Navigating the Portal (Version 3.2.2)

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1. NETWORK MANAGEMENT

The Network Management section is the central hub for monitoring and managing all monitored assets within the utility infrastructure. This tool provides real-time visibility into the operational status of your network. From a high-level network overview to detailed asset-specific information, this section helps to maintain a robust and reliable utility system.

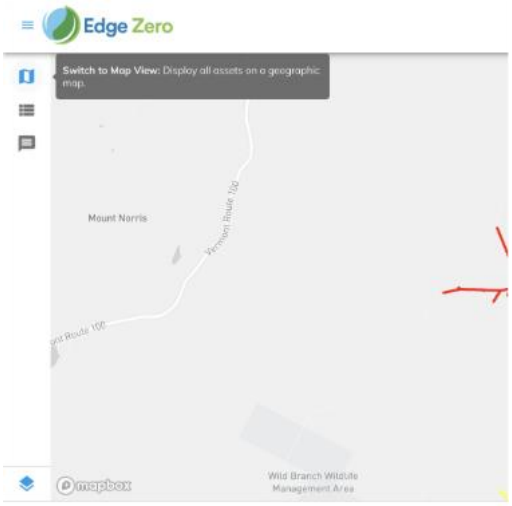
1.1 LIVE GRID MAP

The Live Grid Map provides a real-time visualization and 24-hour historical viewing of all monitored assets within your utility network. This feature allows you to quickly assess the operational status of assets across your service area, identify problematic regions immediately, and gain a spatial understanding of your infrastructure.

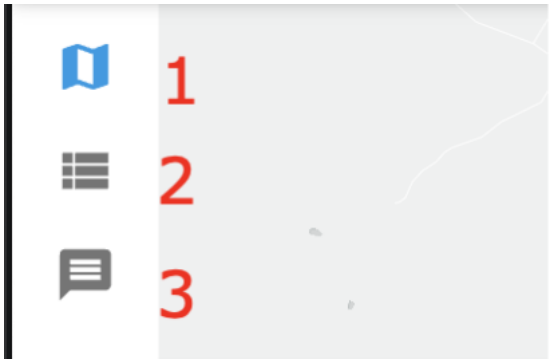
Upon successful login to the Utility Portal, the Live Grid Map within the Network Management section is the default landing page, providing an immediate, real-time overview of your monitored assets.

1.1.1. DASHBOARD SIDEBAR

The sidebar provides quick, context-switching access on how you how you view and analyze the monitored data.



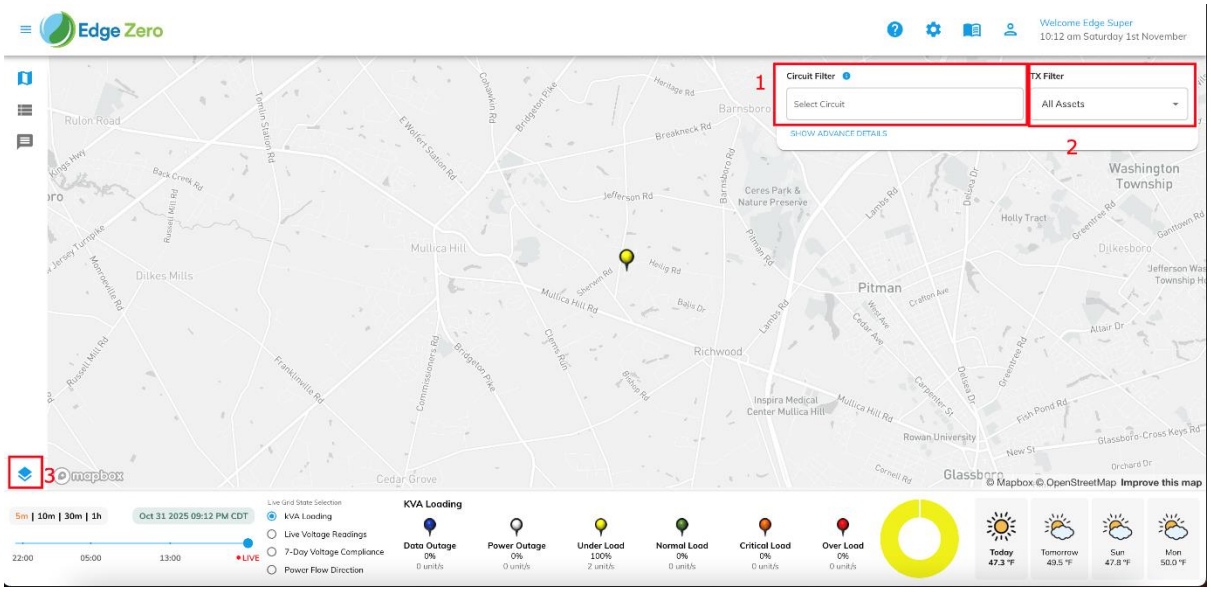
It consists of the following icons:



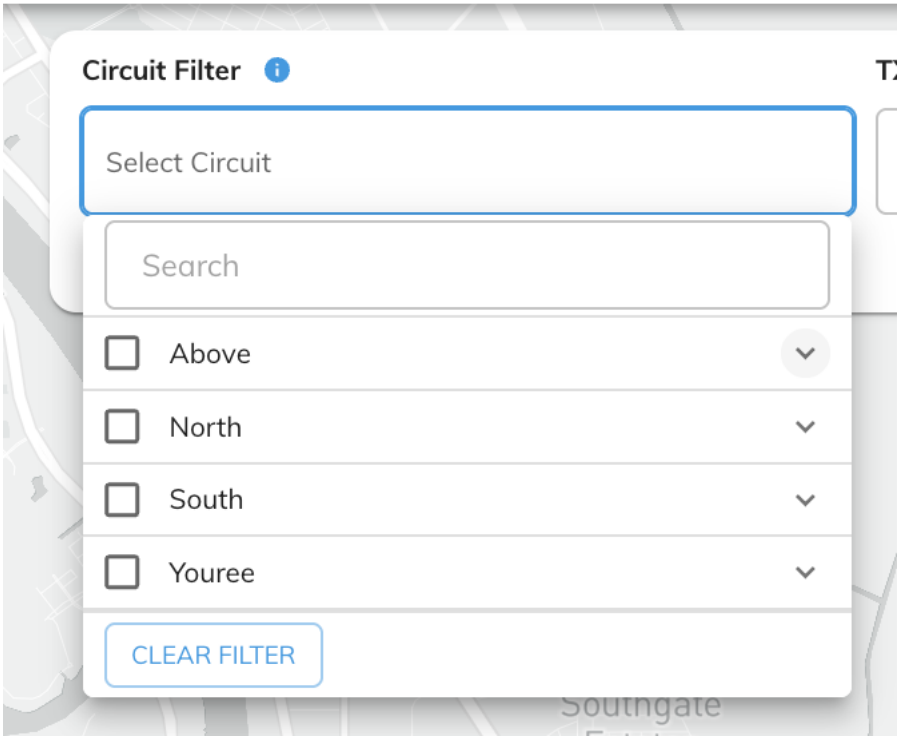
1. Map View – Display all monitored assets on a geographic map view. This is the default view.
2. List View - Display all monitored assets as a sortable table. This allows user to view, filter, and export asset data.
3. Trends and Behaviours – View highlights summary of monitored assets based on their performance over time. This section is now a separate, dedicated section.

1.1.2. MAP NAVIGATION CONTROLS

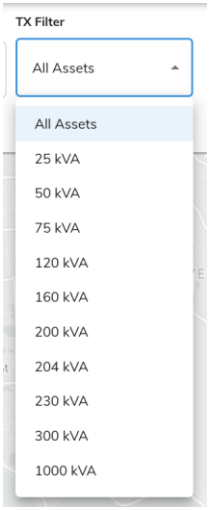
The following controls allow you to effectively move around and adjust your view of the map:



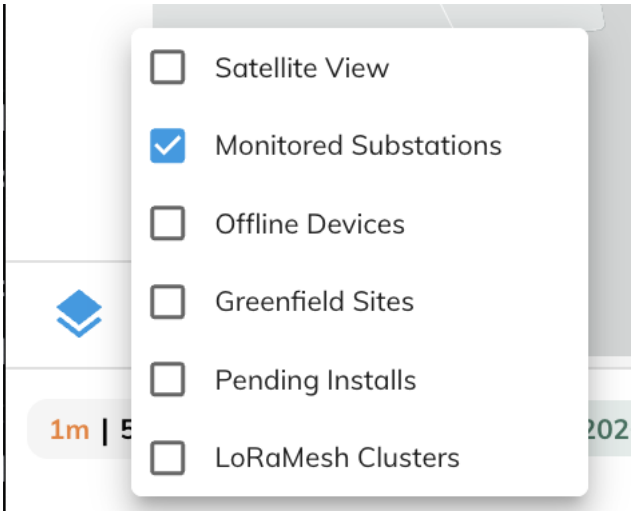
- **Zoom In/Out:** Use your mouse scroll wheel to adjust the map's zoom level.
- **Pan:** Click and drag the map to move across different geographical areas.
- (1) Circuit Filter: Use the Circuit Filter to filter the monitored assets displayed on the map by their hierarchical network components, including substations, feeders, and transformers. This allows for a granular view of specific parts of your electrical grid.



- (2) TX Filter: Use the TX Filter to filter the monitored assets displayed on the map by their kVA Rating



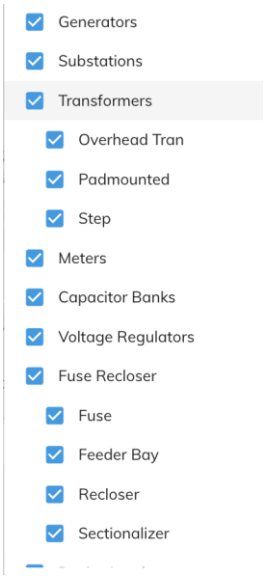
- (3) Manage Map Overlay: Use the Manage Map Overlay to toggle the visibility of various geographical or network-specific base layers and additional information on the map, enhancing your contextual understanding of the grid.



Available layers include:

- **Satellite View:** Switches the base map from the standard street/terrain view to a satellite imagery view.
- **Monitored Substations:** Shows all monitored assets
- **Offline Devices:** Shows monitored assets marked as Data Outage or has stale Power Outage.
- **Greenfield Sites:** Shows monitored assets installed on locations designated as new, undeveloped sites for future utility infrastructure.
- **Pending Installs:** Shows points where new asset installations are scheduled or in progress.
- **LoraMesh Clusters:** Shows the mesh connections between your assets, showing you how they communicate with each other within the LoRa network.

- **GIS Layers (if provided):** If Geographical Information System is provided, this option allows you to toggle on/off various GIS data layers. Layers depend on the given GIS provided



1.1.3. ASSET STATUS INDICATORS

Each monitored asset is represented by a distinct pin icon on the map. The color of these pins is dynamically updated based on the currently selected Live Grid State and selected time.

For LIVE data, the asset indicators, their colors, and the summary data on the map are refreshed every minute to ensure you always have the most current operational state of your grid.

1.1.3.1 LIVE GRID STATE SELECTION

Located on the bottom panel of the Live Grid Map, this section is crucial for defining what primary data the map visualizes.

Click on any of the radio button options to change the map's current data overlay and the corresponding summary dashboards:

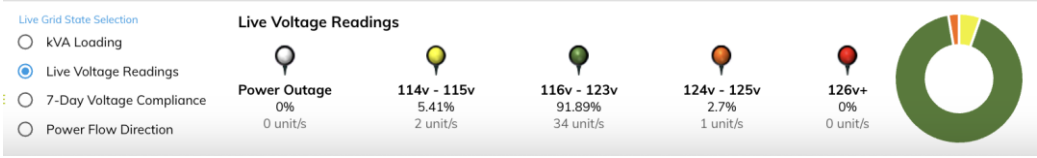
- KVA Loading (Selected by Default) - When selected, the map will display asset pins colored according to their current kVA loading status.
  The legend at the bottom of the map will update to show the precise definitions for each color:

  Power Outage: Units reporting a loss of power within the last 3 days..
  Under Load: Units operating below their normal KVA capacity.
  Normal Load: Units operating within their optimal KVA load range.
  Critical Load: Units nearing their maximum KVA capacity.
  Over Load: Units operating above their safe or rated KVA capacity.

Loading Thresholds can be configured by Network Administrator on the Network Configuration Management

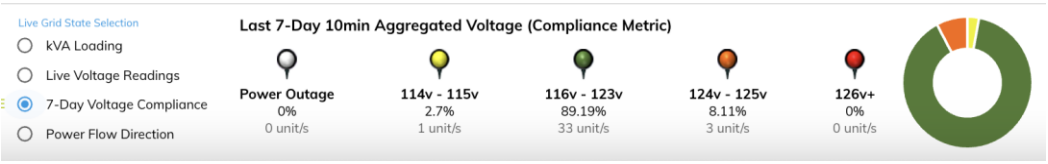
- Live Voltage Readings - When selected, the asset pins on the map will be colored based on their real-time voltage levels.

  Voltage Thresholds can be configured by Network Administrator on the Network Configuration Management

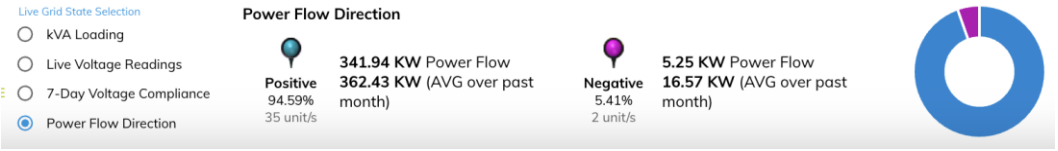


- 7-Day Voltage Compliance: - This option allows you to view historical performance, displaying assets colored based on their voltage compliance over the past seven days.

  Thresholds are similar with the Live Voltage Readings Thresholds

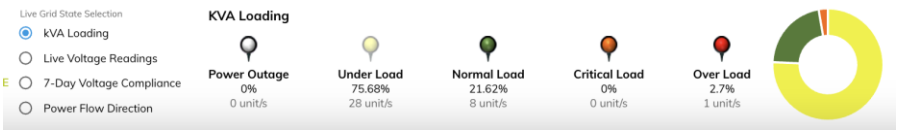


- Power Flow Direction: - When selected, this view shows the flow of power through various grid components. This provides crucial insights into network dynamics and load distribution.



The accompanying pie chart visually represents the distribution of units based on the selected live grid state.

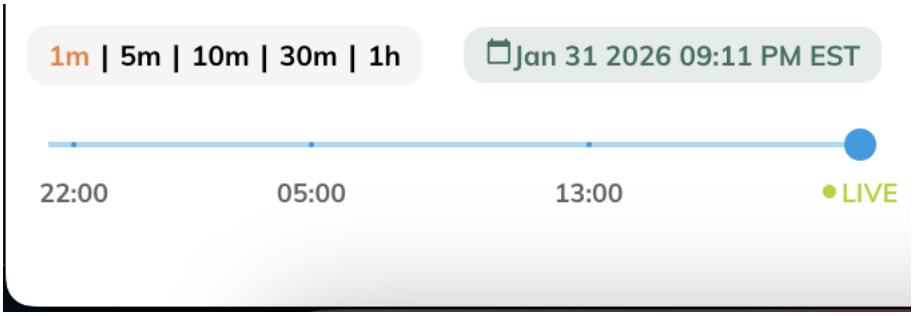
Filtering Legend by Pin: You can toggle the colored pin icons in the legends to show/hide the monitored assets on the map. The pin icon will fade out when the corresponding assets are hidden on the map. (example Under Load is currently hidden)



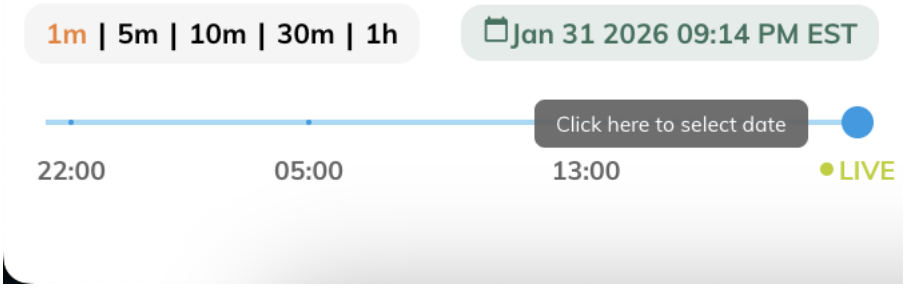
1.1.3.2 HISTORICAL ANALYSIS

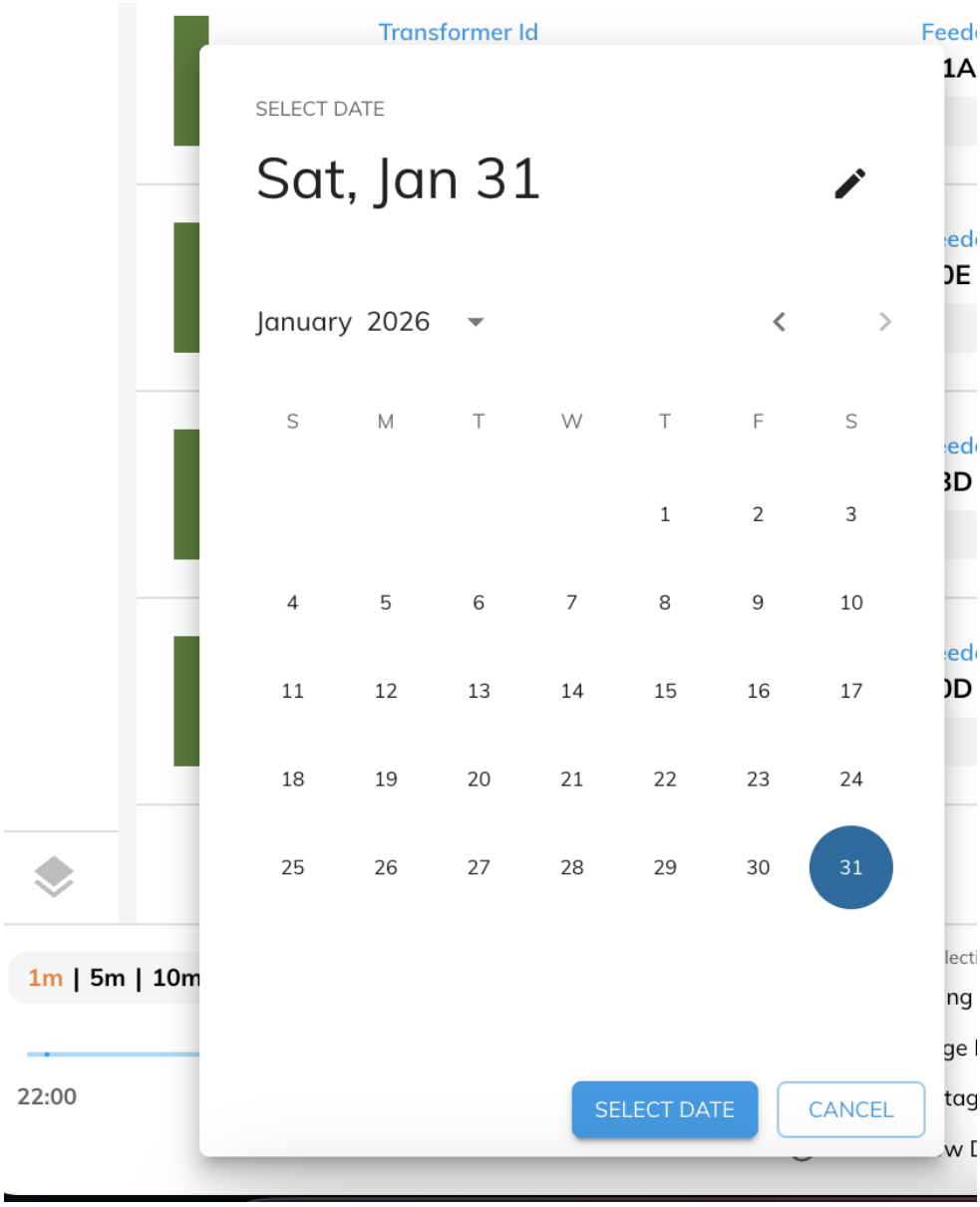
The Time Slider allows you to perform historical analysis of grid events by quickly rewinding and visualizing the full grid state. This includes key metrics—like KVA Load, Voltage Readings, and Power Flow Direction. This feature expands the map's capabilities beyond real-time monitoring.

The Time Slider gives you flexible control over the map's historical state. Set the level of detail by selecting a data granularity (5m, 10m, 30m, 1h), then use the slider to analyze the grid at a precise past time. You can instantly revert to live, real-time monitoring by moving the slider to the far right.



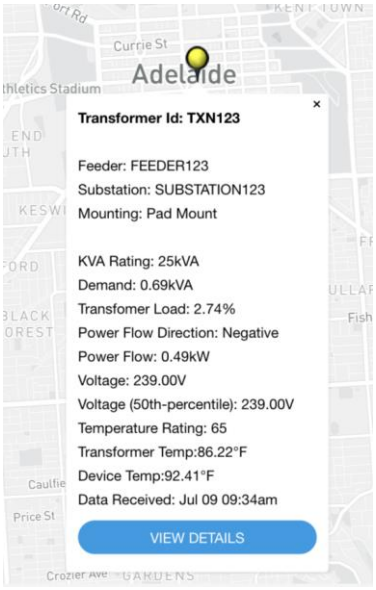
To select a date, click on the Date Display to open the calendar picker. This allows you to jump to any historical date, moving beyond the standard 24-hour view.



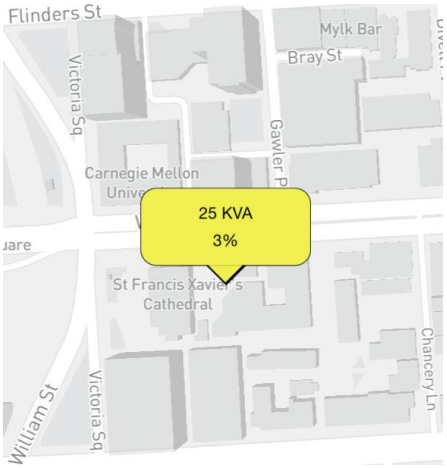


1.1.3.3 VIEWING ASSET DETAILS

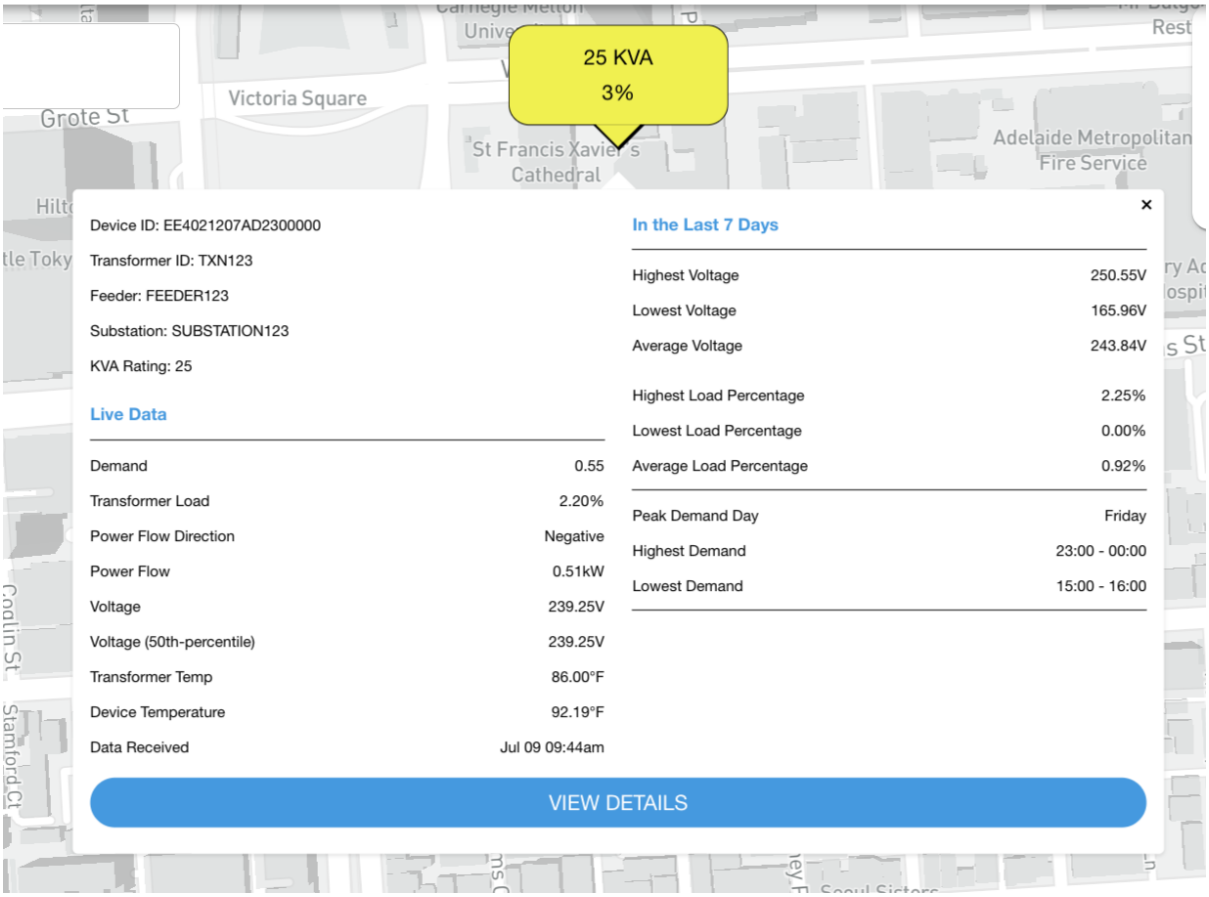
To view quick details about a specific asset, click on an asset pin on the map. This action will reveal a small, interactive pop-up window directly over the clicked pin.



As you zoom in more from a wide view, individual asset pins may transform into larger, summary icons. The color of these summary icons will still be based on the asset's status according to the selected Live Grid State. It will display the asset's kVA Rating and the current load/voltage reading/powerflow based on selected live grid state.



The pop-up window is also updated with more details including the Last 7 Days summary of the monitored asset.



