Receivable module (from the home page or from the main menu).
- From the list, select the customer who is making the payment and tap "Add Transaction".
- Enter the amount paid and for which service the payment is being made.
- A customer receipt can then be generated from the Transaction tab.

How do I update a customer's contact details?

- Access a specific customer's account page through the Customer List module.
- Click the pencil icon next to the relevant section.
- The customer may have to confirm the update through an OTP.

How do I assign a pending task to a field agent?

- Field agents must implement service requests, package changes, meter releases, etc.
- To assign such a task to a particular agent, go to that task's page and select the "pending" tab.
- From the list of pending tasks, locate the one you wish to assign and tap its "reassign" button.
- The field agent may then be selected from a list of available agents. They will be automatically notified of the assignment, and can be contacted through the app for clarification.

How do I identify which customers to approach for billing?

- Navigate to the Receivable module and select a plant.

- Customers are listed along with the amount owed.
- The field agent can sort the list in descending size of bill to prioritise customers

How do I monitor which customer meters to read?

- Meter readings take place towards the end of the month.
- The Meter Reading page itemises the number of pending readings for each plant.
- Selecting a plant will show a list of meters to be read.
- Readings can then be added to each meter.

How do I check the amount of cash held by the field team?

- Go to the Bank Deposit module in the Plant section of the Home Page.
- Select the In Hand Cash tab.
- The amount collected and deposited in the billing period will be shown, along with the amount of undeposited cash held locally.

Chapter 4: Customer App. User guide for the MCOMS Customer App

4.1. Introduction

The customer app gives mini-grid customers detailed access to their account and records, and is the easiest way to avail company promotions or report issues to the field team. It is recommended that all customers with smartphones download and use the app; those without smartphones may use alternative communication channels.

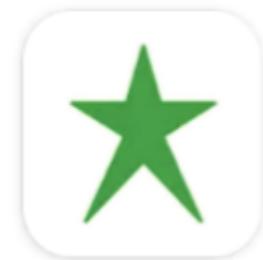
4.2. Installation and Setup

- The field agent app runs on the Android operating system
- Hardware requirements are shown in Table.

Table 2: Customer app hardware requirements.

App version	1.0.9
Operating system	Android
Storage	6.84 MB
Memory	17 kB
Web connectivity	Enabled

- The app can be downloaded from the Google Play store and other app repositories.
 - To locate the app, the user can type “TARAurja” into the search bar.



TARAurja
TARA

- Upon opening the application, the user is prompted for their login credentials, as shown in the screenshot below.



 Login for existing users to

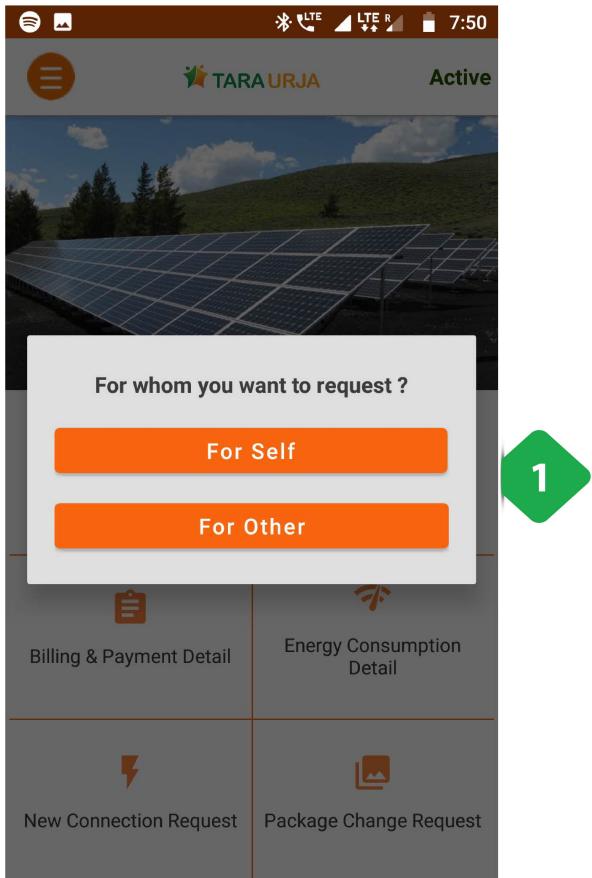
 New Connection Request allows a user to request for a new connection or User account

4.2.1. New Connection Request

Functionality

- Allows the app user to register a request for a new connection or account
- This can be done for the user or on behalf of another

Page Details



1. New Customer Request either for the app user or for someone else

Tapping on either of the two option redirects to a new connection page, explained in the next screenshots

New Connection

Name
HARENDER CHAURASIYA

Mobile Number
9113596043

State
Please select state

Plant
Please select plant

SUBMIT

For Self

1. Data Sheet where the user enters relevant data
2. Verify with OTP button is tapped to trigger OTP sharing via SMS (sent to the submitted phone number). Confirming the OTP completes the process.