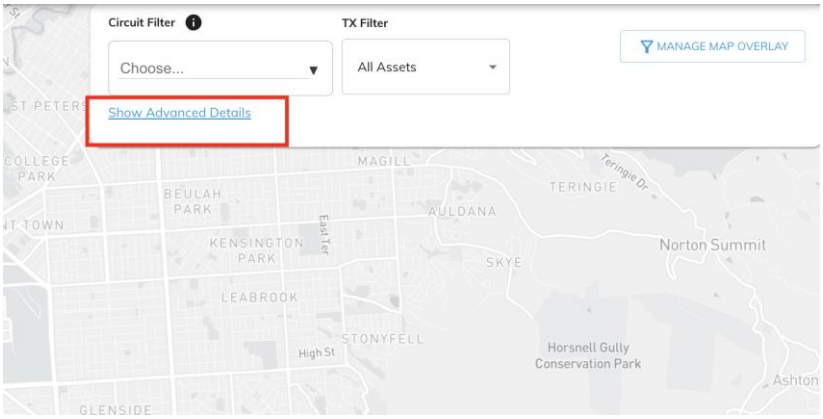
VIEW DETAILS button: Clicking the button will open a new tab to navigate you to the **Detailed Asset Profile** page for that specific asset

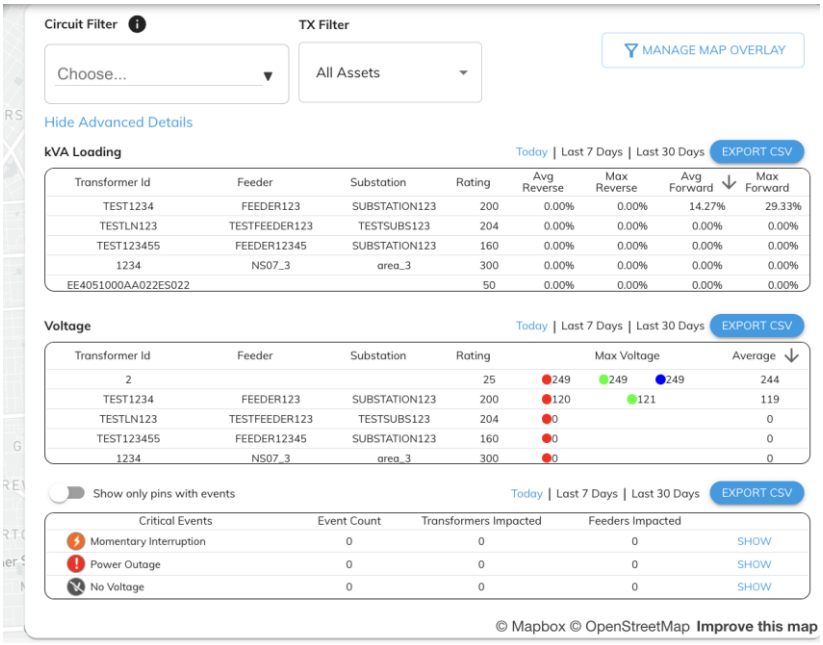
1.1.4. ADVANCED DETAILS

The "Advanced Details" feature complements the map view by integrating detailed, tabular data for your monitored assets, including KVA load and voltage summaries, along with critical event information. It acts as a powerful analytical tool, providing granular insights into network performance directly alongside your geographical overview.

To access the Advanced Details: On the Live Grid Map, locate the "Show Advanced Details" link, positioned below the "Circuit Filter" and "TX Filter" dropdowns in the top-right section of the map interface. Clicking this link will expand the lower portion of the screen, revealing a series of data tables and event summaries.

Once activated, the link will change to "Hide Advanced Details". Clicking this will collapse the dashboard.





1.1.4.1 KVA LOADING TABLE

Provides a detailed breakdown of kVA loading statistics for individual monitored assets visible on the map. It includes:

- **Avg Reverse:** Average kVA load when power flow is in reverse over the selected period.
- **Max Reverse:** Maximum recorded reverse KVA flow over the selected period.
- **Avg Forward:** Average KVA load when power flow is in forward over the selected period
- **Max Forward:** Maximum recorded forward KVA flow over the selected period.

Row Click Functionality: Clicking any row in this table will automatically zoom and center the Live Grid Map on the corresponding asset.

Data Period Selection: You can choose to view data for "Today," "Last 7 Days," or "Last 30 Days" by clicking the respective links above the table.

Export Data: Click **"EXPORT CSV"** beside the Data Period Selection to download the displayed KVA Loading data as a file for external analysis.

1.1.4.2 VOLTAGE TABLE

Provides a detailed breakdown of voltage statistics for individual monitored assets visible on the map. It includes:

- **Max Voltage:** The maximum recorded voltage over the selected period per phase. This column also uses color-coded dots (e.g., red, green, blue) to visually indicate the phase.
- **Average:** The overall average voltage reading over the selected period.

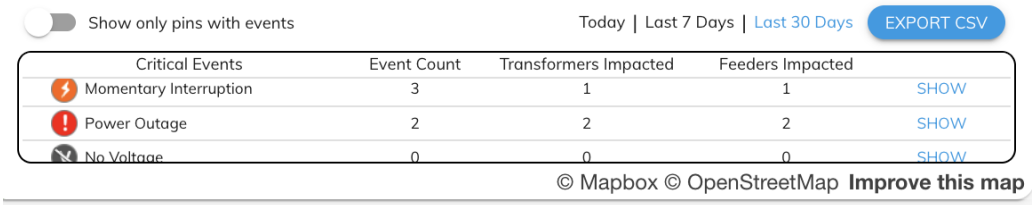
Row Click Functionality: Clicking any row in this table will automatically zoom and center the Live Grid Map on the corresponding asset.

Data Period Selection: You can choose to view data for "Today," "Last 7 Days," or "Last 30 Days" by clicking the respective links above the table.

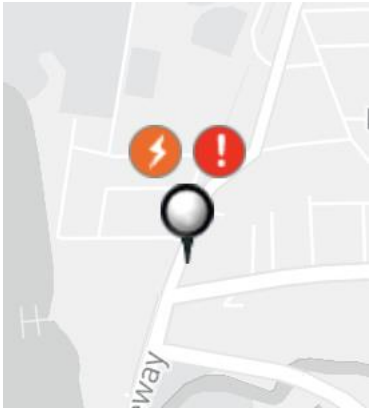
Export Data: Click **"EXPORT CSV"** beside the Data Period Selection to download the displayed Voltage data as a file for external analysis.

1.1.4.3 EVENTS TABLE

Provides a summary of total events triggered across your monitor assets over the selected period



Show/Hide Assets: You can view which assets triggered the events by clicking the SHOW button next to the events. It displays the specific event icon (e.g., lightning bolt for Momentary Interruption, exclamation mark for Power Outage) overlaid directly on top of the corresponding monitored asset's pin on the map. If you want to view only the asset with the selected event, toggle the “Show only pins with events”.



Data Period Selection: You can choose to view data for "Today," "Last 7 Days," or "Last 30 Days" by clicking the respective links above the table.

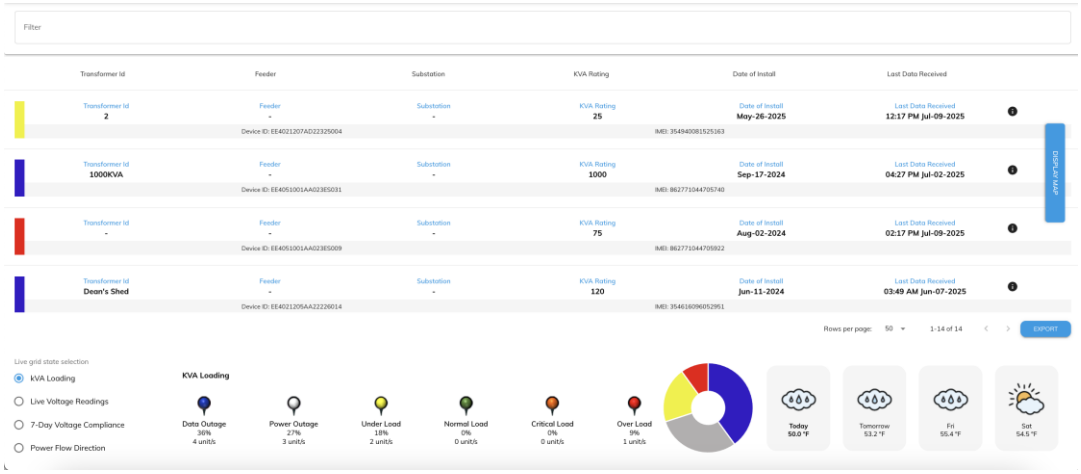
Export Data: Click **"EXPORT CSV"** beside the Data Period Selection to download the list of events

The data displayed in all this tables will automatically reflect any active filters applied on the map (e.g., Circuit Filter, TX Filter). This ensures the data is always relevant to the assets currently visible on your Live Grid Map.

1.1.5. DISPLAY LIST

The "Display List" feature provides an alternative, tabular view of the assets currently shown on the Live Grid Map.

The "DISPLAY LIST" button is located on the left side of the Live Grid Map interface, positioned below the search bar. Click the button to switch from the map view to a list view of your monitored assets.



1.1.5.1 EXPORT CSV

Click the **"EXPORT"** button to download **all the monitored assets currently filtered and displayed in the list**, enabling external analysis and reporting.

1.1.5.2 VIEWING MONITORED ASSET

Clicking on a row in the Display List table will open a new tab which will navigate you to the **Detailed Asset Profile** page for that specific asset

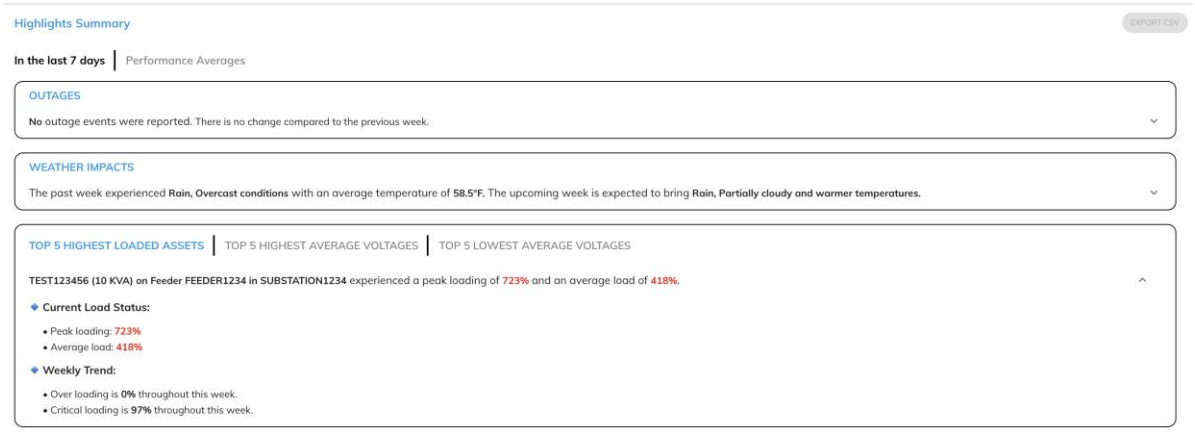
1.1.6 WEATHER FORECAST

The Live Grid Map interface displays real-time and forecasted weather information, which is located **at the bottom-right corner of the dashboard**.

1.1.7 PERFORMANCE HIGHLIGHTS SUMMARY

The Performance Highlights Summary section offers a quick overview of recent activity for your monitored assets, showcasing key performance data from the last 7 days at a glance.

1.1.7.1 Viewing of Performance Highlights Summary

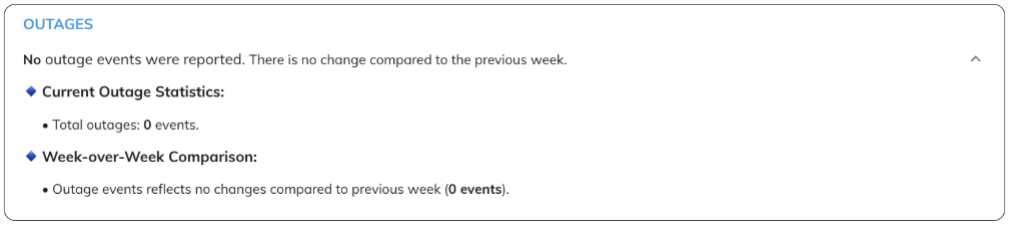


The Performance Highlights section is organized into two distinct sections

In the Last 7 Days

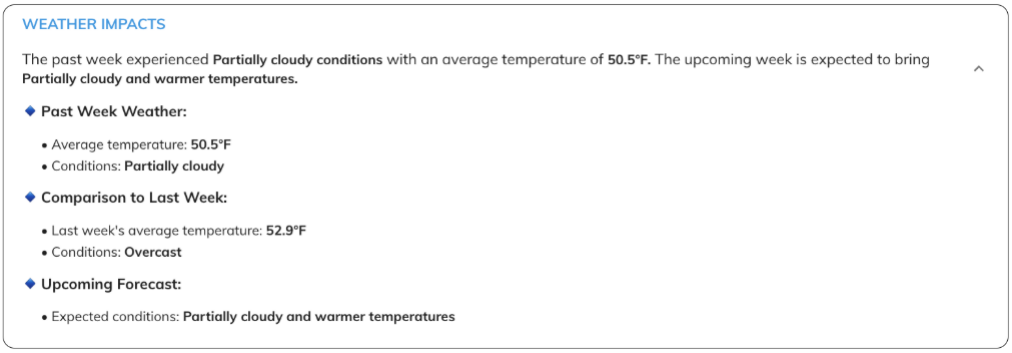
This is the default view and provides a summary of performance data collected over the past 7 days. This section includes:

OUTAGES - Information regarding any reported outages for your monitored assets within the past days. By clicking the dropdown, it provides more details including total number of outages and comparison based on previous week outages

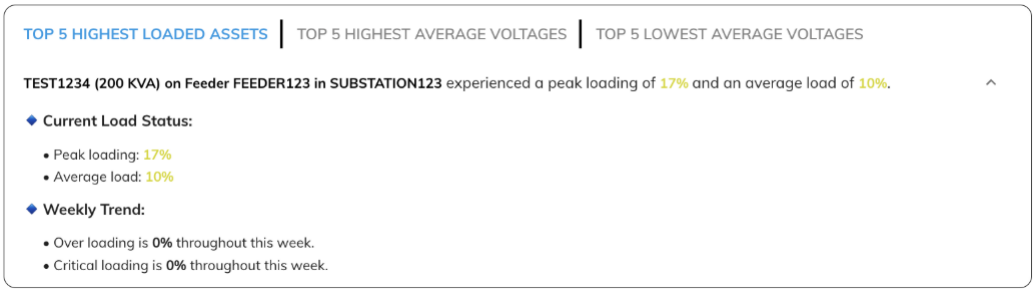


WEATHER IMPACTS - Displays the current weather conditions for the monitored area, along with the average temperature for the last 7 days, providing context for asset performance. By clicking the dropdown, it provides more weather information

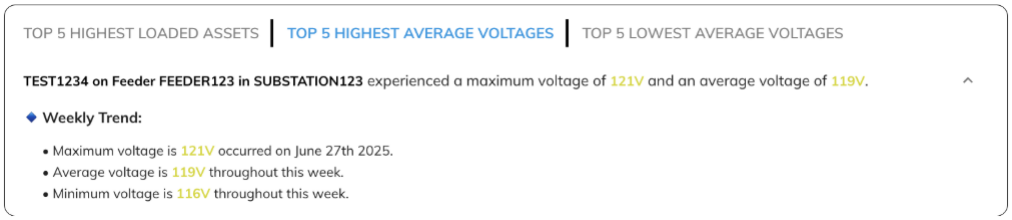
including the past week's weather and weather forecast for upcoming days.



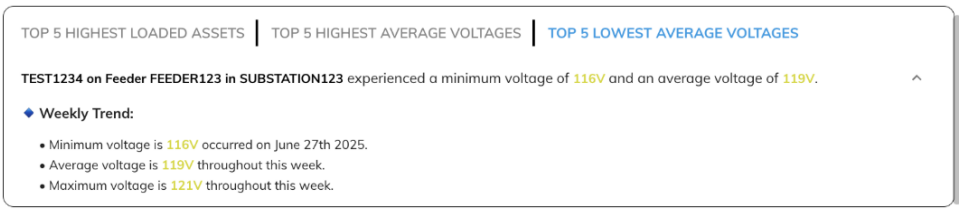
TOP 5 HIGHEST LOADED ASSETS - A list of the five assets that experienced the highest load during the period. You can click the dropdown next to any monitored asset for more detailed information about its load performance. You can also view more details by clicking on the transformer name to open a new tab displaying the comprehensive Network Details page for that specific asset.



TOP 5 HIGHEST AVERAGE VOLTAGES - A list of the five assets with the highest average voltage readings. You can click the dropdown next to any monitored asset for more detailed information about its voltage performance. You can also view more details by clicking on the transformer name to open a new tab displaying the comprehensive Network Details page for that specific asset.



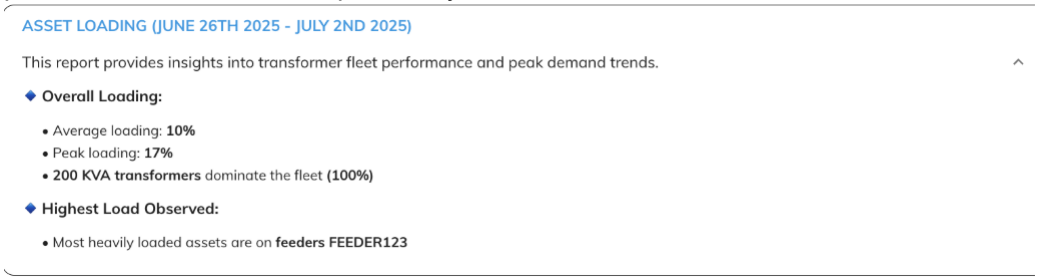
TOP 5 LOWEST AVERAGE VOLTAGES - A list of the five assets with the lowest average voltage readings.



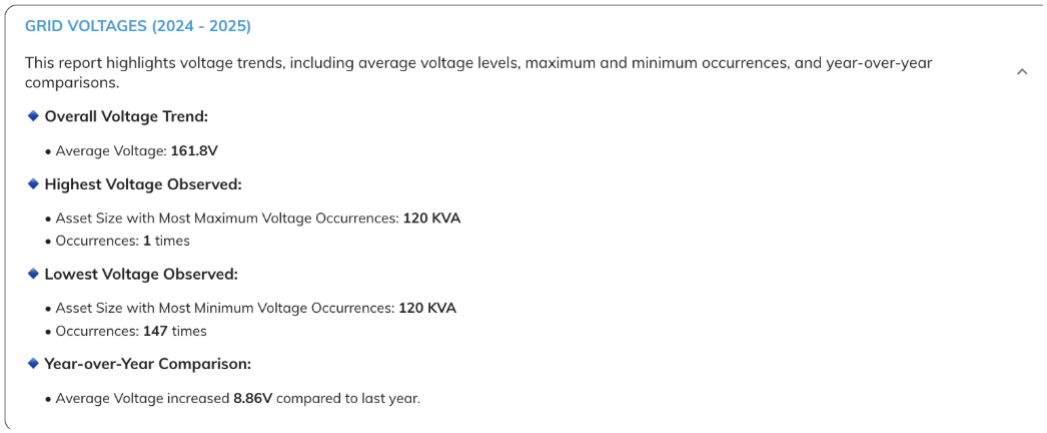
PERFORMANCE AVERAGES

This tab provides a comprehensive overview of key average performance metrics for your monitored assets. This section includes:

ASSET LOADING - This section provides insights into transformer fleet performance and peak demand trends for the past 7 days.

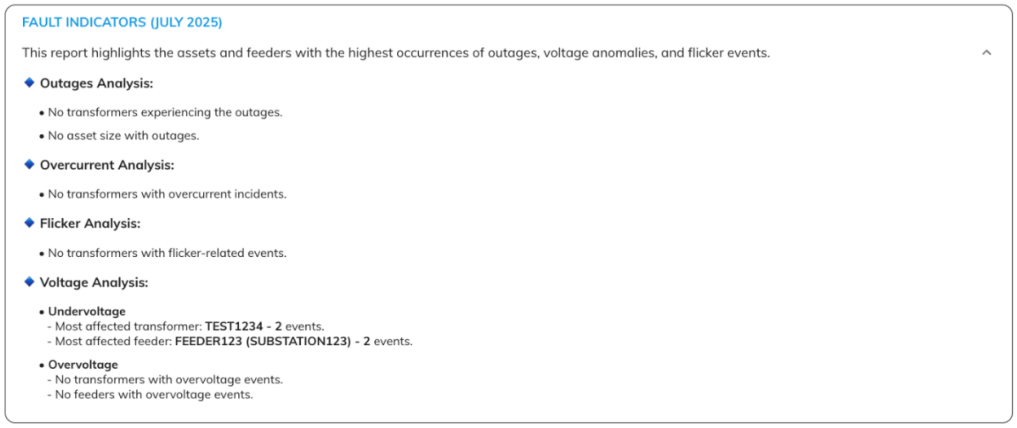


GRID VOLTAGES - This section highlights voltage trends, including average voltage levels, maximum and minimum occurrences, and year-over-year comparisons.



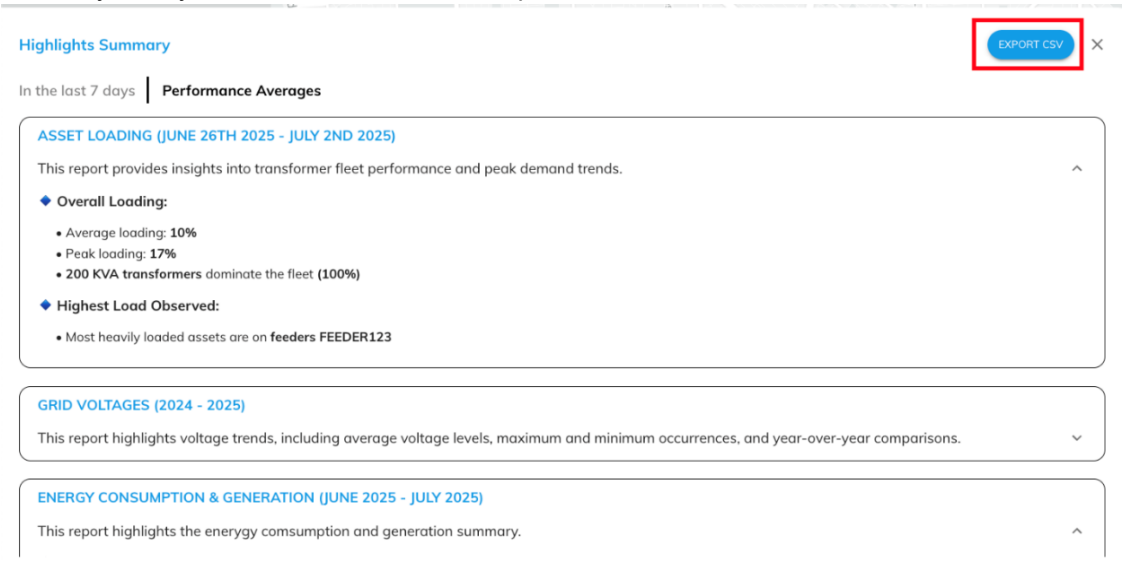
ENERGY CONSUMPTION & GENERATION - This section highlights the enerygy consumption and generation summary.

FAULT INDICATORS - This section highlights the assets and feeders with the highest occurrences of outages, voltage anomalies, and flicker events.



1.1.7.2 EXPORTING YOUR PERFORMANCE HIGHLIGHTS SUMMARY

You can export the highlights summary content by clicking the Export CSV button. This button will become enabled and clickable once all the data within the Performance Highlights summary is fully loaded and available for export.

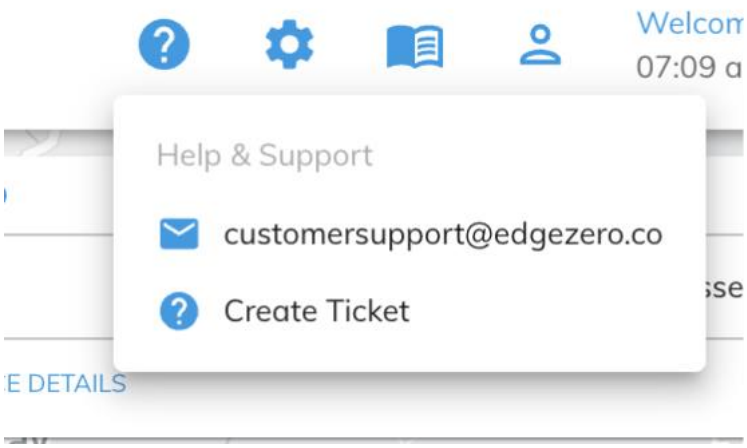


1.1.8 DASHBOARD HEADER

The main dashboard header provides **immediate, one-click access** to essential system tools that are accessible to all platforms. It contains 4 functional icons to the right of the header, next to the user greeting.

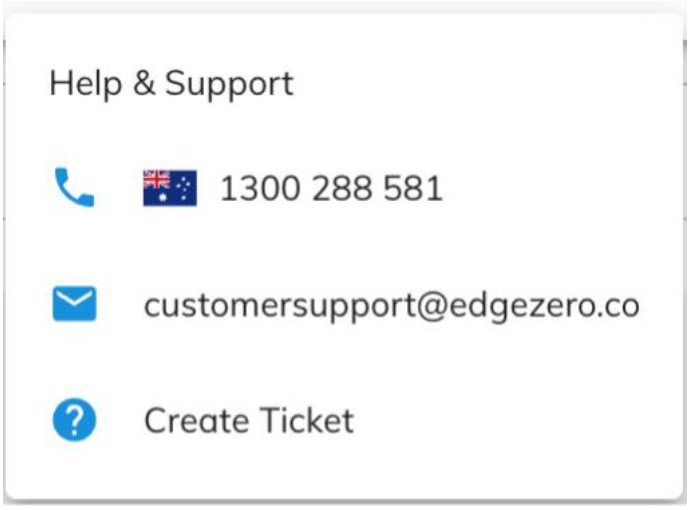
1.1.8.1 HELP & SUPPORT

This section provides instant access to all support channels. The pop-up menu includes direct links for Phone Support if region is supported, Email Support, & a one-click option to submit a new support request or issue ticket.



Utility Customers can easily access support options from the Help & Support menu on the Web platform. It will be accessible at the top-right corner next to your user profile, you will see a blue question mark (?) icon.

Choose a Support Option:



i. Call Support

   This section will be shown dynamically.

ii. Email Support

   Send an email to customersupport@edgezero.co.

iii. Create Ticket

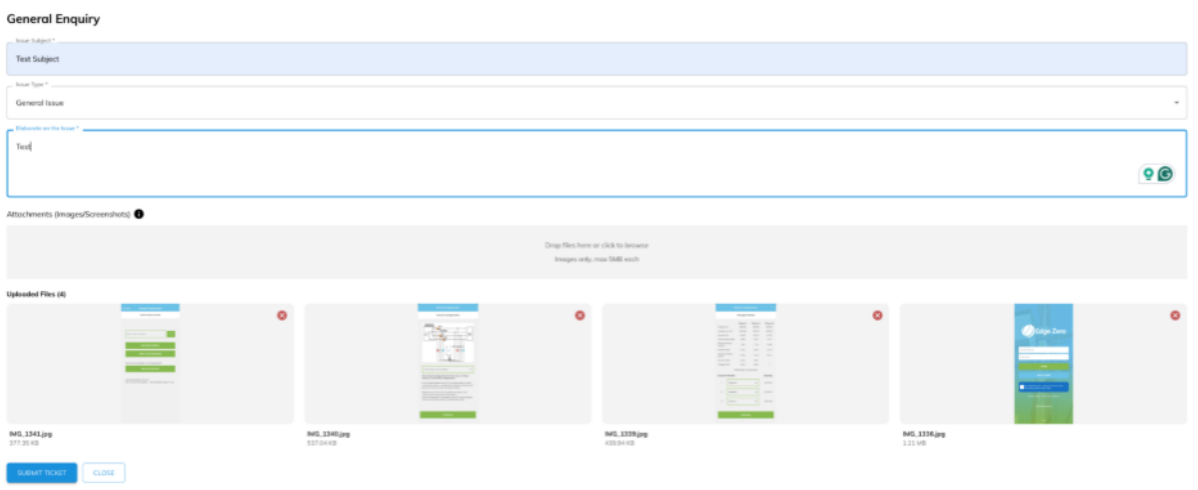
Open the ticket submission form to raise a **General Enquiry** or report device issues.

When raising a General Enquiry ticket, complete the following fields:

- **Issue Subject (Required)**
  - Provide a clear and concise subject line that summarizes your enquiry or issue.
- **Issue Type (Required)**
  - General Issue
  - Device Issue

General Issue

- **Elaborate on the Issue (Required)**
  - Add a description of the enquiry or issue. Include any relevant context to assist support staff in resolving the enquiry.
- **Attachments (Images/Screenshots) (Optional)**
  - You may upload up to 5 files per ticket.
  - Each file must be no larger than 5 MB.
  - Supported formats only include images.



General Enquiry UI – General Issue

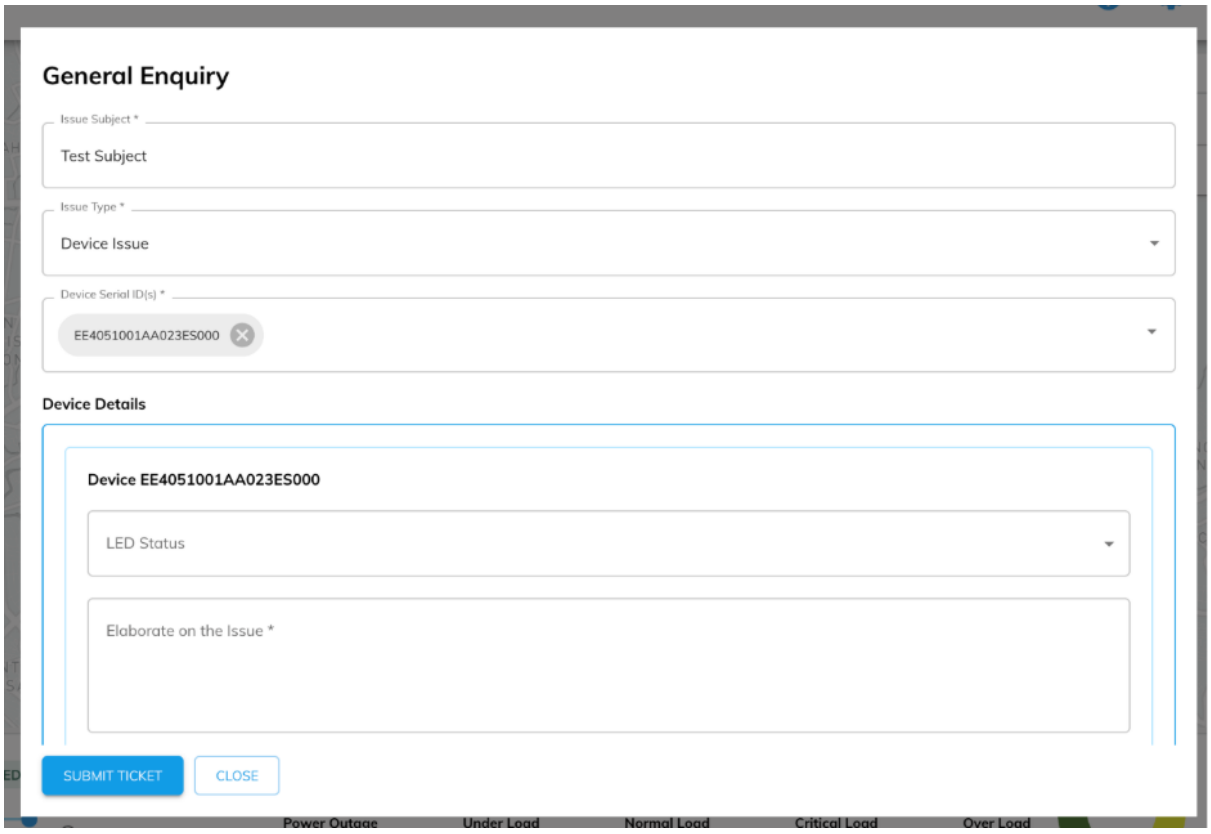
Device Issue

- **Device Serial ID(s) (Required)**
  - Select one or more device serial IDs from the list.
  - Each ticket must be linked to at least one device.
- **Device Details**

  For each device selected, provide the following information:

  - *LED Status (Optional)*
    - Choose the LED status from the dropdown (e.g., Both LEDs OFF).
  - *Elaborate on the Issue (Required)*
    - Add a description of the enquiry or issue. Include any relevant context to assist support staff in resolving the enquiry.

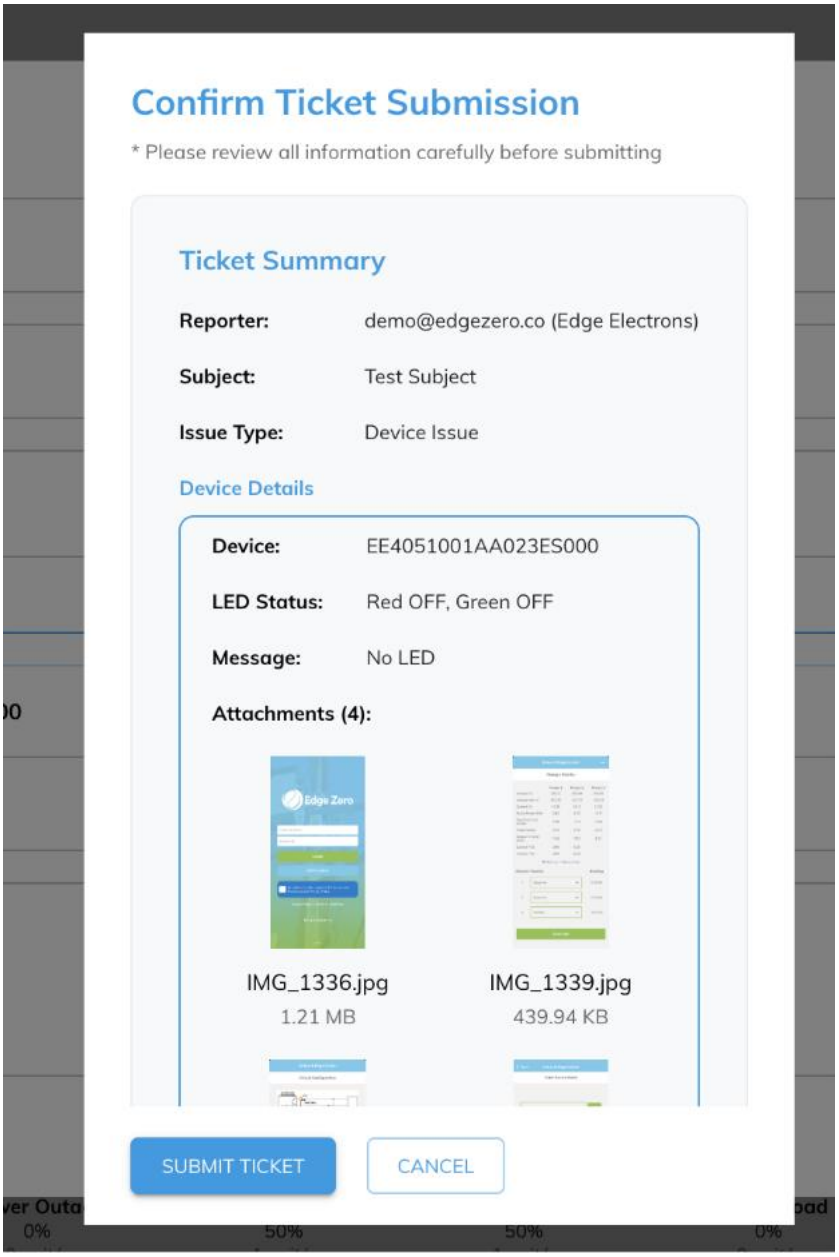
- *Attachments (Images/Screenshots) (Optional)*
    - You may upload up to 5 files per ticket.
    - Each file must be no larger than 5 MB.
    - Supported formats only include images.



General Enquiry UI – Device Issue

Once you click **Submit Ticket**:

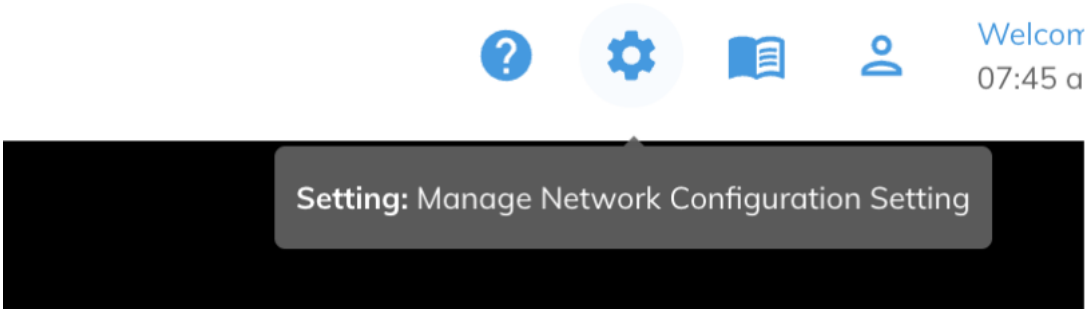
- **Confirm Ticket Submission**
    - The confirmation modal will appear on the screen, letting you review the information before you finally click the submit button.



- **Email Notification**
  - You will receive an email at your registered email address confirming that your ticket has been created.

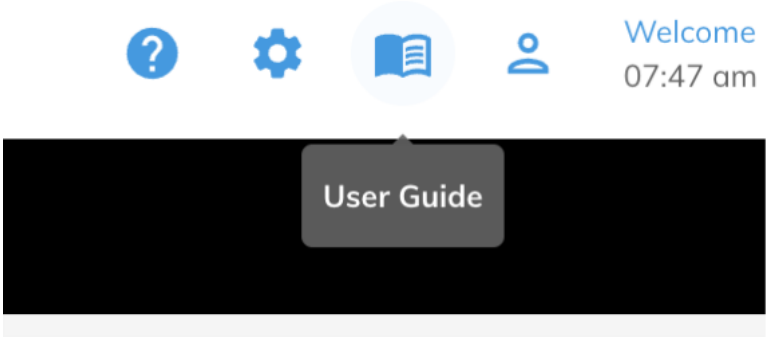
1.1.8.2 NETWORK CONFIGURATION SETTING

This section provides instant access to manage network configuration settings



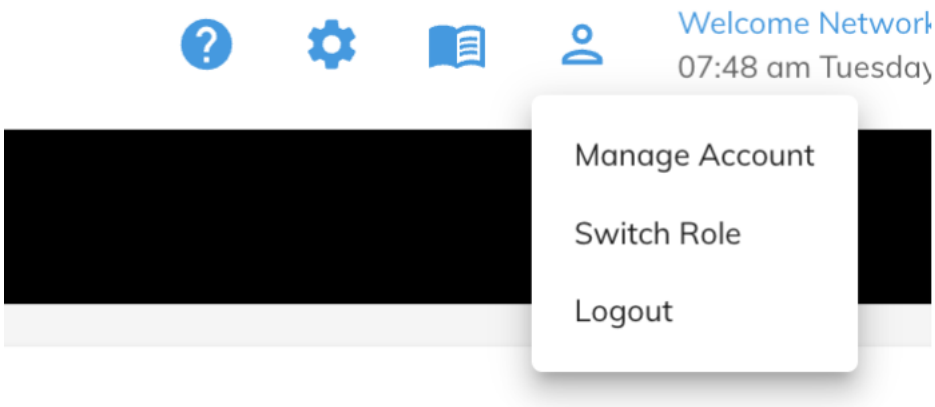
1.1.8.3 USER GUIDE

This section provides immediate access to the user guide. Clicking the icon will open a new link containing the most current documentation, typically in a PDF file format. This ensures you always have the full manual at your fingertips for detailed reference.



1.1.8.4 ACCOUNT MENU

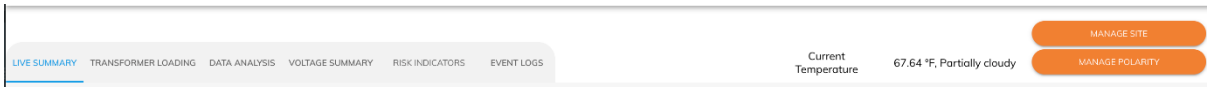
This menu has been updated to provide direct links to personal management tools



1.2 DETAILED ASSET PROFILE

The Detailed Asset Profile Page provides an in-depth, comprehensive view of a single monitored asset, offering extensive historical data, event logs, configuration details, and advanced analytics beyond the real-time summary available on the Live Grid Map.

1.2.1 HEADER

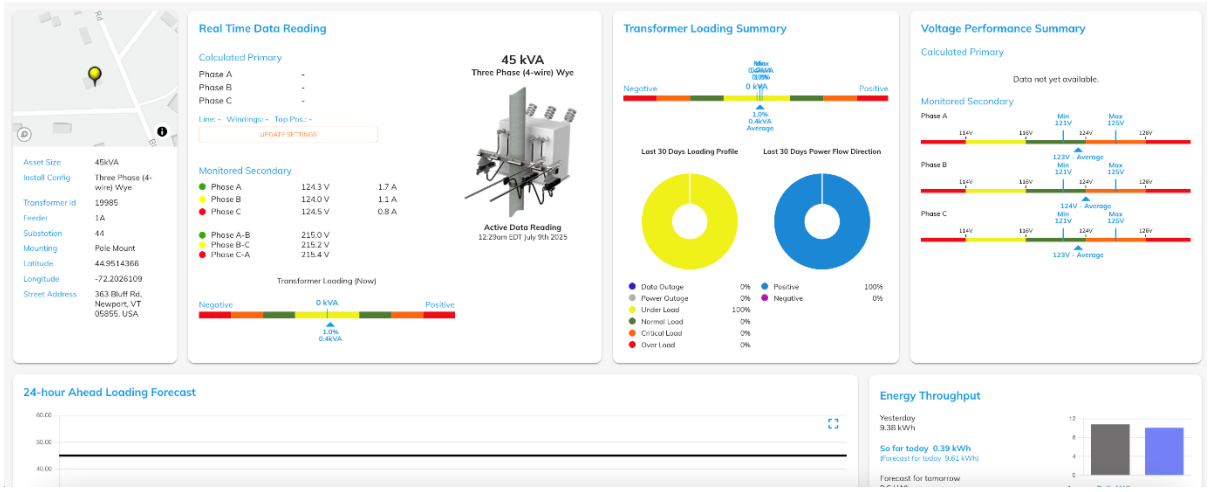


The header consists of:

- **Tabs:** Provides quick navigation between different categories of detailed data for the asset, including "LIVE SUMMARY," "TRANSFORMER LOADING," "DATA ANALYSIS," "VOLTAGE SUMMARY," "RISK INDICATORS," and "EVENT LOG". The "LIVE SUMMARY" tab is the default view upon page entry.
- **Current Temperature & Weather:** Displays the current temperature and weather conditions based on the location where the monitored asset is installed.
- **MANAGE SITE Button:** Allows access to site-specific management options.
- **MANAGE POLARITY Button:** Allow access to manage installed asset's polarity.

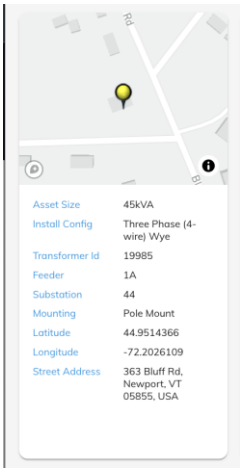
1.2.2 LIVE SUMMARY TAB

This tab provides a consolidated view of the asset's current operational status and recent performance trends. It is the default view when you first navigate to the Detailed Asset Profile Page. It consists of the following sections:



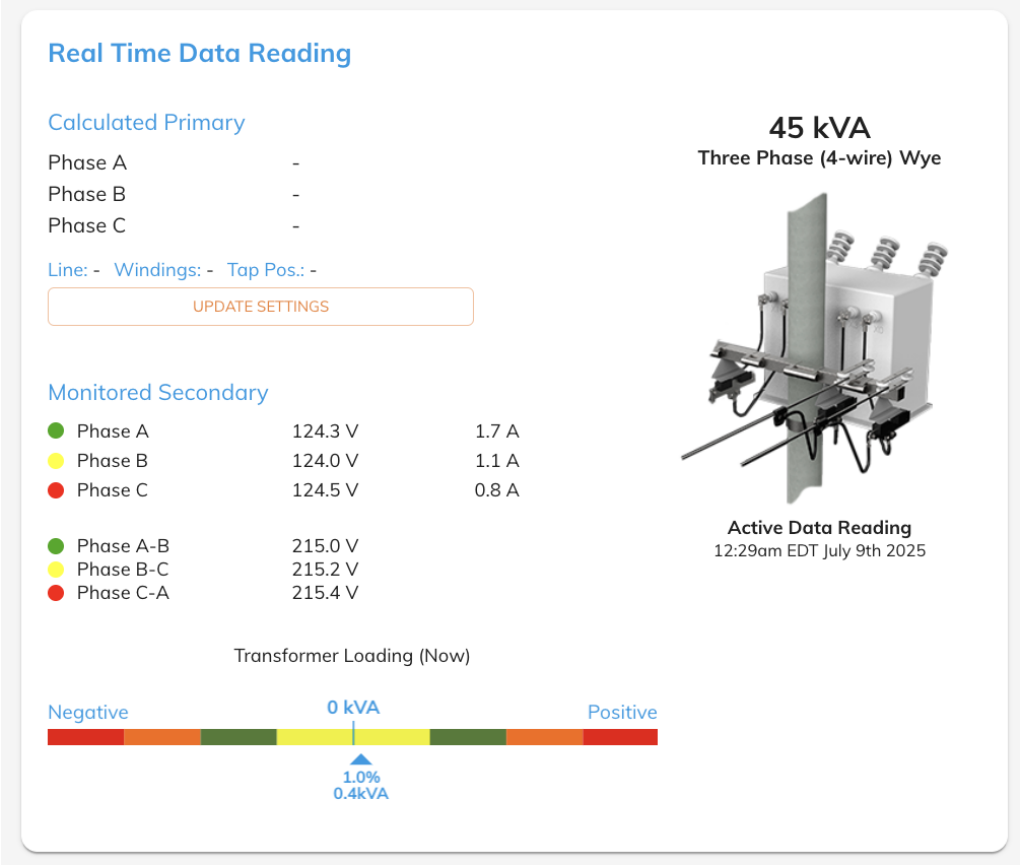
1.2.2.1 MONITORED ASSET DETAILS

This section provides essential identifying and static information about the monitored asset. This is displayed on all tabs



1.2.2.2 REAL DATA TIME READING

This panel provides immediate and current operational data directly from the monitored asset.



Calculated Primary: This will display the primary voltage reading for the transformer, provided that the primary voltage line, windings, and tap position information is available and configured for the asset. Settings can be configured by clicking the UPDATE SETTINGS button.

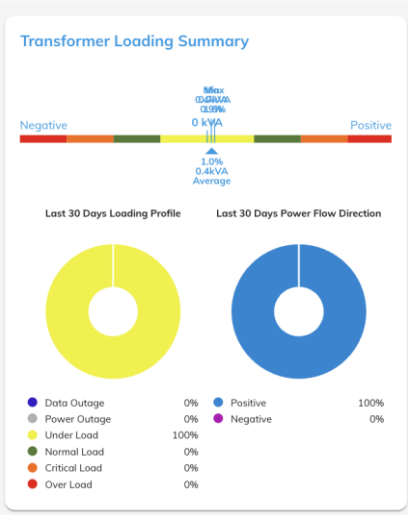
Monitored Secondary: This section displays the live data that is sent by the device. It provides real-time voltage and current readings for individual phases.

Transformer Loading Now: This section represents the asset's current operational load. The bar spans from "Negative" (indicating reverse power flow) to "Positive" (indicating forward power flow). The colors within the bar typically correspond to different load statuses (e.g., green for normal, yellow for underload, orange for critical and red for overload).

Asset Details: This section provides the asset details including the kVA Rating and circuit configuration. It also includes the visual representation of the asset's mounting type.

1.2.2.3 TRANSFORMER LOADING SUMMARY

This panel provides an overview of the asset's historical loading profile and power flow direction, giving insights into its performance over recent periods.



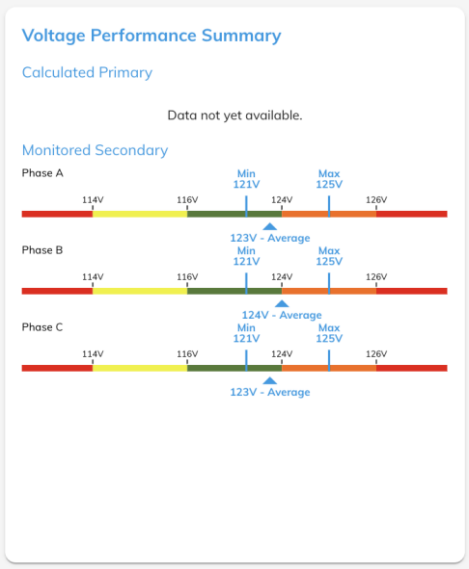
The bar graph at the top of this section summarizes the transformer's loading. This bar is based on the **last 7 days** of data, showing the maximum, minimum and average load.

Last 30 Days Loading Profile: A chart visually representing the distribution of the asset's load status over the past 30 days.

Last 30 Days Power Flow Direction: A chart visually representing the distribution of the asset's power flow direction over the past 30 days.

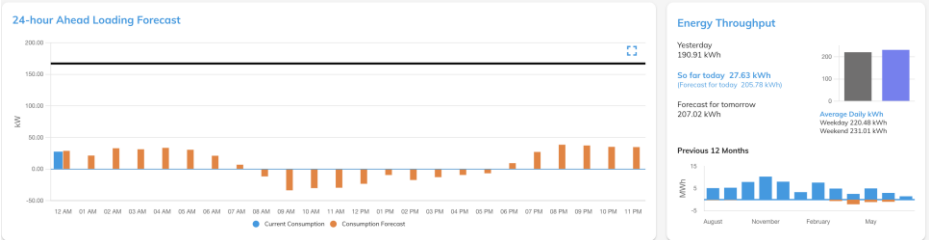
1.2.2.4 VOLTAGE PERFORMANCE SUMMARY

This panel provides an overview of the asset's historical voltage data over the past 7 days



1.2.2.5 24-HOUR AHEAD LOADING FORECAST

This chart provides a predictive view of the asset's active power over the next 24 hours.



Note: This content will only be available after 7 days of data have been collected for the asset.

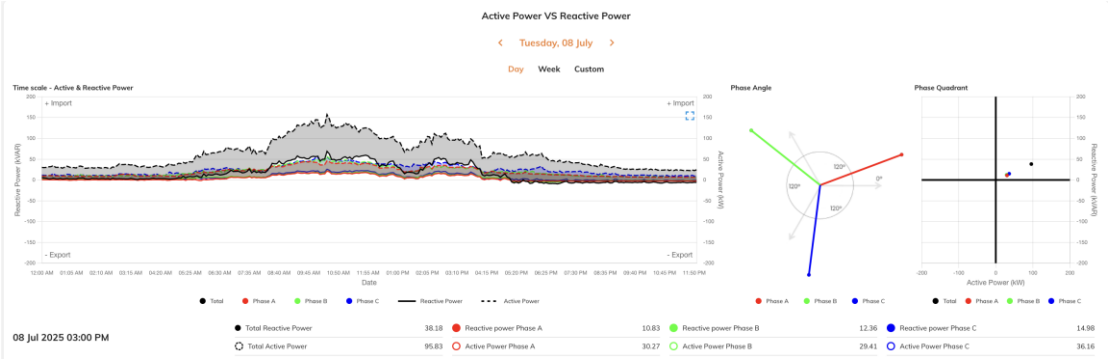
Energy Throughput: This section summarizes the total energy throughput of the asset, along with daily forecasts and a historical view of energy consumption.

1.2.2.6 ACTIVE POWER VS REACTIVE POWER

This section provides a comprehensive graphical analysis of the asset's active and reactive power characteristics, crucial for understanding energy efficiency and grid stability.

The data displayed within these charts is based on a 5-minute granularity, meaning readings are recorded and analyzed at 5-minute intervals.

Date Selection: Allows to view the data based on selected date. You can view data by day, by week or custom.



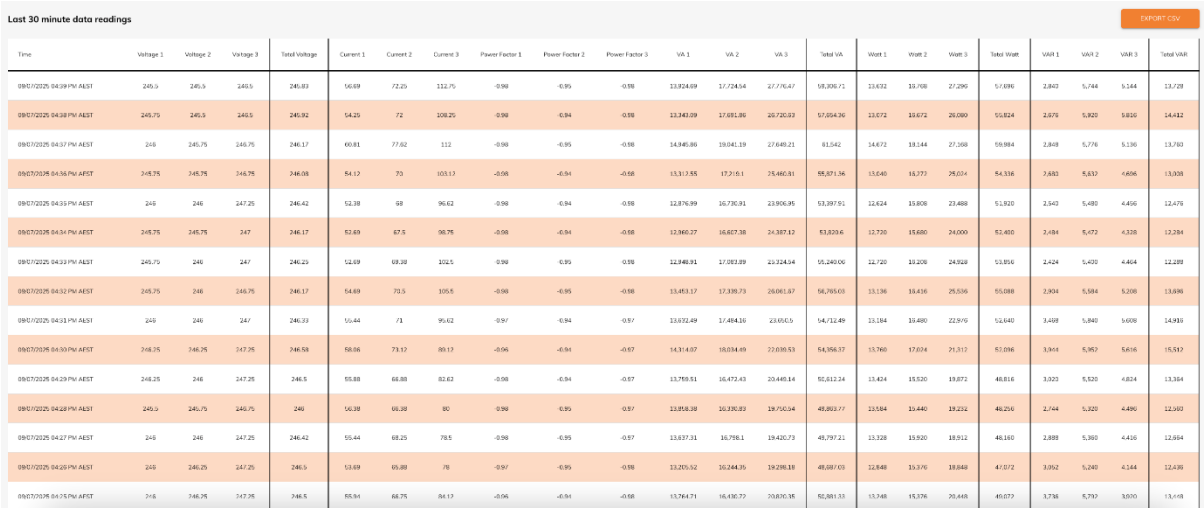
Phase Angle: This chart helps in understanding the balance and relationships between the phases, which is critical for identifying potential issues like unbalanced loads. They dynamically update when hovering within the "Active Power vs Reactive Power" chart.

Phase Quadrant: This chart visualizes the dominant power flow and reactive power consumption/generation behaviour of the asset, indicating if it is importing/exporting active/reactive power. They dynamically update when hovering within the "Active Power vs Reactive Power" chart.

FTT Analysis: These charts provide a detailed spectral analysis of the voltage and current waveforms, essential for power quality assessment by identifying harmonic distortions. They dynamically update when hovering within the "Active Power vs Reactive Power" chart.

1.2.2.7 LAST 30 MINUTES DATA READINGS

This section provides a detailed, tabular display of the most recent 30 minutes of operational data from the asset. It offers a high-granularity view, allowing users to quickly review recent performance fluctuations.



Export Functionality: An "EXPORT CSV" button is available at the top right of the section, allowing users to download the tabular data.