New Connection

Name

Mobile Number

Reference Person Name

Reference Person Mobile No

State

Please select state

Plant

Please select plant

VERIFY WITH OTP

For Other

1. Data Sheet where the user enters relevant data
2. Verify with OTP button is tapped to trigger OTP sharing via SMS (sent to the submitted phone number). Confirming the OTP completes the process.

4.2.2. Login

Functionality *The login page allows existing users to securely access their account.

Page Details

New Connection

Name

Mobile Number

Reference Person Name

Reference Person Mobile No

State

Please select state

Plant

Please select plant

VERIFY WITH OTP

For Other

1. Mobile Number registered to the account
2. Log in by tapping the button

4.3. Dashboard

Functionality

- The Dashboard is the homes screen of the app.
- It lays out the various functionalities that can be used by the customer; these are discussed below.

Page Details



	Profile
	Amount Payable
	Bill and Payment Detail
	Package Change Request
	Service Request
	Notification
	Scheme & Offers
	E-Payments

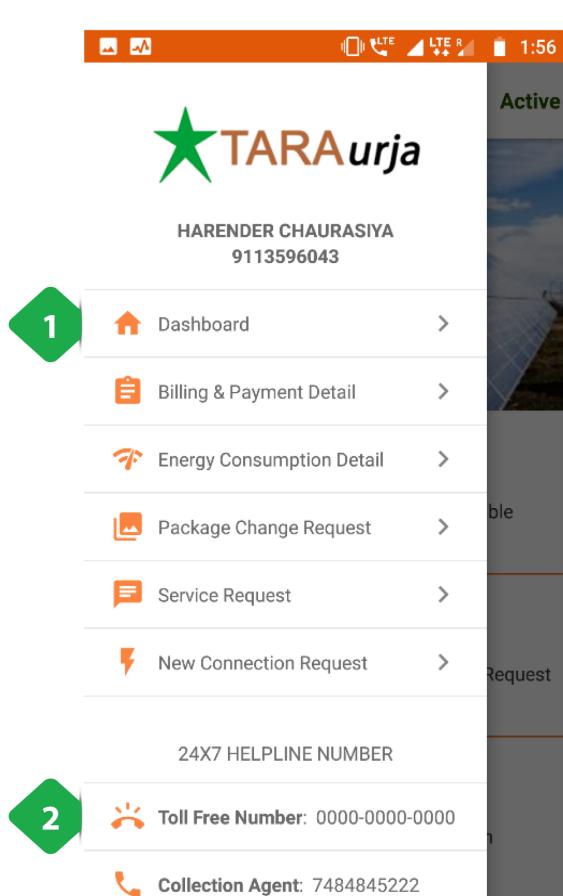
1. Main Menu icon (see Section 0)
2. Status of the consumer: either active or inactive

4.4. Main Menu

Functionality

- The Main Menu can be accessed by tapping on the icon on the top right of the screen
- It provides an alternative method for navigating the app, accessible from several other pages.

Page Details



The screenshot shows the TARAurja mobile application interface. At the top, there is a header with signal strength, battery level, and the time (1:56). Below the header, the TARAurja logo and the customer name HARENDER CHAURASIYA with the ID 9113596043 are displayed. A vertical sidebar on the right is titled 'Active' at the top and 'Request' at the bottom. It lists several menu items with icons: Dashboard (home icon), Billing & Payment Detail (receipt icon), Energy Consumption Detail (thermometer icon), Package Change Request (document icon), Service Request (person icon), and New Connection Request (person icon). A green callout box labeled '1' points to the 'Dashboard' item. Another green callout box labeled '2' points to the '24X7 HELPLINE NUMBER' section, which includes a toll-free number (0000-0000-0000) and a collection agent number (7484845222).

	Dashboard
	Bill and Payment Detail
	Energy Consumption Details
	Package Change Request
	Service Request
	New Connection Request

1. Main Menu Functionalities accessed by tapping

2. Phone Numbers of the central helpline and local customer service agent

The functionality of each Main Menu item / Dashboard item is described in the sections that follow.