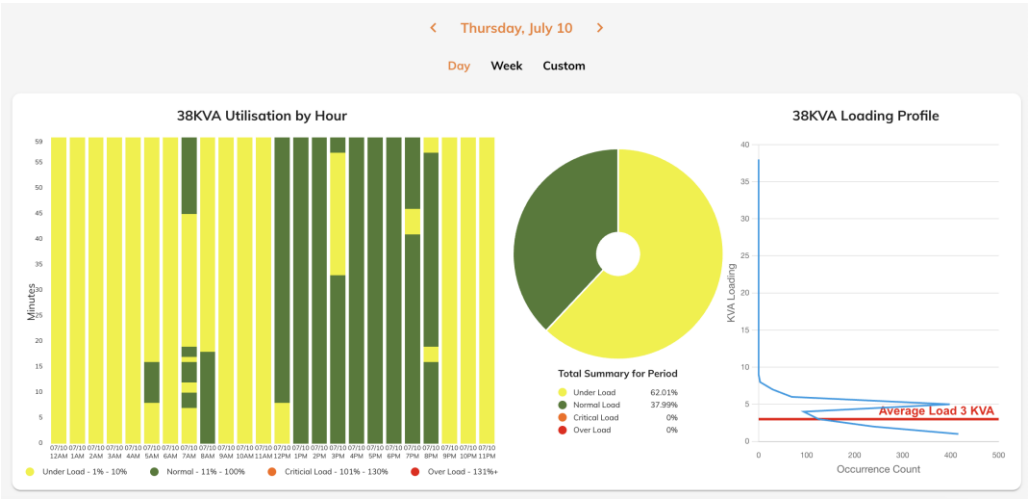
1.2.3 TRANSFORMER LOADING TAB

This tab provides a view of the asset's loading and utilization performance.

1.2.3.1 LOAD UTILISATION BY HOUR

This section provides a detailed view of the loading and utilization performance for a specific transformer.

The chart displays **per-minute data**, where each vertical bar corresponds to an hour. The chart illustrates the minutes of various load states for each hour of the selected day.

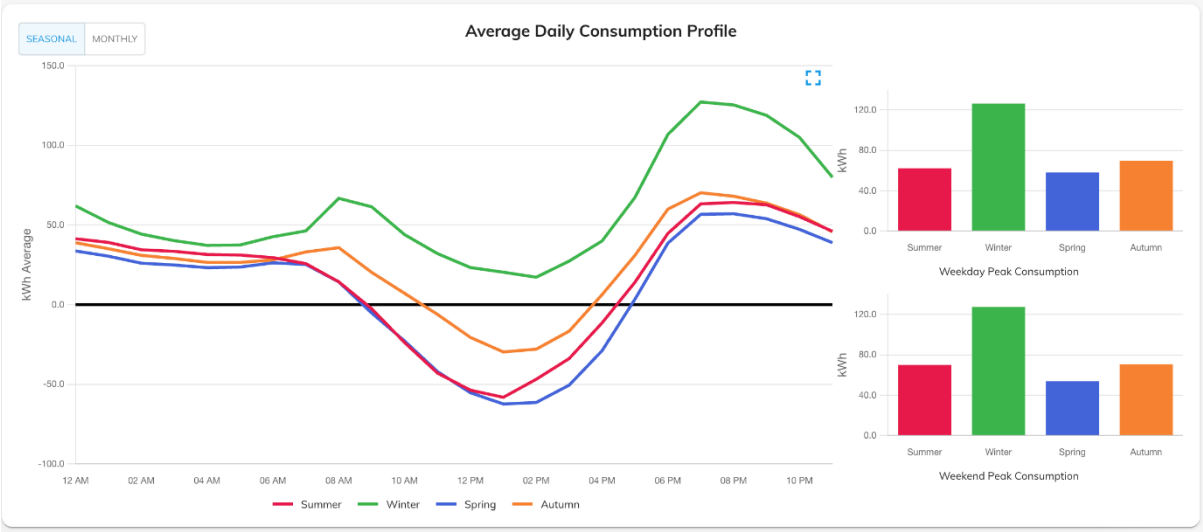


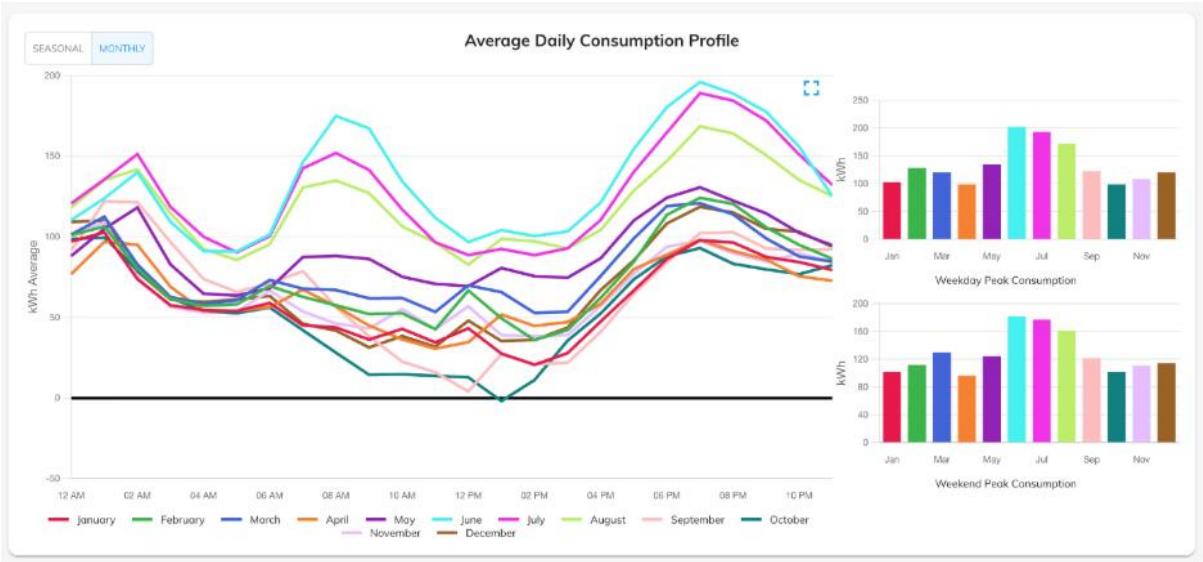
Total Summary Period: A chart that provides an overall summary of load utilization for the selected period, showing the percentage breakdown of load state.

Loading Profile: A line graph illustrates the KVA loading profile against the occurrence count, helping to visualize load patterns

1.2.3.2 AVERAGE DAILY CONSUMPTION PROFILE

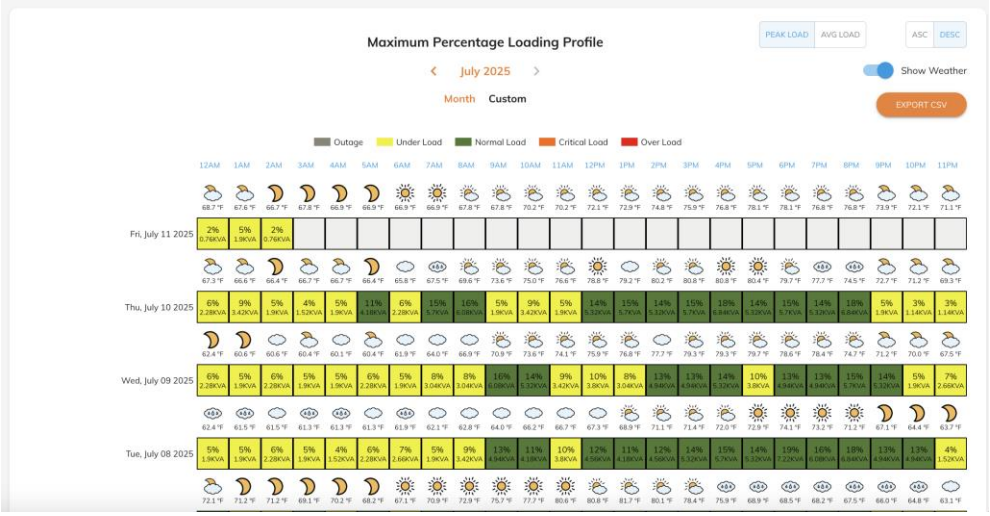
This section provides an overview of average energy consumption patterns throughout a typical day, broken down by both hour and season.
You can view the data by season or by month.





1.2.3.3 MAXIMUM PERCENTAGE LOADING PROFILE

This provides insights into system's load characteristics by displaying both the peak and average percentage loading for each hour of the day. This helps to understand how close the energy consumption gets to system's capacity and the typical load levels throughout the day.

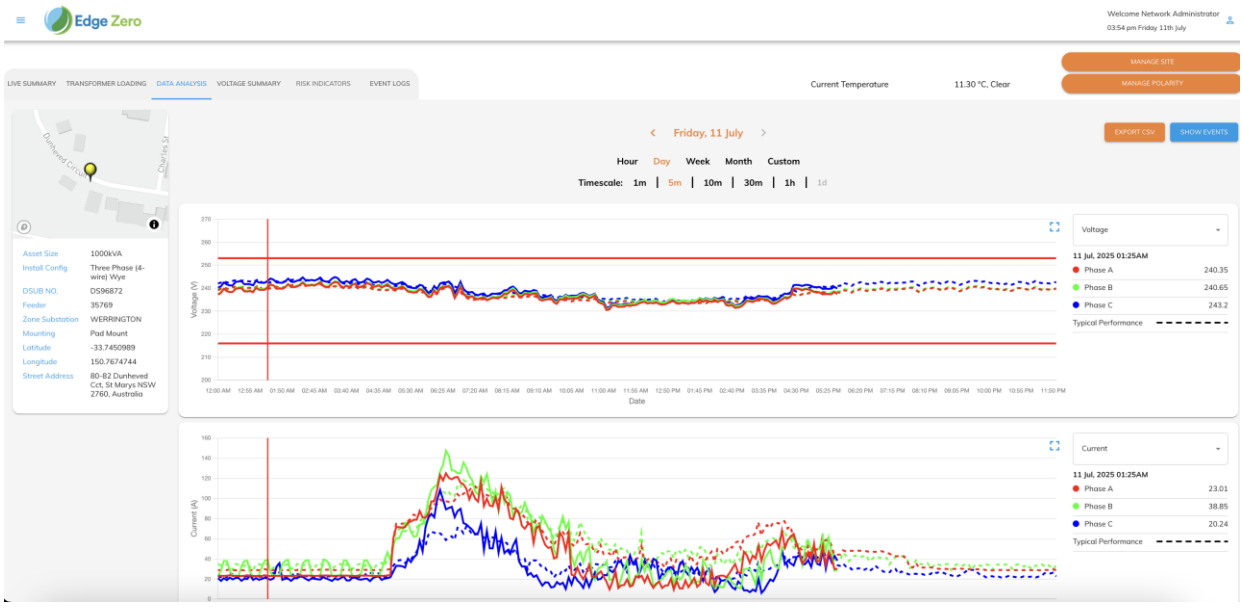


By clicking the "Show Weather" option, you can view the historical weather information on an hourly basis, potentially correlating them with the energy consumption.

You can also EXPORT the current displayed list by clicking the **EXPORT** button.

1.2.4 DATA ANALYSIS TAB

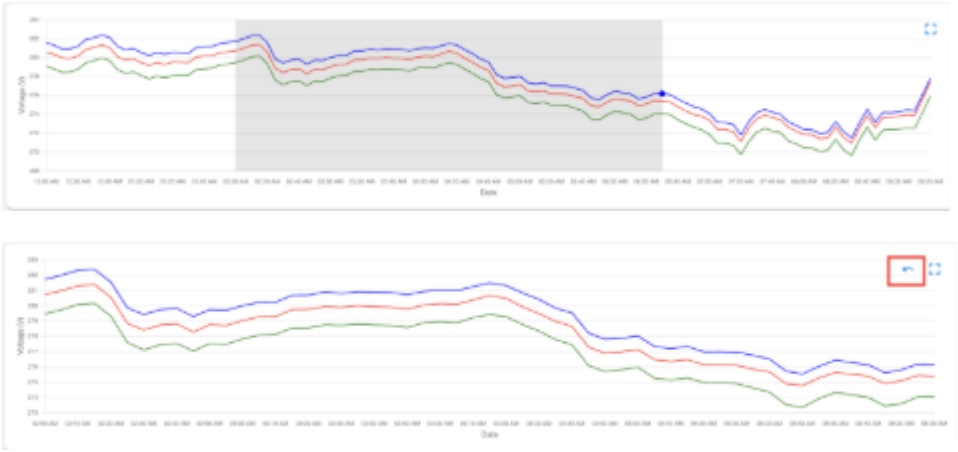
This tab provides in-depth insights into the electrical performance of devices and systems. It presents critical and non-critical data related to the quality of the power they are receiving and utilizing, allowing to assess the operational health and efficiency.



Dropdown selection allows you to select which parameters you want to see the historical trend

Typical Performance: When viewing current day data, a broken lines is added to the graph. It shows the forecasted trend of the selected parameter based on previous performance of the asset.

Show Events: Users can activate the "Show Events" toggle to display markers on the graph, indicating the precise moments when events were triggered. This feature assists in analyzing trends visible on the graph.

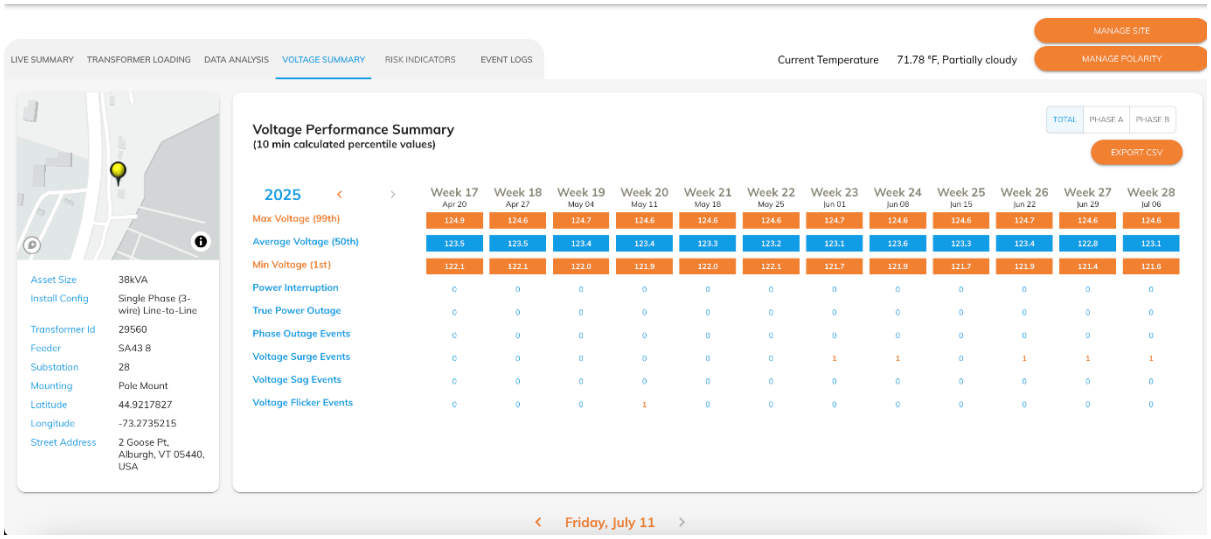


Zooming on Data (Drag to Select Range): To focus on a specific period, user can click and drag mouse horizontally across the chart. The chart will update to display only the data within the selected date range. By clicking the Return Icon will reset the chart to original date range.

Export Data: Exporting allows you to customize the data granularity, date range, and the parameters you want to extract. This allows the user to export data outside of the date limit and removes the limit on date selection for lower granularity. The data will be sent to the email provided in the form.

1.2.5 VOLTAGE SUMMARY TAB

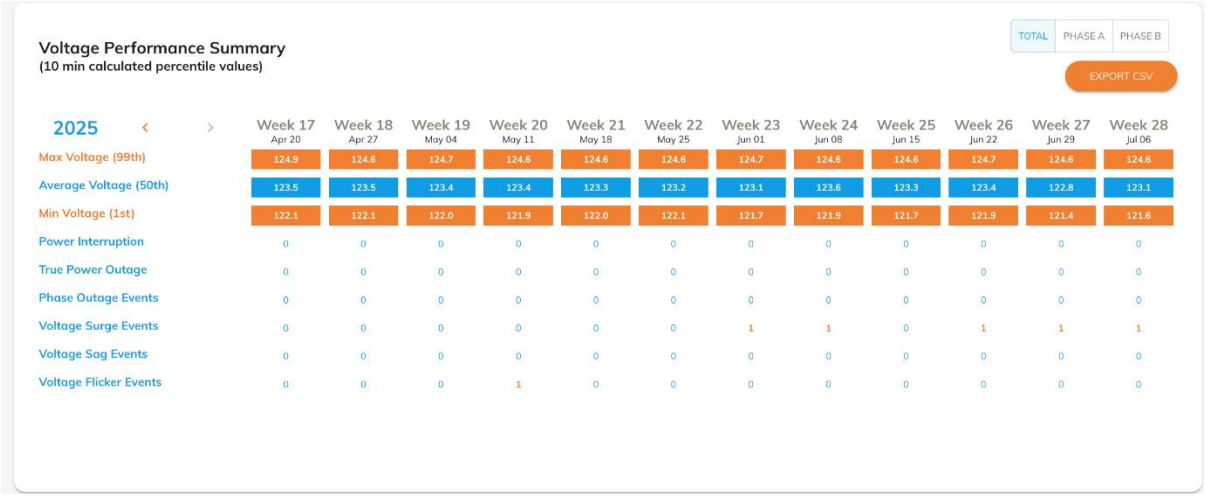
This tab provides a comprehensive overview of the transformer's voltage performance, including historical data, compliance, and potential savings.



1.2.5.1 VOLTAGE PERFORMANCE SUMMARY

Presents a rolling 7-day voltage summary of 10-minute aggregated readings.

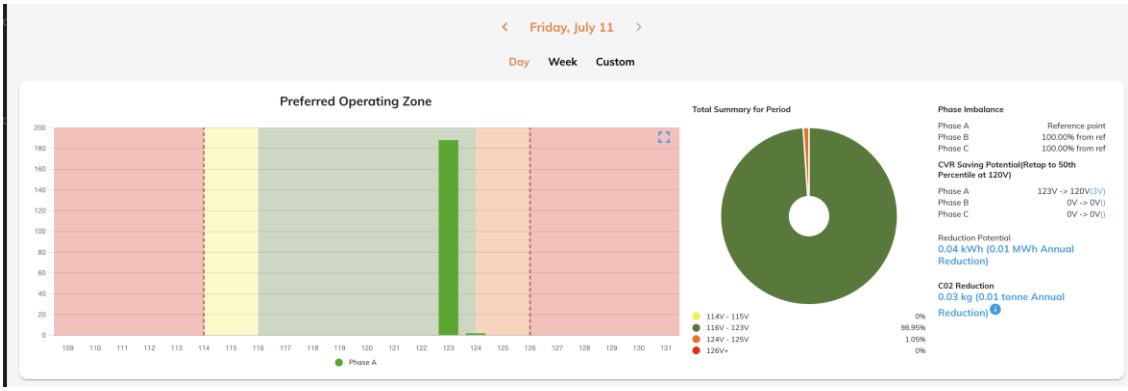
Each column represents a week, with data provided for maximum voltage (99th percentile), average voltage (50th percentile), and minimum voltage (1st percentile), along with counts of different types of power quality events such as power interruptions, true power outages, phase outage events, voltage surge events, voltage sag events, and voltage flicker events.



You can also EXPORT the current displayed list by clicking the **EXPORT** button.

1.2.5.2 PREFERRED OPERATING ZONE

This section shows the **number of occurrences of the voltage per phase** within specific voltage ranges. The background is color-coded based on the voltage thresholds set.



The dashboard also includes information on phase imbalance, which is a critical parameter in three-phase power systems. The imbalance is given for phases A, B, and C, each compared to a reference point (shown as a percentage of deviation from the reference).

The retap to 50th percentile at 230V is provided for each phase, suggesting possible adjustments to the system for optimization.

There is a calculation for "CVR Saving Potential," which stands for Conservation Voltage Reduction. This strategy aims to save energy by reducing the voltage supplied to the consumer without affecting the performance of electrical equipment.

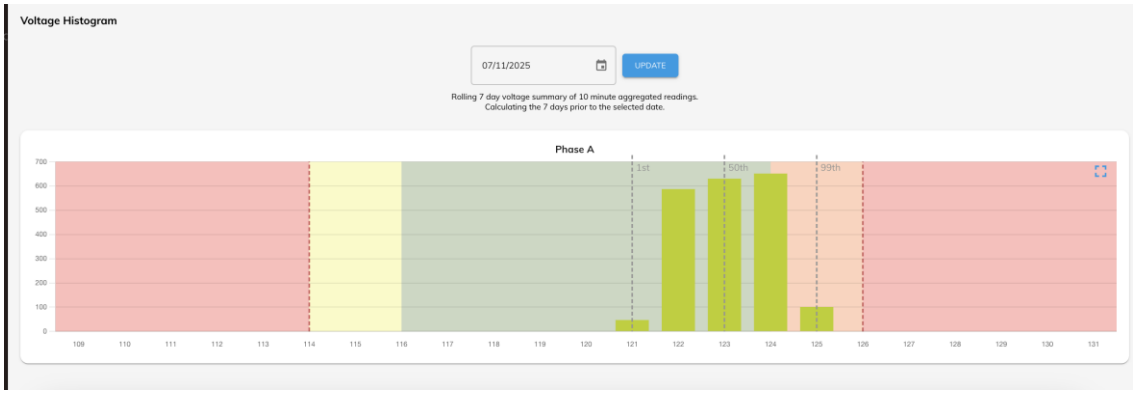
The potential savings are indicated in both kilowatt-hours (kWh) and the corresponding annual reduction in megawatt-hours (MWh).

The dashboard displays a potential CO2 reduction as a percentage and the equivalent annual reduction in tonnes.

This section highlights the environmental benefits of optimizing voltage levels and phase balance, translating energy efficiency into a carbon footprint reduction.

1.2.5.3 VOLTAGE HISTOGRAM

Displays a rolling 7-day voltage summary based on 10-minute aggregated readings, calculating the 7 days prior to the selected date.

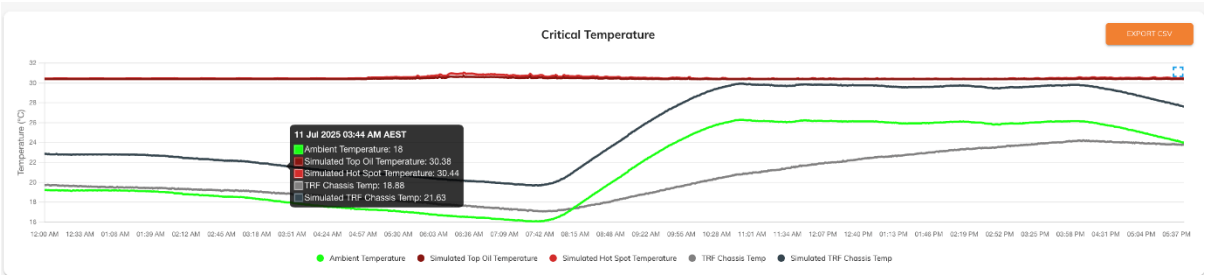


1.2.6 RISK INDICATORS TAB

This tab provides insights into potential risks for the transformer, focusing on thermal performance and aging characteristics.

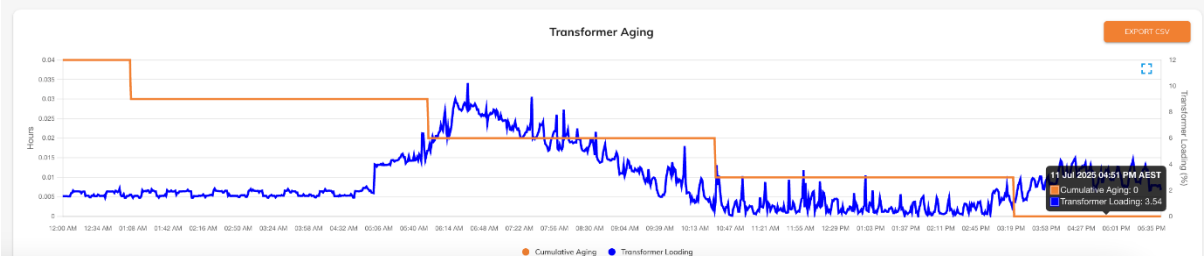
1.2.6.1 CRITICAL TEMPERATURE

A chart displaying various temperature metrics over time to indicate critical thermal conditions.



1.2.6.2 TRANSFORMER AGING

A chart that correlates transformer loading or operating conditions with the aging process (e.g., cumulative hours of operation or degradation).

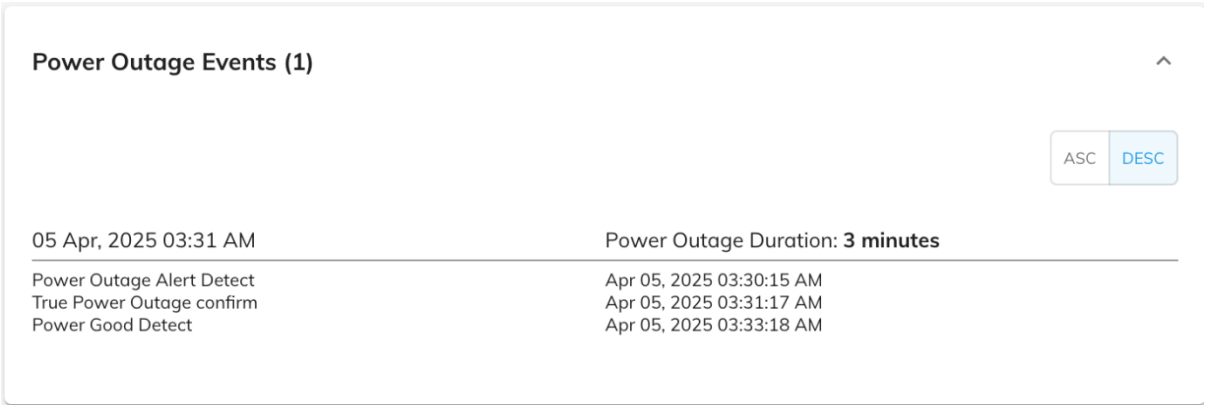


1.2.7 EVENT LOGS TAB

This tab provides a log and summary of various events affecting the transformer, including power outages, data outages, and power quality events. Also, to modify event configurations, click the **Show Events Config** button.

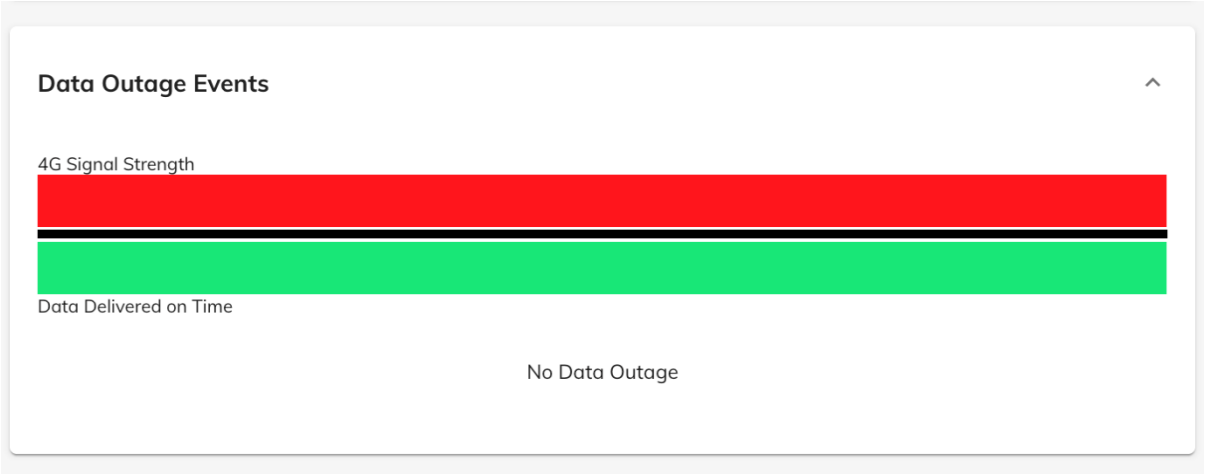
1.2.7.1 POWER OUTAGE EVENTS

This section shows all recorded power outages within the selected period.

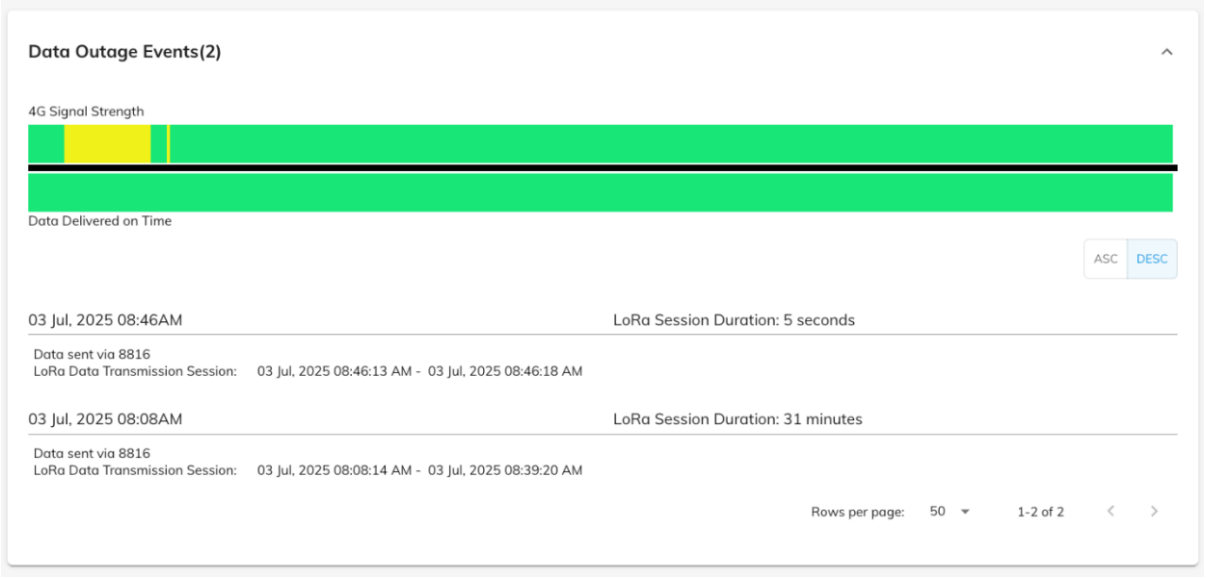


1.2.7.2 DATA OUTAGE EVENTS

This section shows all recorded data outages within the selected period. It also shows how the asset transmits data to the server and if data is delivered on time. The data is considered as Data Outage if the asset transmits the data with a 10-minute delay.

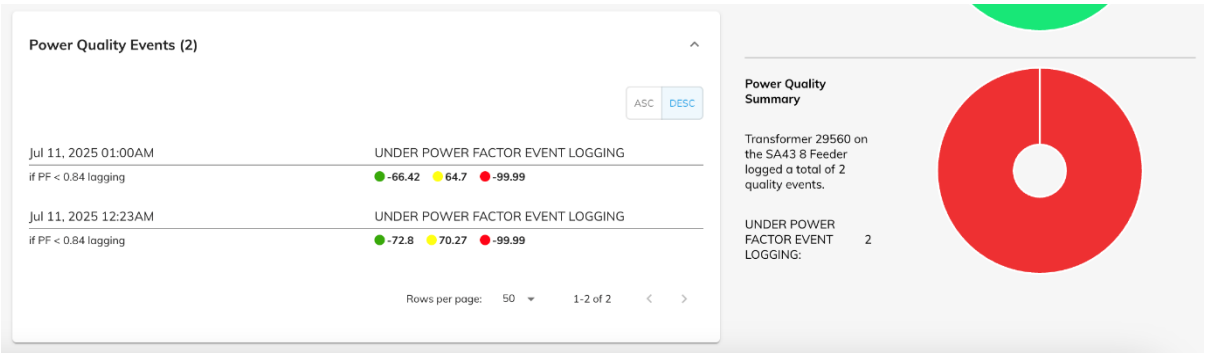


This view also shows if data was sent via LoRa during periods of potential network disruption. On the 4G Signal Strength, data is marked as yellow if data was sent via LoRa



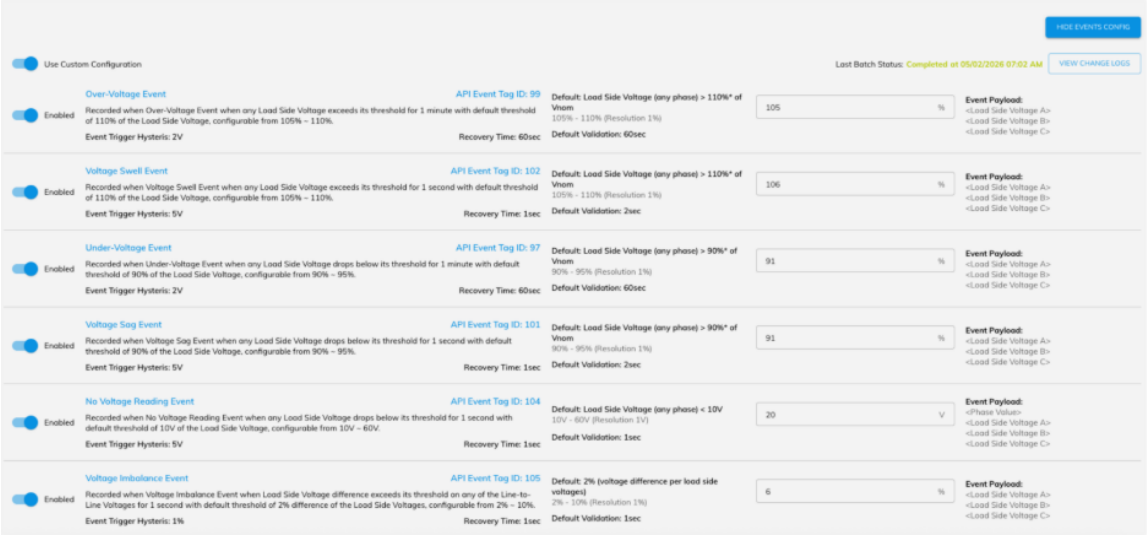
1.2.7.3 POWER QUALITY EVENTS

This section shows all recorded power quality events triggered by the asset within the selected period.



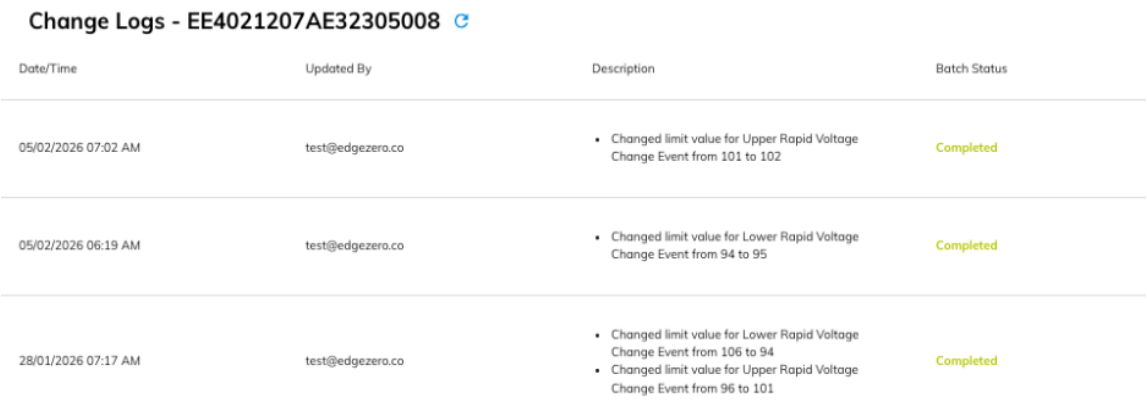
1.2.7.4 DEVICE-LEVEL EVENTS CONFIGURATION

This section shows how to configure the device level events configuration.



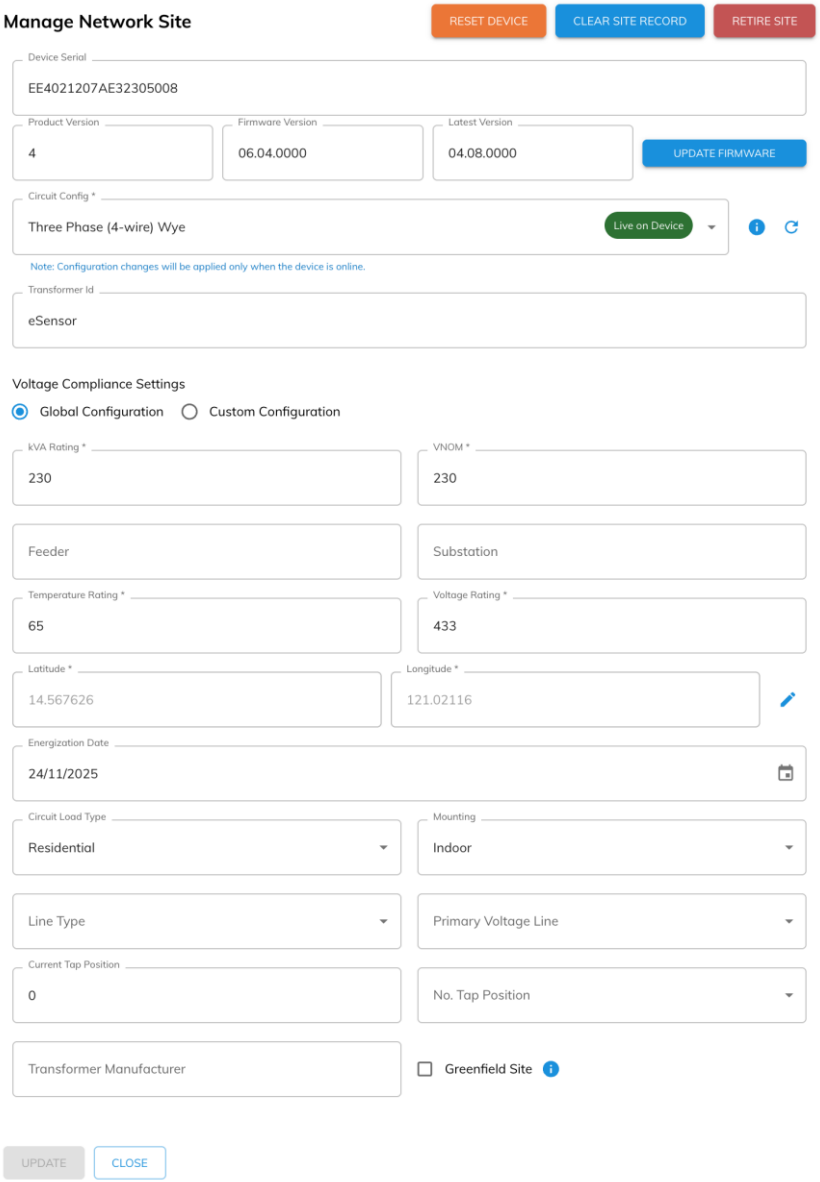
When changes are saved, the backend applies to the configuration asynchronously to avoid service interruption.

The status of this batch process is displayed in the UI, and historical updates can be reviewed via **View Change Logs**.



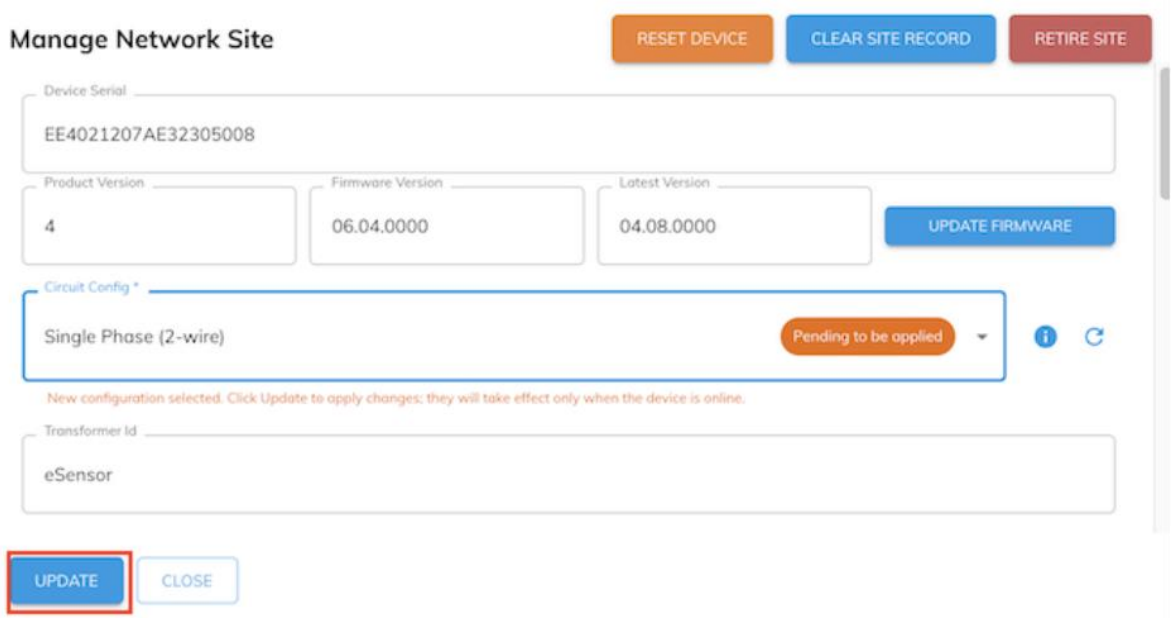
1.2.8 MANAGE SITE

This section provides comprehensive tools for managing the monitored asset's configuration.

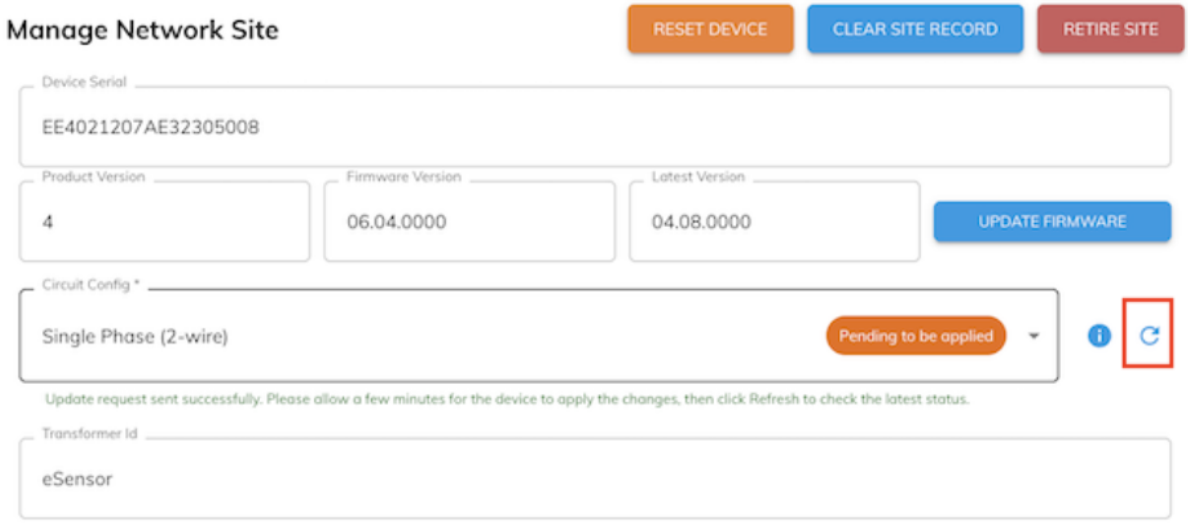


Reset Device: This allows network administrator to send a command to the device to reset the device.
Retire Device: This allows network administrator to retire the device. By retiring the device, the asset will be removed from Live Grid Map and disabled from viewing the asset details on Asset Profile Page.

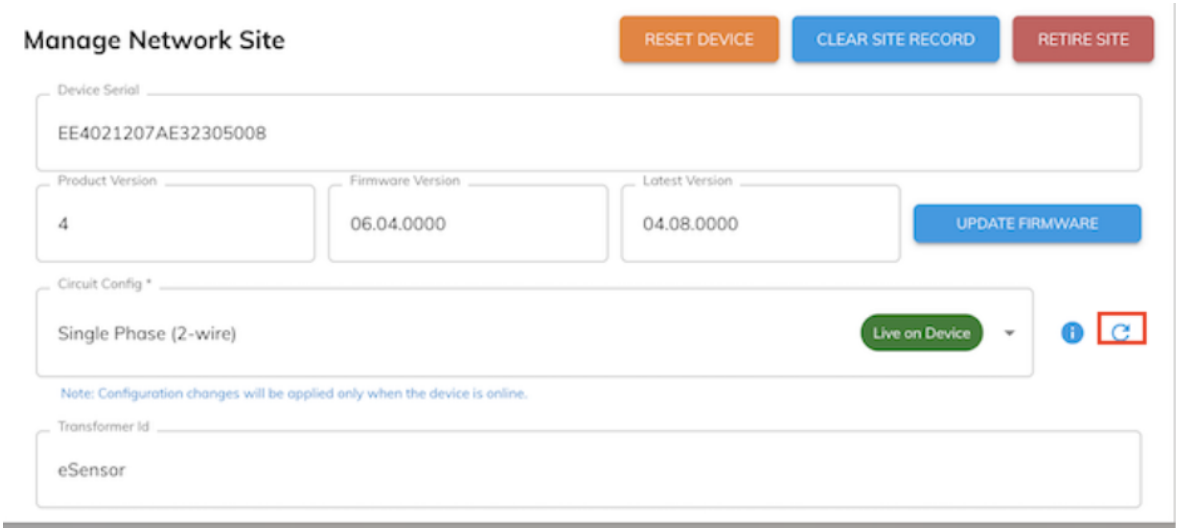
Network Administrator can configure desired Circuit Configuration from the dropdown list. If the selected configuration is different from the current device configuration, he/she will be prompted to click Update to apply the change.



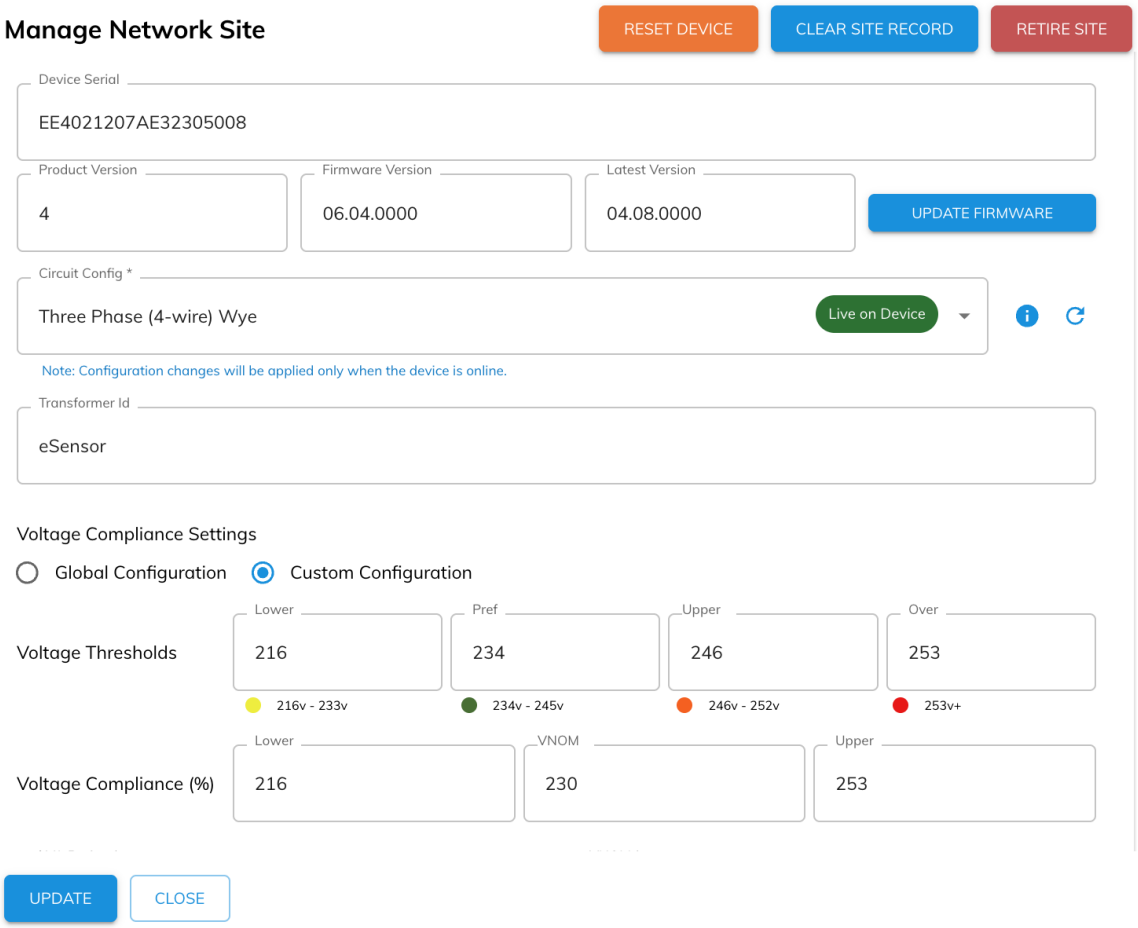
It is normal for the status to remain **"Pending to be applied"** at this stage. Please allow some time for the device to process the update, then click the Refresh button to retrieve the latest status.



If the configuration has been applied successfully, the status will be changed to *"Live on Device"*.

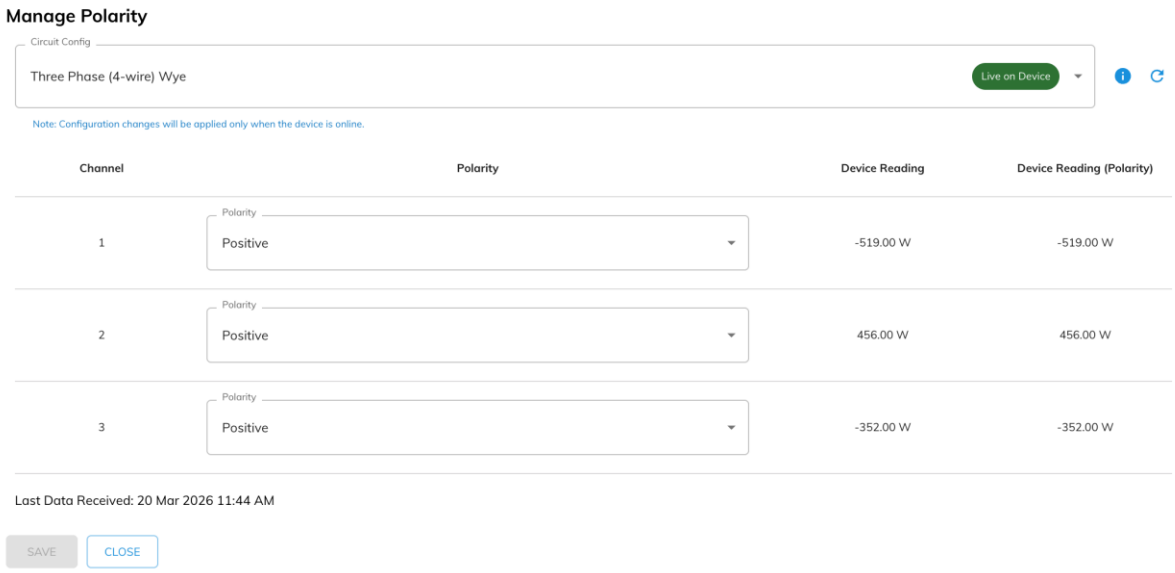


Network Administrator can customize the Voltage Compliance Setting of the monitored asset on the Manage Site. By checking the Custom Configuration, user can set a specific loading and voltage thresholds for the monitored asset. This configuration will be applied on the Live Grid Map and Asset Profile Page.

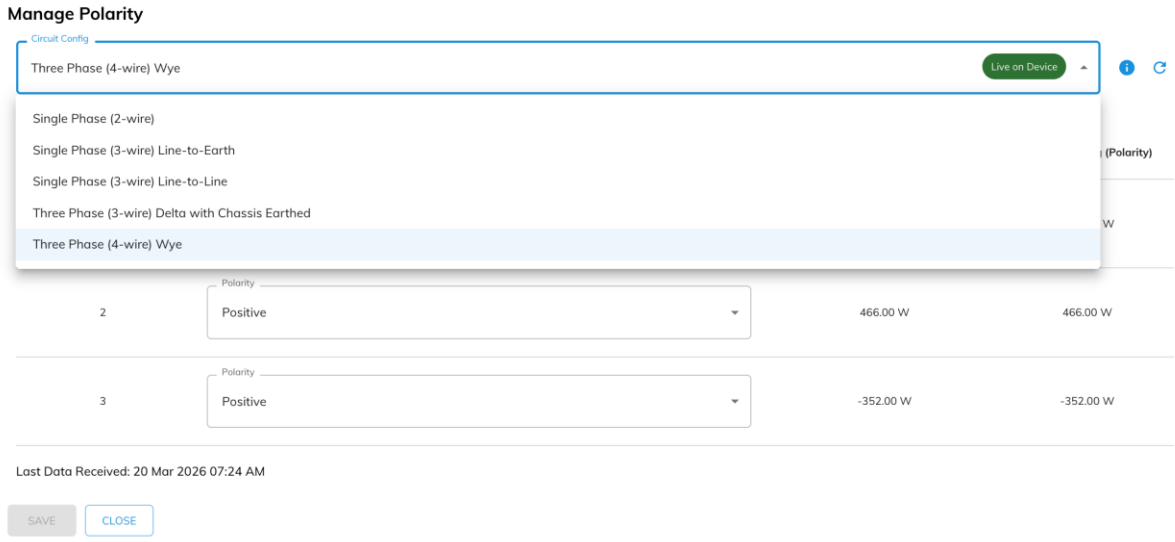


1.2.9 MANAGE POLARITY

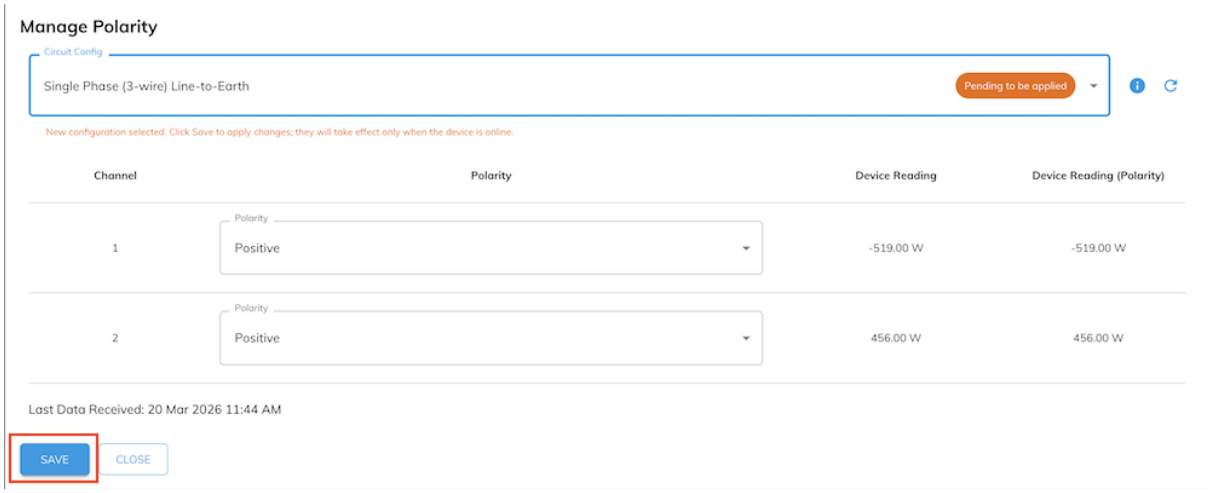
This section allows users to manage and configure the polarity settings for different channels of the monitored asset.