4.5. Profile

Functionality

- The Profile page gives the user access to their account details.
- This includes personal information, past payments, and energy consumption.

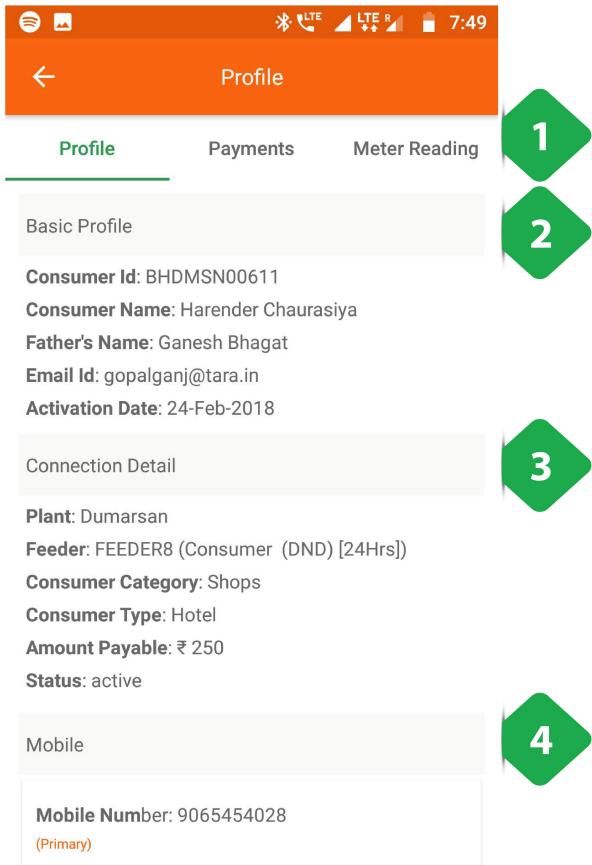
*Profile	*Payments	*Meter Readings
Consists of profile details of the consumer	Chronological list of individual payments	Chronological record of energy consumption

4.5.1. Profile

Functionality

- The Profile section contains important profile information of the user

Page Details



1. Navigation Bar indicates the current tab and allows switching between tabs
 
2. Basic Profile that consists of information on the user
3. Connection Details shows the customer's electricity package details
4. Mobile number linked to the account

4.5.2. Payments

Functionality

- The Payments page gives a chronological record of bills issued to the customer, and payments they have made

Page Details

Receipt No: BHMSN1032321
Date: 09-Jun-2020 5:39 pm
Charges: COUPON,ENERGY
Amount: ₹ 150,400
Total Amount: ₹ 550

Receipt No: BHMSN887949
Date: 10-Mar-2020 8:32 pm
Charges: ENERGY
Amount: ₹ 250
Total Amount: ₹ 250

Receipt No: BHMSN887777
Date: 10-Feb-2020 3:21 pm
Charges: ENERGY
Amount: ₹ 250
Total Amount: ₹ 250

Receipt No: BHMSN887563
Date: 10-Jan-2020 1:47 pm
Charges: ENERGY

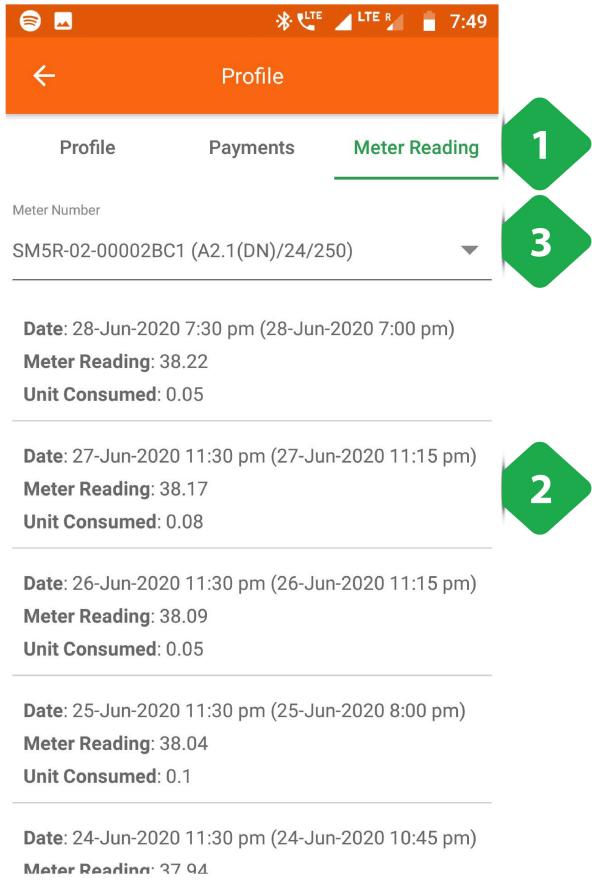
1. Navigation Bar indicates the current tab and allows switching between tabs
2. Payments List itemises and timestamps all payments made by the customer, along with other relevant information concerning the bill

4.5.3. Meter Readings

Functionality

- The Meter Reading page give a chronological list of the customer's energy consumption.
- The frequency of meter readings will vary depending on their connection type.

Page Details



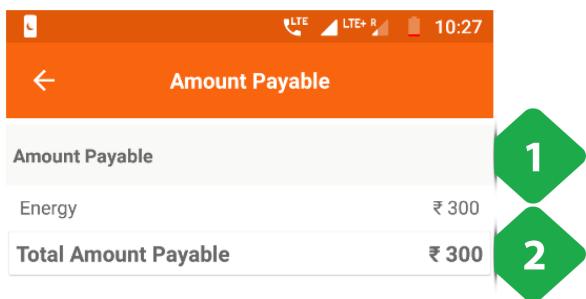
1. Navigation Bar indicates the current tab and allows switching between tabs
2. Meter Reading details shown in a chronological order along with other relevant information concerning the meter reading
3. Meter Number can be chosen in case the customer has multiple connections

4.6. Amount Payable

Functionality

- The Amount Payable section shows the total outstanding amount that the user must pay to the company
- The amount is broken up according to the type of service

Page Details



1. Service Type the user is being charged for
2. Total bar used to aggregate the amount the user must pay to the company

4.7. Billing and Payment Detail

Functionality

- The Billing and Payment Details page details each transaction (credits and debits) registered to the user account.
- The customer's account information is also summarised.

Page Details



The screenshot shows a mobile application interface for 'Billing & Payment Detail'. The top bar is orange with the title 'Billing & Payment Detail'. Below the title, there is a list of consumer details:

- Consumer Id: BHMSN00611
- Consumer Name: Harender Chaurasiya
- Father's Name: Ganesh Bhagat
- Mobile Number: 9065454028
- Email Id: gopalganj@tara.in
- Activation Date: 24-Feb-2018
- Plant: Dumarsan
- Feeder: FEEDER8 (Consumer (DND) [24Hrs])
- Consumer Category: Shops
- Consumer Type: Hotel
- Amount Payable: ₹ 250

Below the details is a table showing transaction history:

Details	Cr	Dr	Bal
Transaction Date: 09-Jun-2020 5:39 pm	400	-	250
Particulars: Collection-Jun, 2020-CHG			
Entry Type: CHG			
Credit By: Priyaranjan Tiwari			
Transaction Date: 09-Jun-2020 5:39 pm	150	-	650
Particulars: Coupon-Jun, 2020			
Entry Type: CHG			

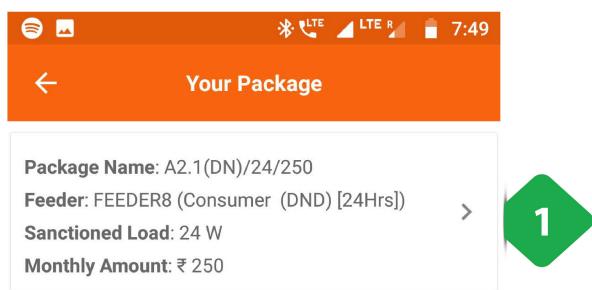
1. Master Information about the user account
2. List of Transactions stating the amounts paid by (debit) and credited to the customer, along with the running balance amount owed

4.8. Package Change Request

Functionality

- The Package Change Request section allows the customer to upgrade or downgrade their electricity package.
- It also lists the customer's past packages.