User can set the circuit configuration applied on the monitored asset. This allows to determine the channels that are in use and can set the polarity.

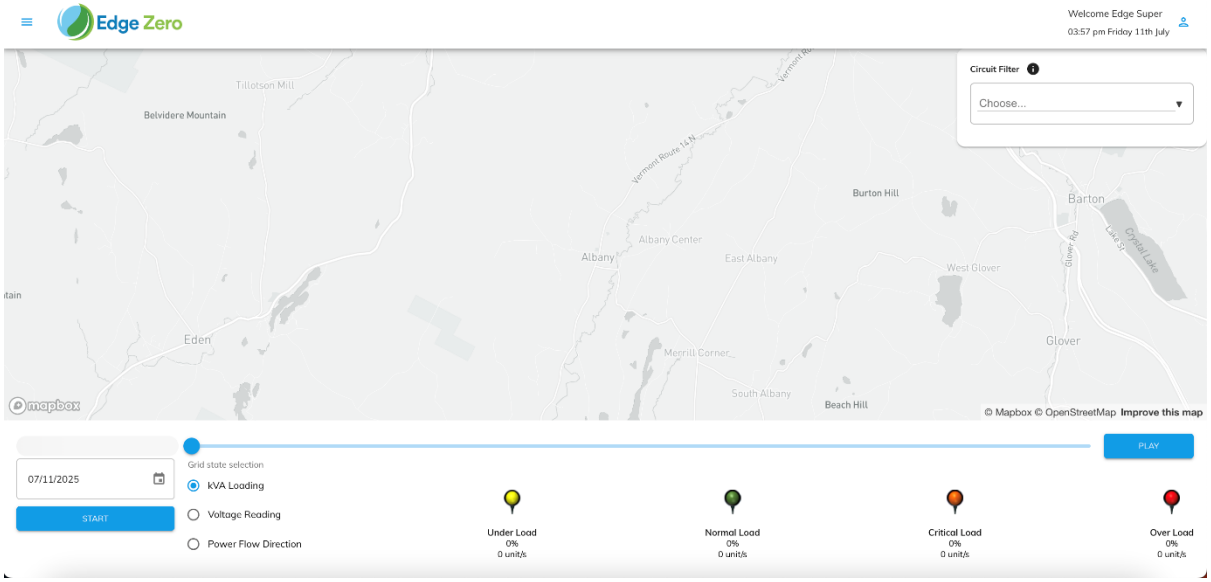


Similar with the Circuit Configuration Steps under **Manage Network Site,** If the device-reported value matches the setting configured in the portal, the status will be shown as *"Live on Device"*. Otherwise, the system will report "*Pending to be applied*". Please make sure the device is online, click Save, or raise a support ticket if the issue continues.



1.3 GRID MAP PLAYBACK

This page provides a powerful tool for historical analysis of grid conditions and asset states, building upon the visual foundation of the "Live Grid Map". Unlike the real-time "Live Grid Map," this page allows users to review past operational data and visualize how grid assets performed on any given date.



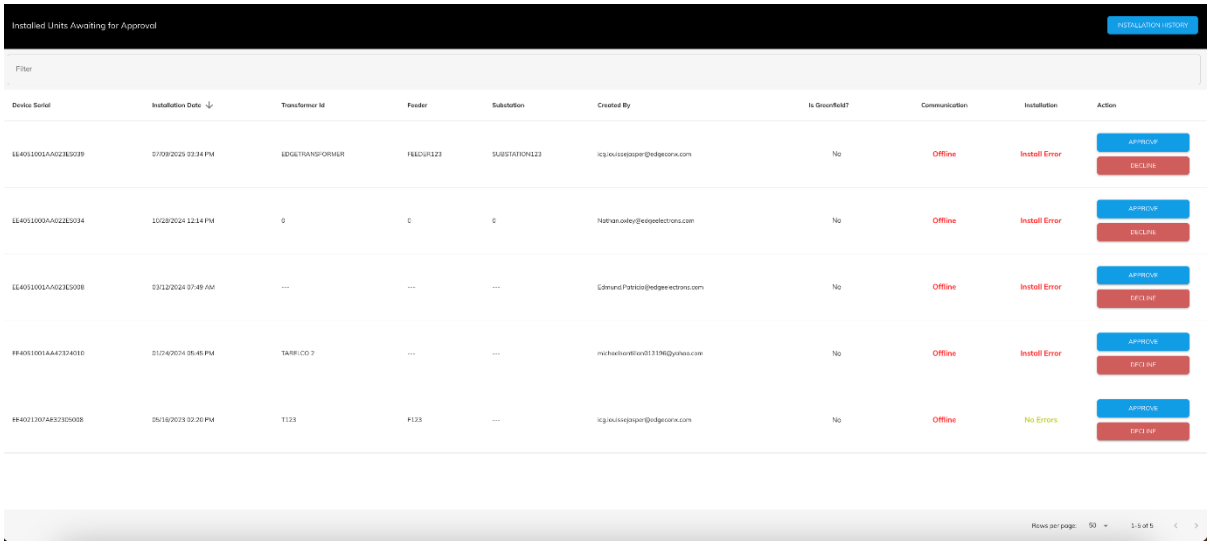
Users select a specific historical date. The system then dynamically plays back the status of the grid's assets minute by minute throughout that entire selected day. This detailed, time-lapsed view enables a comprehensive understanding of historical changes in asset status and performance.

2. DEVICE MANAGEMENT

The Device Management section provides tools and views for overseeing the lifecycle and status of all monitoring devices. This includes managing new device approvals, tracking retired units, managing pending installations, and keeping tabs on those currently offline.

2.1 APPROVE DEVICE

This page is dedicated to managing and approving newly installed devices that are ready to be integrated into the live grid map.



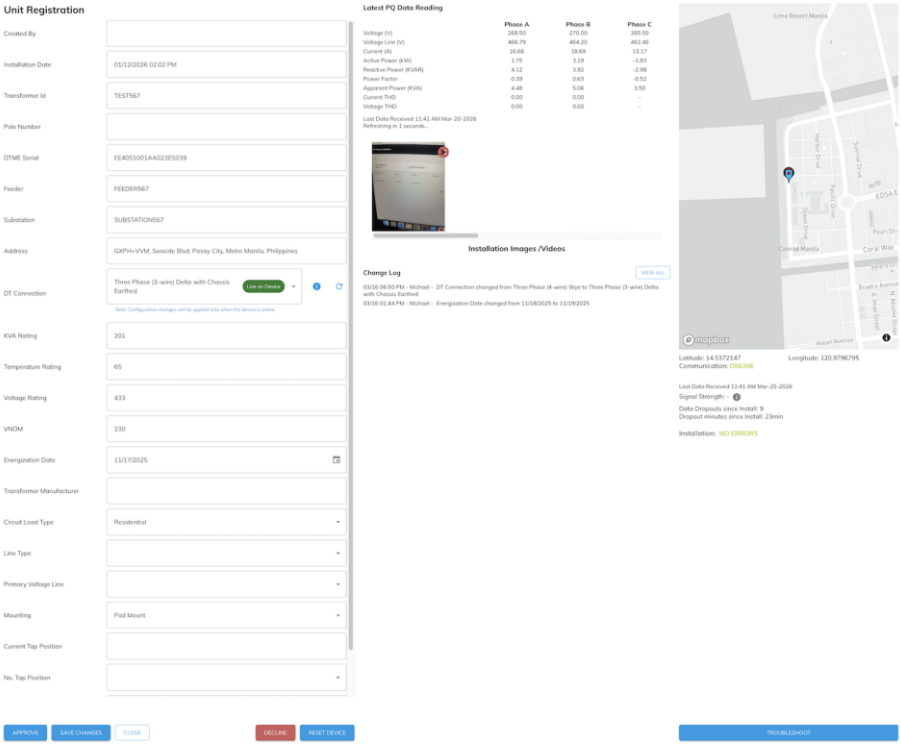
The core of the page is a tabular list of monitored assets awaiting approval. Each row represents a single device containing the asset details and the following columns:

- **Device Serial:** The unique serial number identifying the device.
- **Installation Date:** The date when the device was reportedly installed.
- **Transformer Id:** The identifier of the transformer the device is associated with.
- **Feeder:** The feeder number to which the device is connected.
- **Substation:** The substation associated with the device.
- **Installed By:** The user that performed the installation.
- **Is Green Field?:** Indicates if the installation is marked as Greenfield.
- **Communication:** Status of the monitored asset. If the asset is not reporting within the last 5 minutes, it's considered as Offline.
- **Installation:** Status regarding the physical installation. The asset is marked as Install Error if the device has erroneous data reporting (invalid voltage value, incorrect circuit configuration etc) or have never reported a data since the installation.
- **Action:** This column contains interactive buttons for each device, allowing users to either **"APPROVE"** the device or **"DECLINE"** the approval.

A "Filter" input field is located at the top, allowing users to search or narrow down the list of assets.

2.1.1 APPROVING OF DEVICE

When the "APPROVE" button for a specific device is clicked, a new modal will open to finalize the approval process. This interface is designed to confirm the device's details and allow for any necessary configurations before approval.



Device Information Section: This section is designed to present the device's pre-filled details during installation and allow for immediate updates, enabling the approver to verify and correct any information before proceeding with the approval process.

***Note**: If the selected Circuit Configuration differs from the device's current configuration, an update will be required—like the behaviour in Manage Network Site and Manage Polarity—and will be applied once the device is online. This may take some time.*

Latest PQ Data Reading Section: This section provides data of the most recent Power Quality (PQ) data received from the device. It's crucial for quickly assessing the current operational state and power quality metrics. Data is refreshed every minute.

Installation Images: This section is dedicated to displaying visual documentation of the device's installation process. These images are uploaded by the installer using the Edge Zero Installer app.

Location and Device Status Information: This section offers geographical context to where the asset was installed. Pending installation is also added on the map layer to validate the installation as well as the GIS layer if available. This also provides the status of the device.

Change Logs: This section shows the historical record of all modifications made to a device while it's in the approval status. It displays which fields were updated, the timestamp of the change, and the user who performed the update.

Action Buttons: At the very bottom of the modal, a set of action buttons provides the means to submit changes, approve the device, reject the device or exit the page.

- **APPROVE Button** - This button is used to formally approve the device, finalizing its registration and integrating it into the active monitoring system. Once approved, the

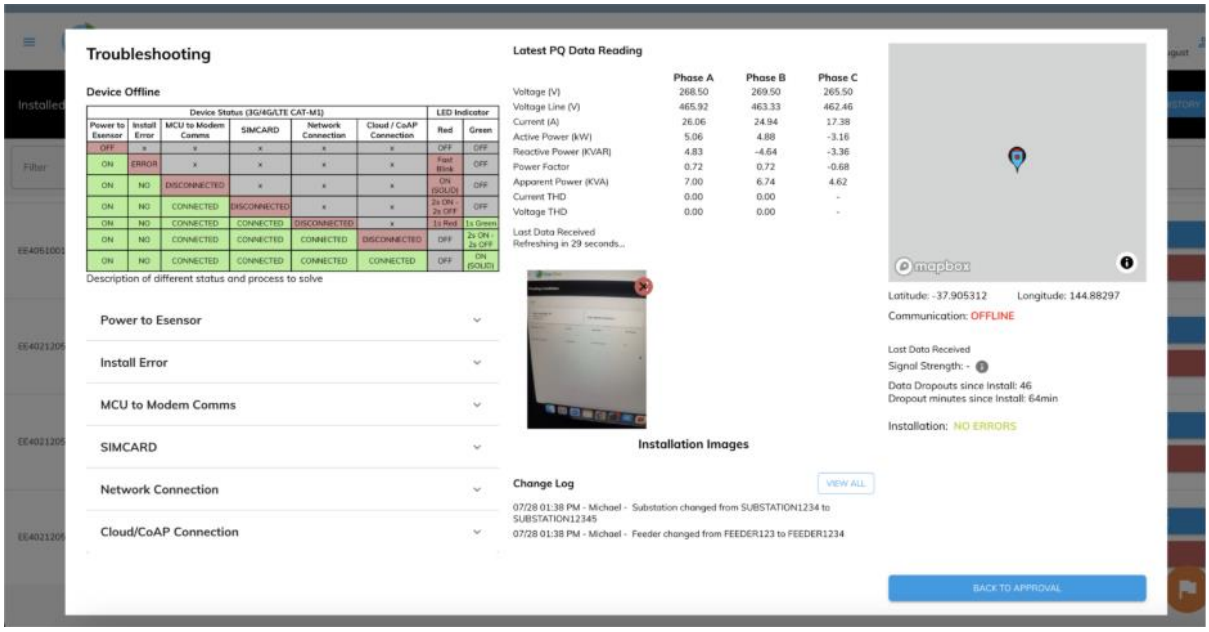
device will be removed from the Approve Device page and will now be part of the Live Grid Map.

- **SAVE CHANGES Button** - Allows the user to save any modifications made to the device's registration information without necessarily approving or declining the device. This is useful for incremental updates.
- **CLOSE Button** - To exit the Approval modal without saving any unsaved changes or taking an approval/decline action.
- **DECLINE Button** - To reject the device's registration. This action would prevent the device from being integrated into the active monitoring system. Once rejected, the device will be removed from the Approval Device page and will now be part of the Retired Devices.
- **RESET DEVICE Button –** This button allows the user to send a command to restart the device.

2.1.2 TROUBLESHOOT DEVICE

The Troubleshoot interface provides comprehensive diagnostic information and tools for addressing issues with your monitored assets. This is useful when an asset is not performing as expected or when its communication status is offline.

To access the page, click the TROUBLESHOOT button on the Approve Device modal



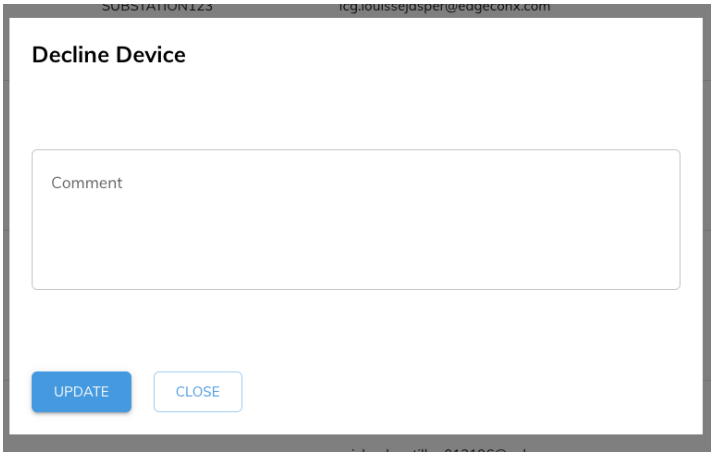
Upon opening the Troubleshooting interface, you will see a series of diagnostic categories and relevant data points.

To go back to Approve Device interface, click the Back the Approval Button

2.1.3 DECLINING OF DEVICE

When the "DECLINE" button for a specific device is clicked, a "Decline Device" modal dialog will appear. This modal facilitates the process of confirming of rejecting a device. A

"Comment" text area is provided allowing the user to enter detailed reasons or notes for declining the device. This ensures proper documentation of the decision.



Once declined, the device will be removed from the Approval Device page and will now be part of the Retired Devices.

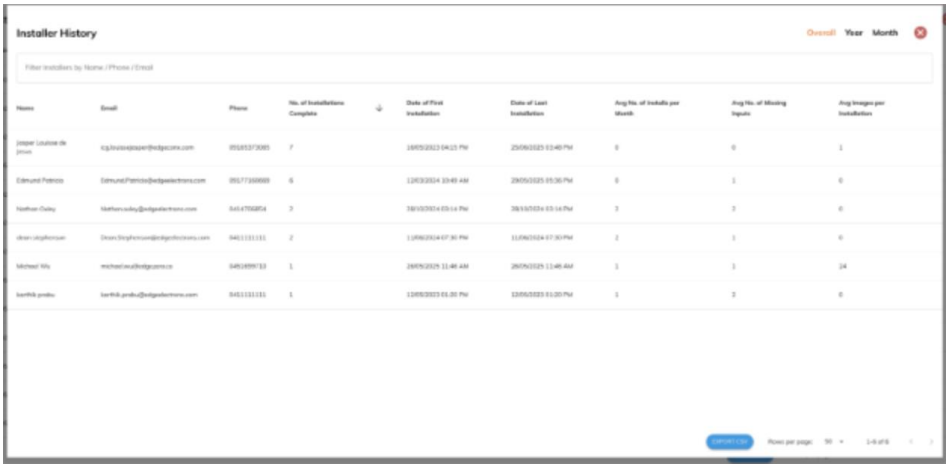
2.1.4 INSTALLATION HISTORY

This modal, accessible by clicking the "INSTALLATION HISTORY" button on the "Approve Device" page, provides a historical log of all device installations within the system. It details key information about each installed unit and the installation process, serving as an audit trail and a resource for reviewing past installations.

2.1.5 INSTALLERHISTORY

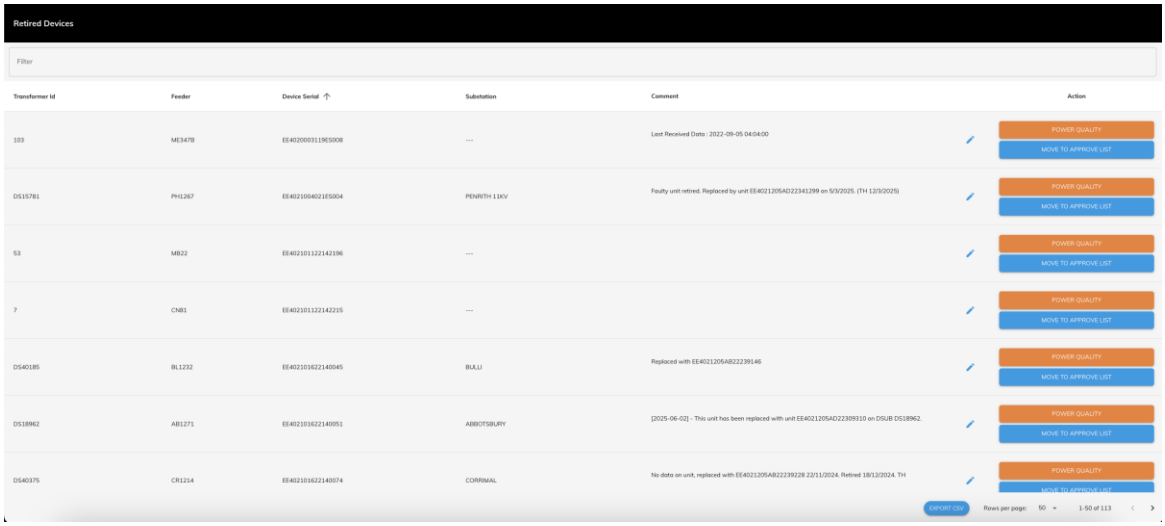
The "Installer History" feature provides an overview of installations completed by each installer. This allows you to track performance and monitor installations.

You can also filter installations based on overall, yearly or monthly installation



2.2 RETIRED DEVICES

This page provides a record and management interface for devices that have been decommissioned, replaced, or otherwise retired from active monitoring within the system.



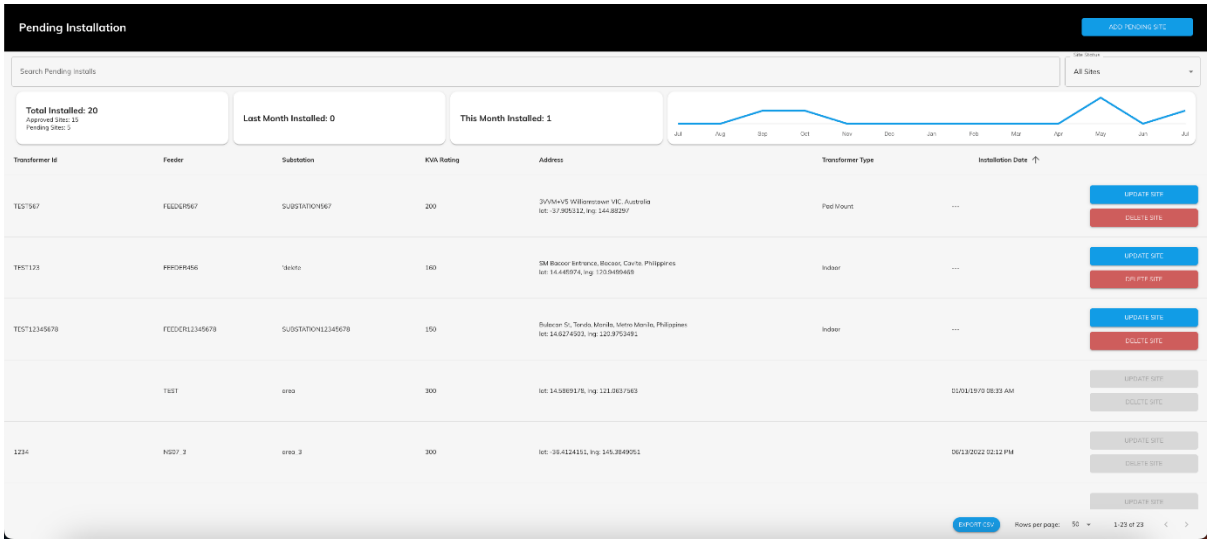
The core of the page is a tabular list of all retired devices, with each row representing a single unit. The table includes the following columns:

- **Transformer Id:** The identifier of the transformer that the device was previously associated with.
- **Feeder:** The feeder number the device was connected to.
- **Device Serial:** The unique serial number of the retired device.
- **Substation:** The substation associated with the device's previous installation.
- **Comment:** A field providing notes or reasons for the device's retirement. By clicking the pencil icon on the right side of the comment column, allows you to modify the comment.
- **Action:** This column contains action buttons for each retired device allowing users to view the historical power quality data or move the device back to the live grid map or approval page.

A "Filter" input field is located at the top, allowing users to search or narrow down the list of assets.

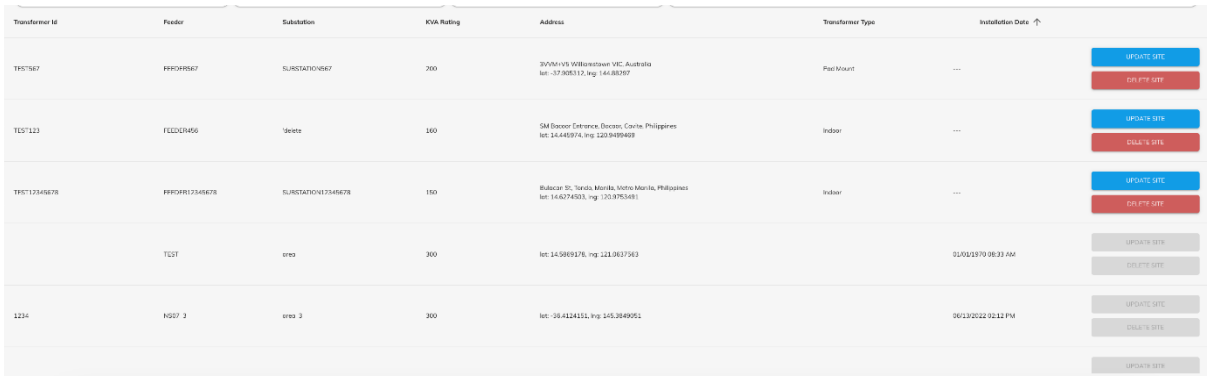
2.3 PENDING INSTALLS

This page lists address that are currently pending for physical installation. It helps track the pipeline of devices yet to be deployed as well as the monitor of the status. The information provided on this page, particularly the address details, significantly assists in easier installation: when a pending site is selected from this list, the Edge Zero Installer app can automatically pre-populate relevant fields during device installation, thereby streamlining the setup process.



At the top of the page, several summary cards provide quick statistics with regards on installations:

- **Total Installed -** Shows the total number of monitored assets that have been installed
- **Approved Sites -** Shows the total number of monitored assets that have been installed, approved and now part of the Live Grid Map
- **Pending Sites -** Shows the total number of monitored assets that have been installed but still waiting for the approval.
- **Last Month Installed** – Shows the total number of monitored assets that are installed last month.
- **This Month Installed –** Shows the total number of monitored assets that are installed the current month.
- **Installation Trend Graph -** A line graph visually represents the trend of installations over time monthly for the whole year



The core of the list is tabular list of all devices that are installed and awaiting installation, with each row representing an address. The table includes the following columns:

- **Transformer Id:** The identifier of the transformer the device will be associated with.
- **Feeder:** The feeder number the device will be connected to.
- **Substation:** The substation associated with the future installation.
- **KVA Rating:** The KVA rating of the transformer.

- **Address:** The physical address of the pending installation site. This address information is particularly valuable as it can be used to auto-populate fields in the Edge Zero Installer app during actual device installation
- **Transformer Type:** The type of transformer (e.g., "Pad Mount", "Pole Mount").
- **Installation Date:** For already installed devices, it shows when was the device is installed.
- **Action:** This column contains action buttons for each pending device:
  UPDATE SITE: A button to modify the details of the pending installation. Once clicked a dialog box like Create Pending Installation will appear with the selected row details populated. Update the fields you want to modify and click the UPDATE.
  DELETE SITE: A button to remove the pending installation record from the list.

  If the button is disabled, it means the asset has already been installed and cannot be modified or delete. To update the installed assets, go to the asset's profile page and modify it using the Manage Site.