Page Details



1. Subscribed Package List shows details of past packages

Tapping on the package list item redirects to the change package section, explained in the following screenshot



7:50

Change Package

Package Name: A2.1(DN)/24/250
Feeder: FEEDER8 (Consumer (DND) [24Hrs])
Sanctioned Load: 24 W
Monthly Amount: ₹ 250

New Package
MM (DN)/750/26/27

Sanctioned Load: 1000 W
Min Amount: ₹ 750
Free Units: 26
Unit Rate: 27

Confirm

Cancel Submit

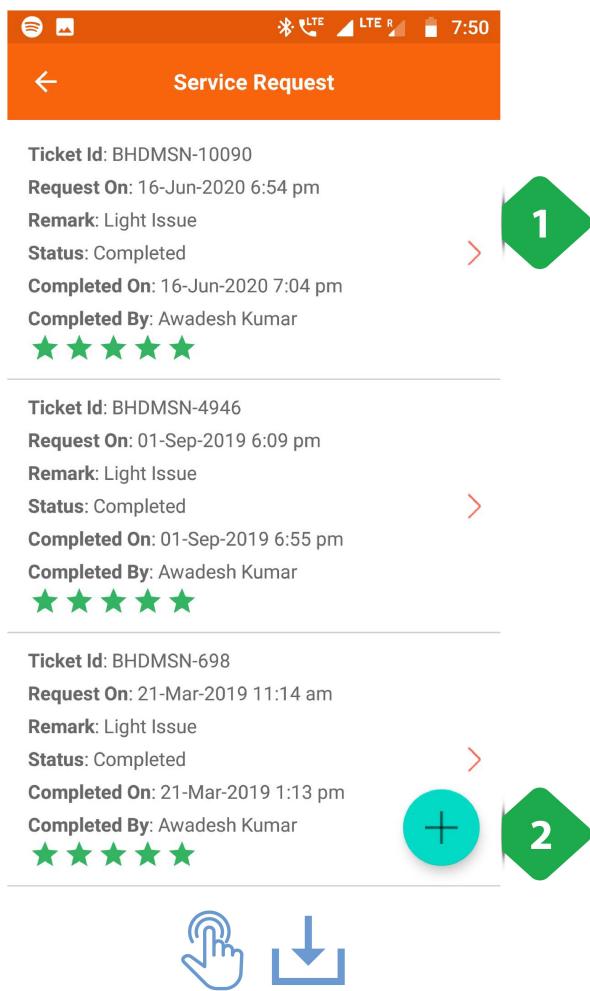
1. Subscribed Package shows details of the current package
2. Select New Package from a dropdown of available packages
3. Submit tapped to complete the request, having (ticked the confirm box)

4.9. Service Request

Functionality

- The Service Request page allows a customer to register a new request with the company
- It also displays a record of past requests

Page Details

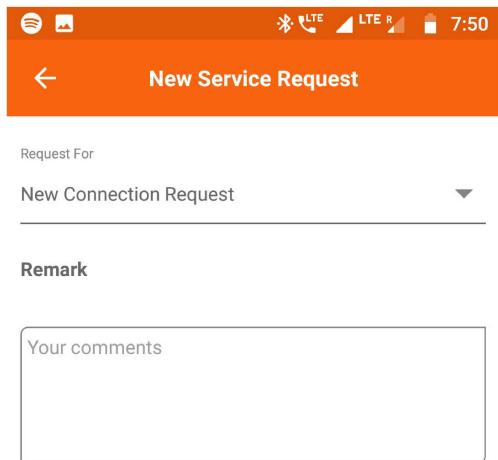


1. Past Service Requests shown chronologically, with relevant information

2. Add Service Request option allows the user to register a new service request

Tapping the Add Service Request will redirect you to the Add Service Request Page explained in the following screenshot





New Service Request

Request For

New Connection Request

Remark

Your comments

SUBMIT

1. Service Request Type selected from a dropdown list
2. Additional Remarks on the nature of the request or problem being faced
3. Submit must be tapped to complete the form; the new request will be logged on the Service Request page