You can filter the list of pending installs by using the search field or filter by site status.
Site Status filtering:

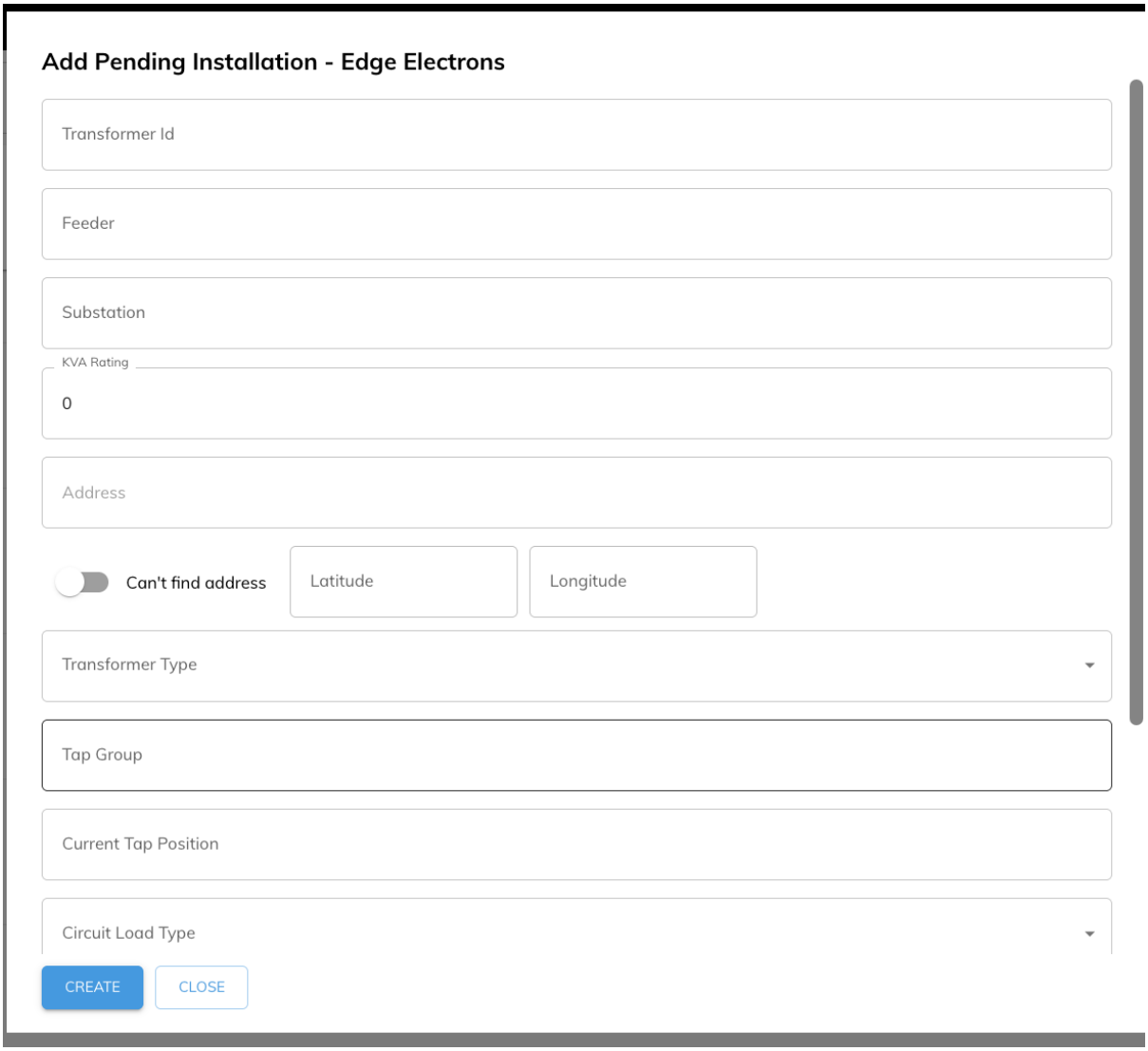
You can filter the pending installs using the site status with the following options:

- All Sites – no filter. All sites are displayed
- Pending Sites – only display sites that are not yet installed.
- Installed Sites – only display sites that are already installed using the Edge Zero Installer.

You can also EXPORT the current displayed list by clicking the **EXPORT** button located at the bottom of the table.

2.3.1 CREATING A PENDING INSTALLATION

When the "ADD PENDING SITE" button is clicked on the "Pending Install" page, a modal dialog appears. This form allows users to register new devices that are slated for future installation, populating the pending installations list.



The form includes various fields to capture essential details about the upcoming installation and will be used to populate the fields on Edge Zero Installer's Network Details Screen:

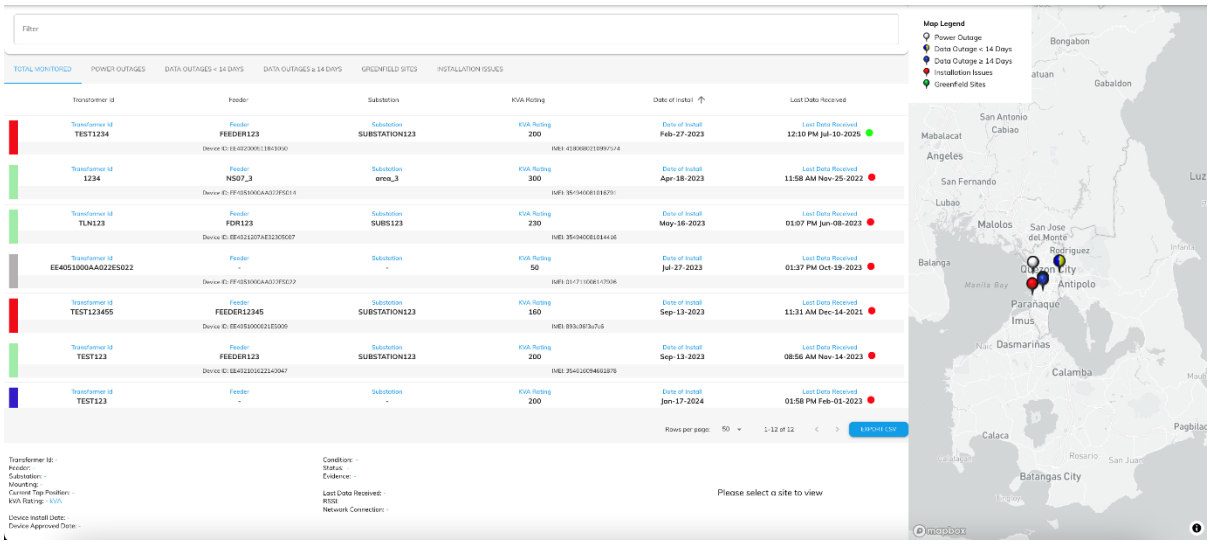
- **Transformer Id:** For entering the identifier of the transformer.
- **Feeder:** For specifying the feeder connection.
- **Substation:** For indicating the associated substation.
- **KVA Rating:** For inputting the KVA rating of the transformer.
- **Address:** An input for the physical address of the installation site. It uses google autocomplete for easier input of address
- **Can't find address toggle with Latitude/Longitude:** A toggle switch labeled "Can't find address" is present if the address is not visible on the google autocomplete or if you want a precise location. When activated, it allows manual input of Latitude and Longitude coordinates instead of an address.
- **Transformer Type:** A dropdown or input field for selecting the type of transformer (e.g., "Pad Mount", "Pole Mount").
- **Tap Group:** A field related to transformer tap settings.

- **Current Tap Position:** A field to specify the current tap position.
- **Circuit Load Type:** A dropdown or input field to classify the type of circuit load.

Once u click the CREATE button, it will create a pending install record and be added on the pending install list.

2.4 OFFLINE DEVICES

This page serves as a central hub for identifying and managing devices that are not currently reporting data or are experiencing various operational issues. The assets listed here are already approved and are automatically displayed on Live Grid Map (except the Greenfield Sites). It provides both a tabular list and a geographical map view to help pinpoint problem areas and assets.



Assets listed on this page are conceptually divided into several key groups, which are primarily accessed and filtered via the tabs at the top of the page. Total Monitored is the default tab view, showing all assets across all categories. The specific groups and their definitions are:

- **Power Outages –** These are assets that are currently experiencing a Power Outage.
- **Data Outages < 14 Days** – These are assets that are not reporting data of less than 14 days.
- **Data Outages ≥ 14 days** – These are assets that are not reporting data for at least 14 days
- **Greenfield Sites** – These are assets that are marked as Greenfield sites during the Approval process.
- **Installation Issues** – These are assets that has erroneous data reporting (invalid voltage value, invalid power quality based on circuit configuration etc) or have never reported a data since the installation.

The list presents a tabular view of monitored assets based on the selected tab. Key columns include:

- **Transformer Id:** The identifier of the associated transformer.
- **Feeder:** The feeder associated to the asset.
- **Substation:** The substation associated to the asset.
- **KVA Rating:** The KVA rating of the transformer.
- **Date of Install:** The date the asset was installed.

- **Last Data Received:** The timestamp of the last reported data from the asset.
- **Online Indicator:** An indicator that tells if the asset is online (green dot) or offline (red dot) - This is helpful to determine if the greenfield sites are already went online

An "EXPORT CSV" button is available at the bottom right, allowing users to download the data from the currently displayed table view.

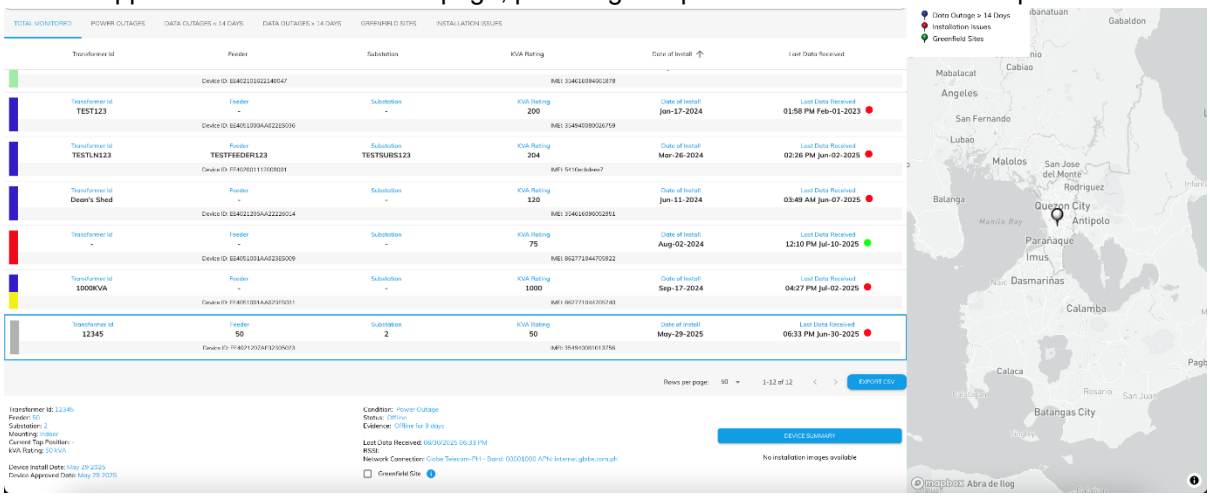
A map on the right side of the page visualizes the location of all assets, with different colored pins indicating their status. The pins displayed on the map are dynamically updated based on the current filter (i.e., the selected tab) on the device list.

A legend is provided at the top right of the map, explaining the meaning of each pin color:

- **Power Outage:** (Orange pin)
- **Data Outage < 14 Days:** (Dark blue/yellow pin)
- **Data Outage ≥ 14 Days:** (Dark blue pin)
- **Installation Issues:** (Red pin)
- **Greenfield Sites:** (Green pin)

2.4.1 VIEWING ASSET INFORMATION

When a row (representing an asset) is clicked in the asset table, a detailed information panel appears at the bottom of the page, providing comprehensive data about that specific unit.



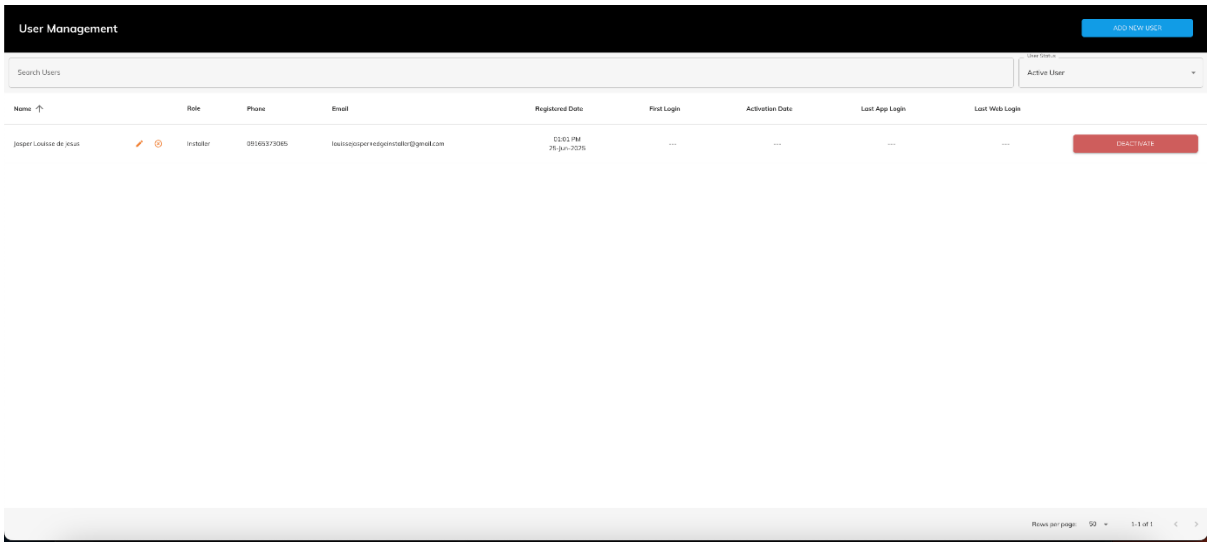
The details displayed include:

- **Asset Details – Transformer, Feeder, Substation, kVA Rating, Address, Transformer Type, Tap Group, Current Tap Position –** asset details provided during installation.
- **Device Installed Date –** the date when the asset is installed using the Edge Zero Installer.
- **Device Approved Date –** the date when the asset is approved on the Approve Page.
- **Condition –** the category where the asset belongs to.
- **Last Data Received –** The timestamp of the last reported data from the asset.
- **Network Connection –** The last connectivity reported data reported from the asset.
- **Installation Images –** An area for displaying of uploaded images during installation.

- **Greenfield Checkbox –** A checkbox to easily update the asset's greenfield status. This is helpful to remove the greenfield mark of an asset if it's already reporting live data. Toggling this will automatically update the greenfield status of an asset.
- **DEVICE SUMMARY button –** A button to navigate you to asset's Detailed Asset Profile page. It will open a new tab after you click.

3. USER MANAGEMENT

The "User Management" page provides an administrative interface for overseeing and managing all user accounts within the system. It allows for searching, filtering, and performing actions on user profiles.



The main content area displays a table listing all user accounts created with the following columns:

- **Name:** The full name of the user.
- **Role:** The assigned role of the user
- **Phone:** The user's contact phone number.
- **Email:** The user's email address.
- **Registered Date:** The date the user account was registered.
- **First Login:** The date and time of the user's first login.
- **Activation Date:** The date the user account was activated.
- **Action Buttons:** This column contains action buttons for each user. It contains the Deactivate button for active users while Reactivate button for deactivated users.

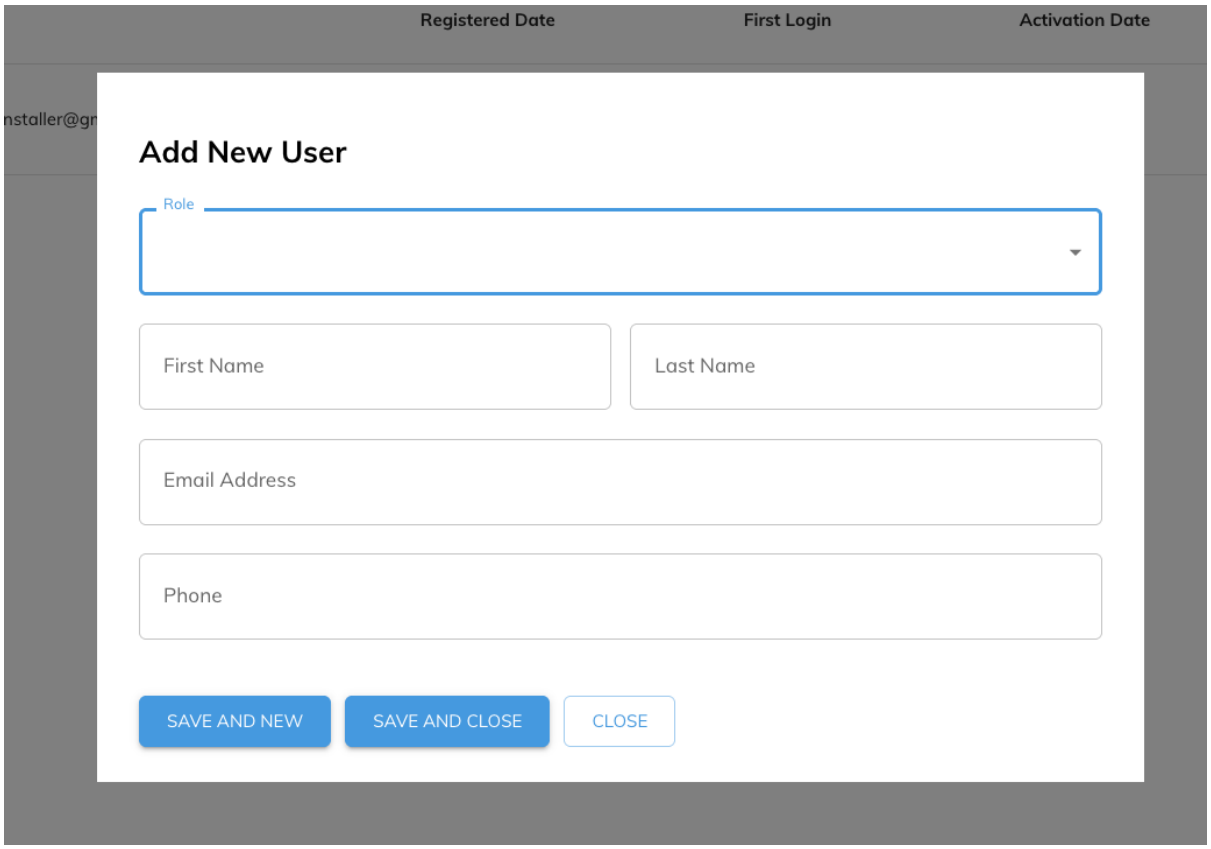
You can filter the list of users by using the search field or filter by user account status.
User Status filtering: You can filter the users using the user status with the following options:

- **All Users** – no filter. All users are displayed
- **Pending Users** – only display users that have not yet activated their account.
- **Active User** – only display users that are capable of logging-in on the system.
- **Deactivated Users** –only display users that are deactivated from the system.

3.1 ADDING A NEW USER

Clicking the "ADD NEW USER" button on the "User Management" page initiates the process of adding a new user to the system. This action opens a modal dialog where administrative users can input the necessary details for the new account.

The form provides fields for capturing the new user's information:



- **Role:** A dropdown field to select the user's role, which will determine their permissions within the system. A user can select and assign multiple roles to the user. You can select from three roles: **Network Administrator**, **Network User**, or **Installer**. These roles have the following capabilities:
  - **Network Admin –** Has full-access to Utility Portal.
  - **Network User –** Has limited-access to Utility Portal. User can only view the Live Grid Map, Grid Map Playback and view Monitored Assets Profile page but does not have capability to modify any asset's configuration.
- **Installer –** Has access on Edge Zero Installer app to register asset.
  - **First Name:** For entering the user's first name.
  - **Last Name:** For entering the user's last name.
  - **Email Address:** For entering the user's email address, which will likely serve as their login ID.
  - **Phone:** For entering the user's contact phone number.

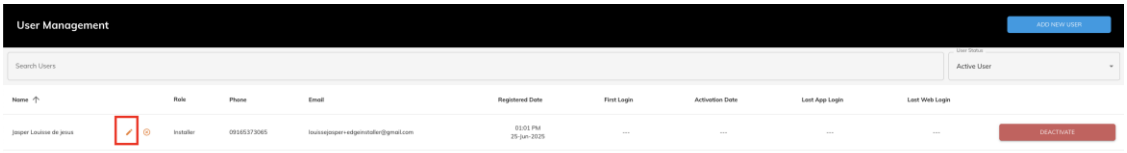
At the bottom of the modal, there are several action buttons:

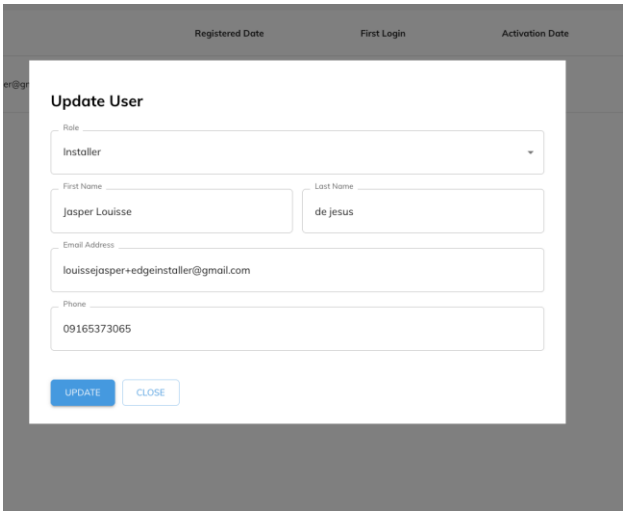
- **SAVE AND NEW:** This button saves the current user's details and clears the form to allow adding another new user immediately.
- **SAVE AND CLOSE:** This button saves the current user's details and then closes the modal, returning to the list.
- **CLOSE:** This button closes the modal without saving any entered information.

Once a user has successfully created, an email will be sent to the user to activate the account. If the user email already exists in the platform, the user may now already login with its credentials.

3.2 UPDATING USER DETAILS

To modify an existing user's information, administrators must click the pencil icon located next to the user's name in the "Name" column of the User Table. This action is expected to open an "Update User" modal (similar to the "Add New User" modal but pre-filled with the selected user's current data)

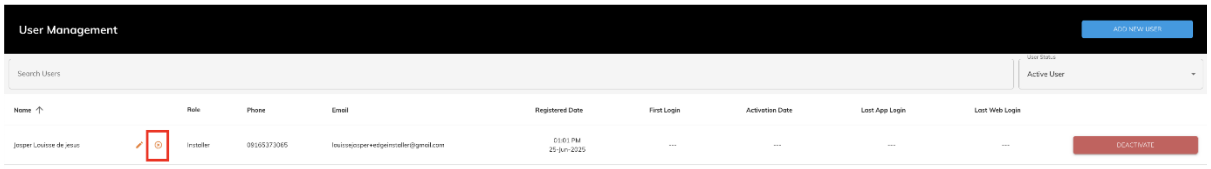




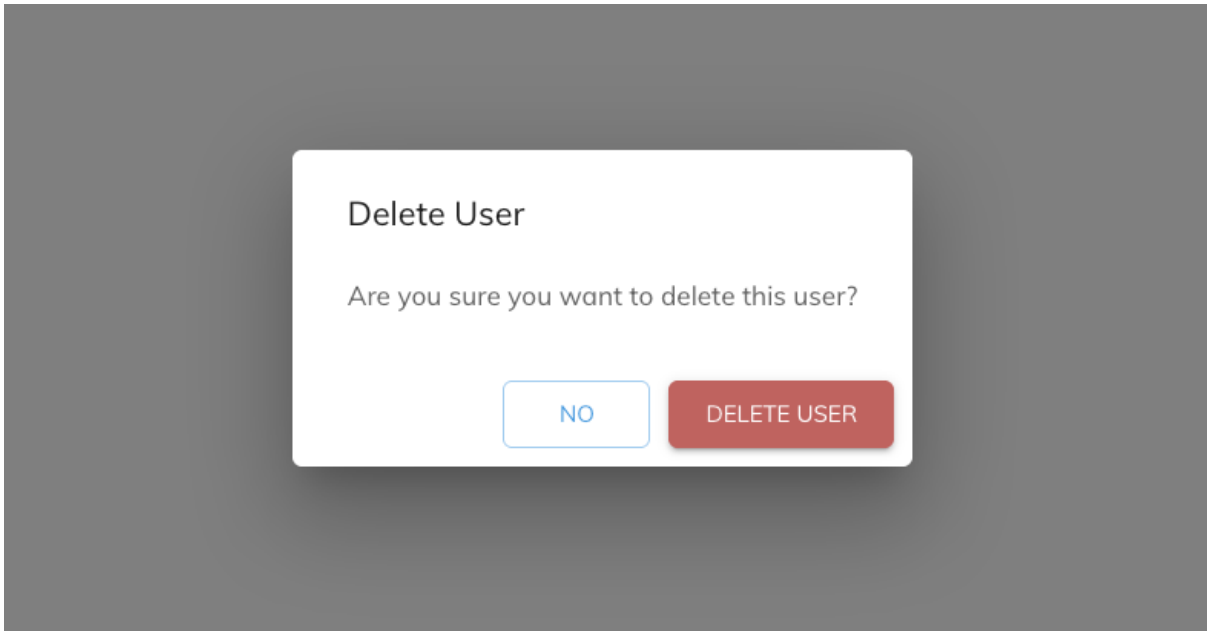
User can update the following fields: role, first name, last name and phone number.

3.3 DELETING USER DATA

To permanently remove a user's record from the system, administrators must click the red circle with a cross icon located next to the user's name in the "Name" column of the User Table.



Upon clicking the delete icon, a "Delete User" confirmation modal will appear.



3.4 DEACTIVATING USER

To change a user's status to inactive without permanently deleting their record, administrators can click the "DEACTIVATE" button located in the "Action" column for the respective user in the User Table. This action sets the user's status to inactive, preventing them from logging in, but retains all their historical data and account information within the system.