1

2

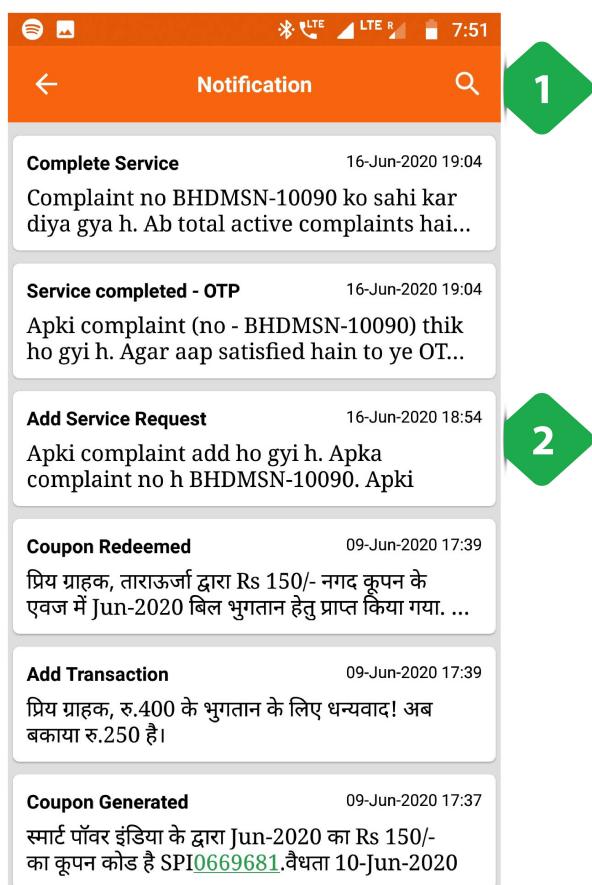
3

4.10. Notification

Functionality

- The Notification page lists all historical communications from the company, including bill alerts, payment receipts, plant shutdown messages, and more.
- The user will also receive SMS copies of the same messages; however, the ones stored here cannot be deleted.

Page Details



1. Search Icon used to filter the messages by typing in key words
2. Message List shows all communications from the company in chronological order

4.11. Schemes and Offers

Functionality

- The Schemes and Offers page allows customers to avail discount coupons.

Page Details



The image shows a mobile application interface for SmartPowerIndia. At the top, there is a header with the company logo and name. Below the header, there is a text box containing a message in Hindi. The main content area contains a text box with a message in Hindi, followed by a 'Coupons' section. The 'Coupons' section features a yellow card with the text 'SPI Coupon' and 'Coupon for June-2020'. It includes the redeem date '09-Jun-2020', the amount '₹ 150', and a status indicator 'Redeemed'.

1. Coupon Details and reason for discounts are shared by the company at the top of the section

1. Coupon List shows dates and amounts of past coupons as well as those which will be available in the future; coupons available now can be tapped to begin redeeming them



4.12. FAQ

How do I contact the local company representative?

- Their number is shown in the Main Menu.
- In an emergency, you should visit the mini-grid plant in person, and the plant operator will assist you.

How do I check my past payments?

- From the home screen Dashboard, select Billing and Payment Detail.
- This shows a complete searchable list of all past transactions.

What do I do if my connection unexpectedly cuts?

- Check the Notifications page for any messages about planned electricity outages.
- Check your balance from the Amount Payable page -- if you have not paid your bill, your connection may be cut automatically.
- Log a service request through the Service Request page by entering the details of the problem, and a company agent will be notified.

Can someone get a connection without the smartphone app?

- Anyone can request a new connection for themselves or for someone else through the smartphone app.
- A company representative will also be happy to assist in creating an account and registering new users.

APPENDICES

A. Glossary

A.1. Terms and Acronyms

Term	Acronym	Definition
Activation charge	ACT	Connection downpayment billed to new customers
Diesel generator	DG	Electricity generators which run on diesel fuel
Dispatch		Energy (kWh) fed into the plant's distribution network
Electricity charge	CHG	Bill amount for electricity consumption
Energy efficient device	EED	An electrical appliance that may be offered by the company to customers as part of a scheme
Equated monthly instalment	EMI	Monthly payments made against a loan or deferred charge
Generation		Energy (kWh) generated by energy sources (solar panels + DG)
Kilowatt	kW	A standard unit of power or load, equal to one thousand watts
Kilowatt-hour	kWh	The energy equivalent to one kW operating for one hour
Maximum power point tracker	MPPT	A device used to modulate the output of a solar array
Micro-enterprise development	MED	A small business supported by the company
Mini-grid Communications and Operations Management Suite	MCOMS	A set of electronic tools for mini-grid operators to improve their business performance
Point of sale	POS	Cash collection from customers in person by field agents
Turnaround Time	TAT	The amount of time taken by field agents to respond to and resolve a customer service request
Watt	W A	standard unit of power or load

A.2. Smartphone App Icons

Tapping: the user should tap on a particular area to explore the functionality



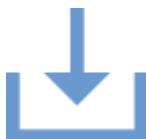
Scroll: the user may scroll up-down to explore the page



Data Entry: the user may fill in data to update the information on the application



Down: Direction in which the page would move on scrolling



Left-Right Navigation: the user may swipe left or right to navigate through a



Rotate Screen: Insists the user to rotate the screen to view the given page