3.5 REACTIVATING USER

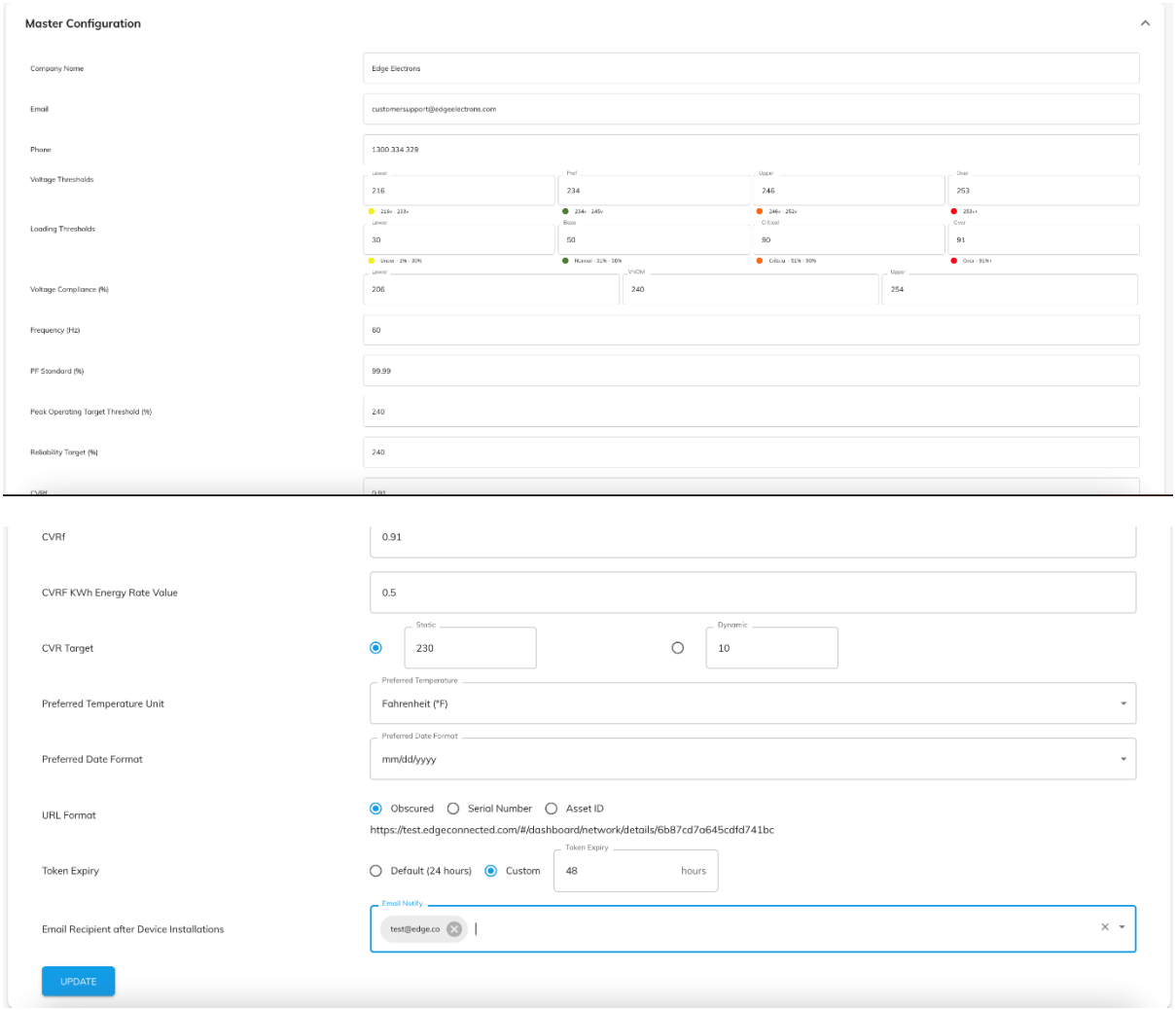
To restore login access for a previously deactivated user, the button in the "Action" column (which was previously "DEACTIVATE") is expected to change to **"REACTIVATE" button**. Clicking this button will reverse the deactivation, allowing the user to log in to the system again.

4. NETWORK CONFIGURATION

The "Network Configuration" page allows administrators to define and adjust global parameters for the system's operation.

4.1 MASTER CONFIGURATION

The Master Configuration serves as the central management hub for defining global system parameters, administrative contact information, and critical performance thresholds. Settings applied here govern how data is categorized and displayed across the entire portal.



Network Administrator can update the following items:

General Company Information:

- **Company Name:** A field to display or edit the company's name (e.g., "Edge Electrons").
- **Email:** A field for the company's contact email (e.g.,"customersupport@edgeelectrons.com").
- **Phone:** A field for the company's contact phone number (e.g., "1300 334 329").

Threshold Settings & Operational Parameters:

- **Voltage Thresholds:** Configures the lower and upper limits for voltage, categorized into different ranges (e.g., "230v - 239v", "240v - 246v", "246v - 253v", "253v+"), each corresponding to a specific status. These are the thresholds used to indicate the voltage status of the asset.

- **Loading Thresholds:** Defines threshold for transformer loading, similarly categorized (e.g., "Under - 0%-29%", "Normal - 30%-50%", "Critical - 51%-90%", "Over - 91%+"). These are the thresholds used to indicate the load status of the asset.
- **Voltage Compliance:** Sets the acceptable range for voltage compliance (e.g., Lower 206, Upper 254).
- **Frequency (Hz):** Defines the standard operating frequency (e.g., 60 Hz).
- **PF Standard (%):** Sets the standard Power Factor
- **Peak Operating Target Threshold (%):** Defines the target threshold for peak operation (e.g., 240).
- **Reliability Target (%):** Sets the target for system reliability
- **CVRF:** A setting related to Conservation Voltage Reduction Factor (e.g., 0.91)
- **CVRF KWH Energy Rate Value:** A value associated with CVRF for energy rates (e.g., 0.5).
- **CVR Target:** Allows selection between Static (e.g., 230) and Dynamic (e.g., 10) targets for CVR.

Display Preferences:

- **Preferred Temperature Unit:** A dropdown to select the preferred unit for temperature display (Fahrenheit & Celcius).
- **Preferred Date Format:** A dropdown to select the preferred date format (mm/dd/yyyy & dd/mm/yyyy)
- **URL Format:** This setting controls the URL format used when a user views the monitored asset details page.
    - Obscured – unique url for the asset is obscured (default)
    - Serial Number – unique url for the asset is based on the asset's serial number
    - Asset ID – unique url for the asset is based on the asset's transformer id. By selecting this, make sure all the monitored asset's transformer id are unique
- **Token Expiry:** Configures the duration for which authentication tokens use on logging in Utility Portal remain valid. Default is 24 hours but can set as custom to increase or decrease the duration.
- **Email Recipients after Device Installation:** This field allows user to set a preferred email to receive automated email notifications upon successful installation of assets.

An "UPDATE" button at the bottom allows users to save any changes made to the master configuration settings.

4.2 EVENT CONFIGURATION

The system allows administrators to precisely define the trigger point for each event type. By adjusting these thresholds, you determine the specific deviation required to initiate a system event.

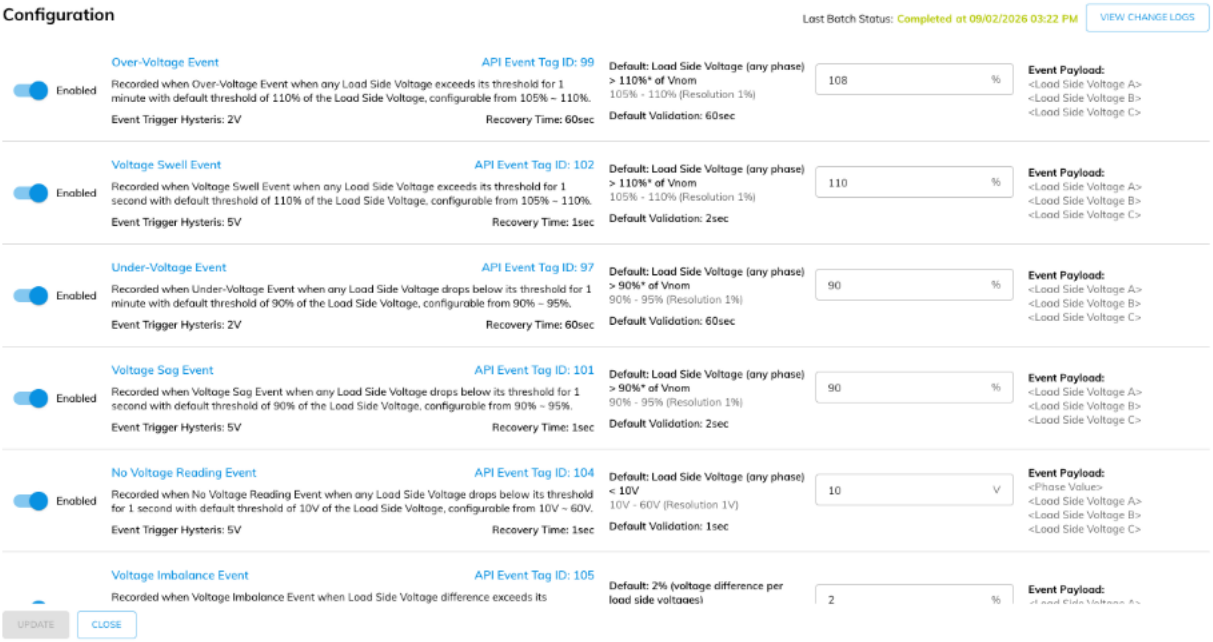
The following are the events list that are configurable:

Event Name	Brief Description	Configure State (Enable/Disable)	Default State	Configure Threshold (Yes/No)	Allowed Threshold Range	Default Threshold

Over-Voltage Event	Detects sustained load-side voltage exceeding normal operating limits.	Yes	Enabled	Yes	105% – 110% of nominal voltage (VNOM)	110%
Voltage Swell Event	Detects short-duration voltage increases above normal levels.	Yes	Enabled	Yes	105% – 110% of VNOM	110%
Under-Voltage Event	Detects sustained load-side voltage below normal operating limits.	Yes	Enabled	Yes	90% – 95% of VNOM	90V
Voltage Sag Event	Detects short-duration voltage drops below normal levels.	Yes	Enabled	Yes	90% – 95% of VNOM	90V
No Voltage Reading Event	Detects loss of voltage measurement on any phase.	Yes	Enabled	Yes	10 – 60 V	10V
Voltage Imbalance Event	Detect uneven voltage levels between phases.	Yes	Enabled	Yes	2% - 10%	2%
Lower Rapid Voltage Change Event	Detect sudden voltage drops compared to the rolling average.	Yes	Enabled	Yes	94% – 99% of rolling voltage mean	97%
Upper Rapid Voltage Change Event	Detect sudden voltage rises compared to the rolling average.	Yes	Enabled	Yes	101% – 106% of rolling voltage mean	103%
Flicker Event	Detects excessive voltage flicker severity (Pst).	Yes	Enabled	Yes	0.5 – 3.0	0.5
No Current Reading Event	Detects loss of current measurement on any phase.	Yes	Enabled	Yes	0 – 10 A	3

Current Imbalance Event	Detects uneven current distribution between phases.	Yes	Enabled	Yes	5% - 10%	10%
Over-Current Event	Detects phase current exceeding safe operating limits.	Yes	Enabled	Yes	40 – 8500 A	400A
Neutral Over-Current Event	Detects excessive calculated neutral current.	Yes	Enabled	Yes	5 – 2000 A	25A
Reverse Power Event	Detects reverse active power flow direction.	Yes	Enabled	Yes	0 - 5000A	1000A
Peak Demand Event	Detects high demand based on a 15-minute average current.	Yes	Enabled	Yes	300 – 3500 A	400A
Over-Frequency Event	Detect system frequency above nominal value.	Yes	Enabled	Yes	0.25 - 3Hz	1HZ
Under-Frequency Event	Detect system frequency below nominal value.	Yes	Enabled	Yes	0.25 - 3Hz	1HZ
Under Power Factor Event	Detect poor power factor conditions.	Yes	Enabled	Yes	0.8 - 0.95sec	0.9 sec
Over-Load Event	Detect transformer loading beyond configured limits.	Yes	Enabled	Yes	70% – 120%	90%
Max vTHD Event	Detects excessive voltage harmonic distortion.	Yes	Enabled	Yes	5% – 12%	7%

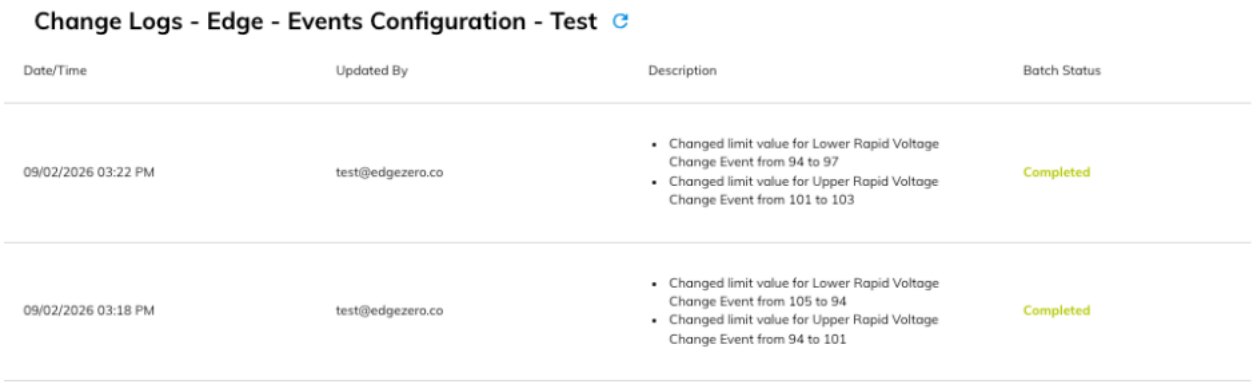
Max iTHD Event	Detects excessive current harmonic distortion.	Yes	Enabled	Yes	50% – 150%	100%
Delta Earth Fault Event	Detects earth fault conditions in delta systems with Line-C Earthed.	Yes	Enabled	No	/	/
Communication Error Event	Detects loss of communication between devices and networks.	No	Enabled	No	/	/



When changes are saved, the backend applies the configuration using a **batch process**, which:

- Updates event settings across all applicable devices
- Ensures consistent configuration deployment
- Applies changes asynchronously to avoid service interruption

The status of this batch process is displayed in the UI, and historical updates can be reviewed via **View Change Logs**.



5. REPORT MANAGEMENT

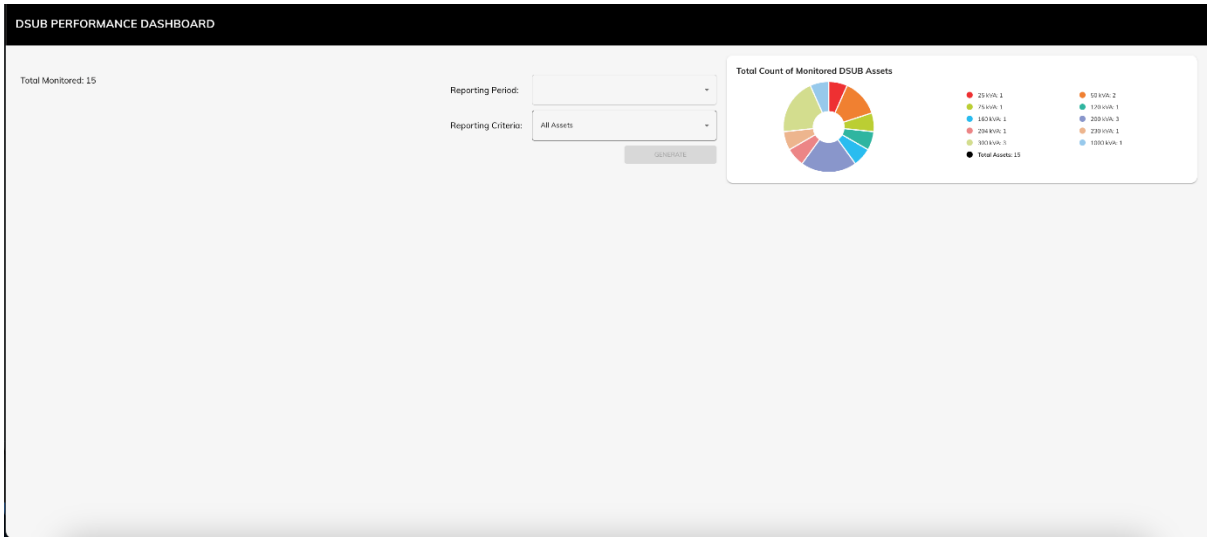
The Report Management section serves as a central hub for comprehensive network insights, offering a dashboard for transformer performance analysis and tools for configuring proactive alerts and scheduled power quality reports.

5.1 NETWORK PERFORMANCE

This page contains a dashboard offering a comprehensive overview of transformer operational status and key performance metrics over a selected period.

Upon navigating to the Network Performance page, **no data is displayed initially.** Users must first select a "Reporting Period" and "Reporting Criteria" from the respective dropdowns, and then click the "GENERATE" button to populate the dashboard with performance values and charts.

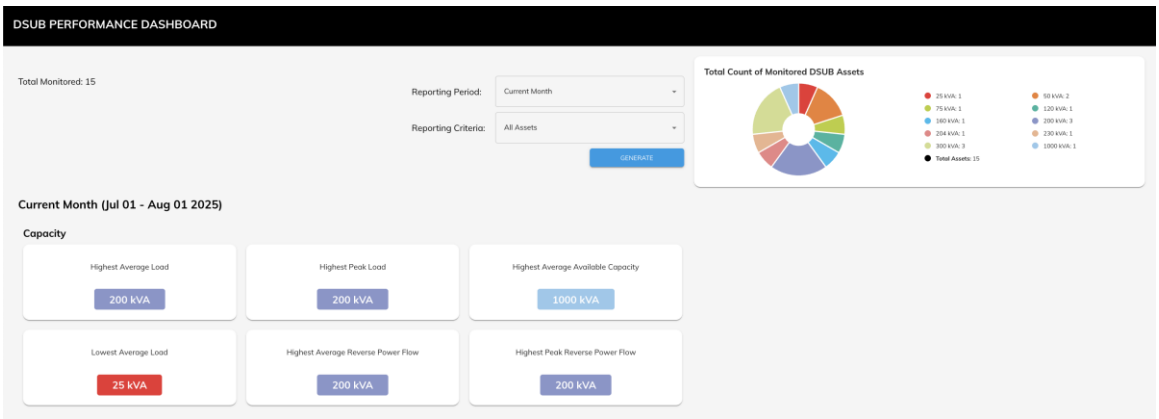
- Reporting Period - A dropdown to select the desired reporting period. User can select from current month, current quarter, current year or specific months from recent years
- Reporting Criteria - A dropdown to select the criteria for reporting. Available options include various KVA ratings for all monitored assets.

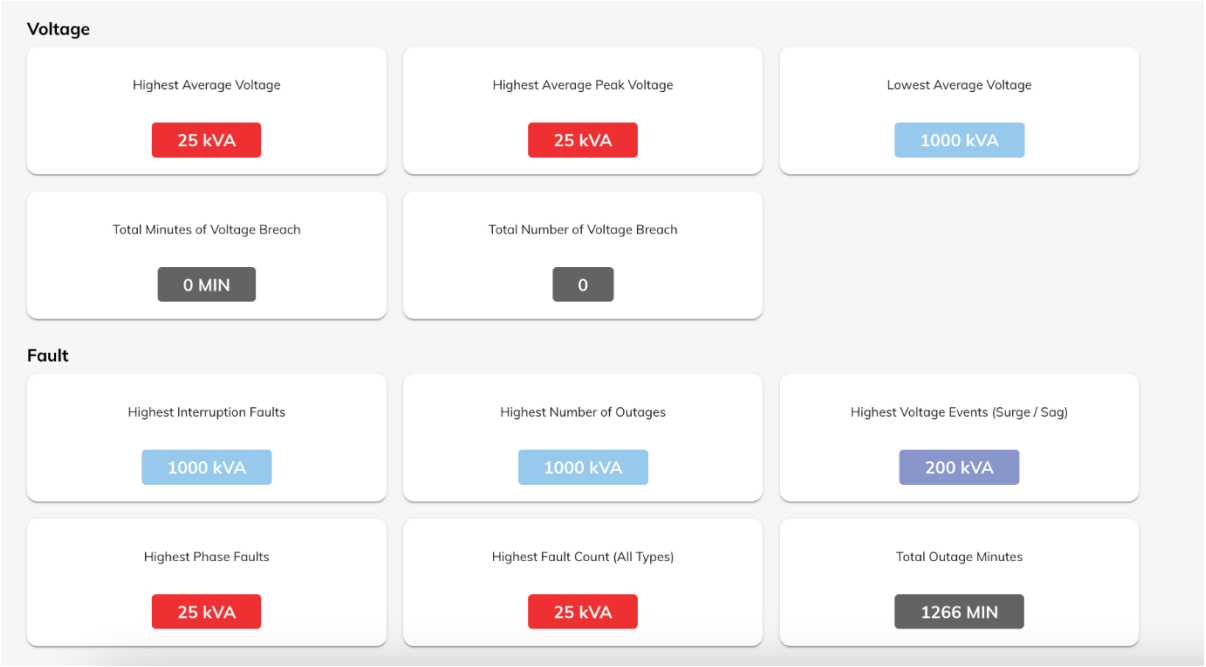


Total Count of Monitored DSUB Assets Chart: A pie chart visually represents the distribution of monitored assets based on their KVA ratings, accompanied by a legend detailing the KVA ranges and their counts.

5.1.1 VIEWING OF REPORT

After selecting the desired "Reporting Period" and "Reporting Criteria", clicking the "GENERATE" button initiates the data retrieval and display process. The dashboard then populates, presenting key performance indicators displayed in individual cards.





Capacity: This section focuses on transformer loading and power flow metrics

- Highest Average Load – If “All Assets” is selected, shows the kVA Rating with the highest recorded average load. If a specific kVA Rating is selected, shows the actual highest recorded average load value.
- Highest Peak Load – If “All Assets” is selected, shows the kVA Rating with the highest recorded peak load. If a specific kVA Rating is selected, shows the actual highest recorded peak load value.
- Highest Average Available Capacity – If “All Assets” is selected, shows the kVA Rating with the highest average available capacity. If a specific kVA Rating is selected, shows the actual highest average available capacity value.
- Lowest Average Load – If “All Assets” is selected, shows the kVA Rating with the lowest average load. If a specific kVA Rating is selected, shows the actual lowest average load.
- Highest Average Reverse Power Flow – If “All Assets” is selected, shows the kVA Rating with the highest average reverse power flow. If a specific kVA Rating is selected, shows the highest average reverse power flow value.
- Highest Peak Reverse Power Flow – If “All Assets” is selected, shows the kVA Rating with the highest peak reverse power flow. If a specific kVA Rating is selected, shows the highest peak everse power flow value.

Voltage: This section provides insights into voltage stability and compliance.

- Highest Average Voltage – If “All Assets” is selected, shows the kVA Rating with the highest recorded average voltage. If a specific kVA Rating is selected, shows the actual highest recorded average voltage value.
- Highest Average Peak Voltage – If “All Assets” is selected, shows the kVA Rating with the highest recorded average peak voltage. If a specific kVA Rating is selected, shows the actual highest recorded average peak voltage value.

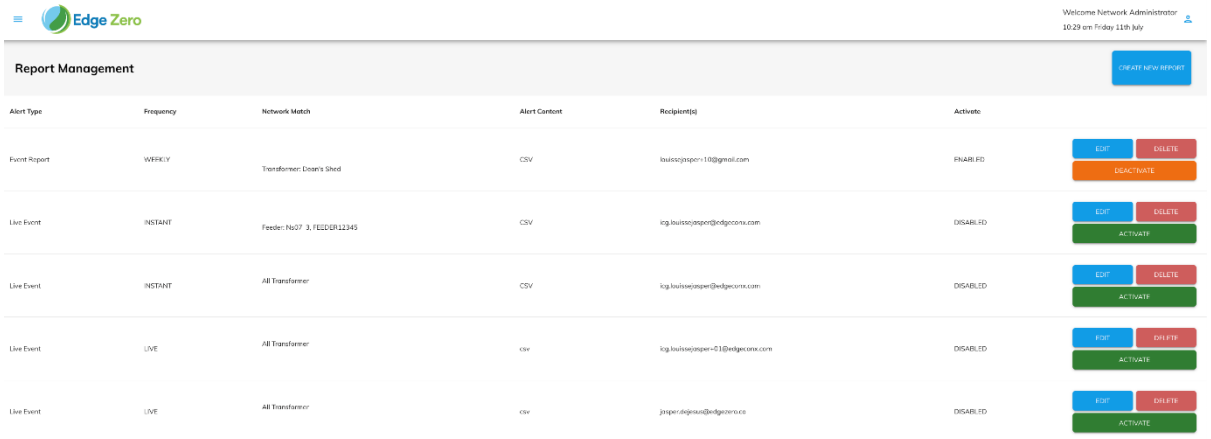
- Lowest Average Voltage - If “All Assets” is selected, shows the kVA Rating with the lowest recorded average voltage. If a specific kVA Rating is selected, shows the actual lowest recorded average voltage value.
- Total Minutes of Voltage Breach – shows the total duration when the voltage is in breach across all monitored assets based on the selected criteria.
- Total Number of Voltage Breach – shows the total number of occurrences of voltage breach across all monitored assets based on the selected criteria.

Fault: This section details various fault events.

- Highest Interruption Faults – If “All Assets” is selected, shows the kVA Rating with the highest number of occurrences of interruption faults. If a specific kVA Rating is selected, shows the highest number of occurrences.
- Highest Number of Outages – If “All Assets” is selected, shows the kVA Rating with the highest number of outages. If a specific kVA Rating is selected, shows the highest number of outage occurrences.
- Highest Voltage Events (Surge / Sag) – If “All Assets” is selected, shows the kVA Rating with the highest number of voltage related events recorded. If a specific kVA Rating is selected, shows the highest number of recorded voltage related events.
- Highest Phase Faults – If “All Assets” is selected, shows the kVA Rating with the highest number of phase faults occurred. If a specific kVA Rating is selected, shows the highest number of recorded phase fault.
- Highest Fault Count – If “All Assets” is selected, shows the kVA Rating with the highest number of fault count. If a specific kVA Rating is selected, shows the highest number of fault count.
- Total Outage Minutes – shows the total duration when the monitored assets is in outage

5.2 CREATE EVENT REPORT

This page allows users to set up alerts or send a scheduled power quality report through email, enabling proactive monitoring and detailed analysis of power-related events.

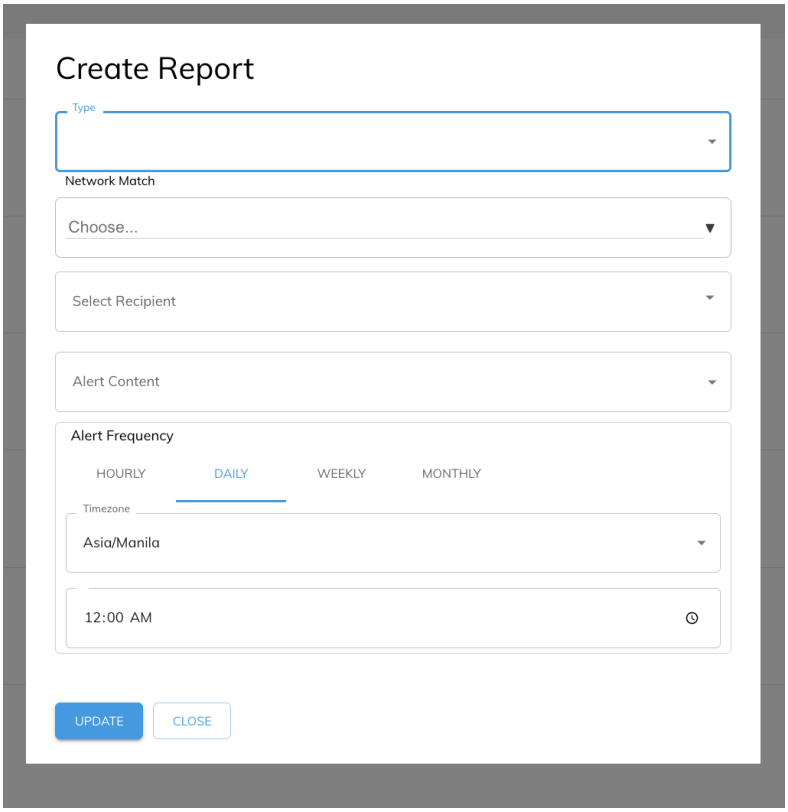


The main area of the page displays a table listing existing alerts or scheduled reports with the following columns:

- **Alert Type:** Specifies the type of report or alert.
- **Frequency:** Indicates how often the report is generated or alert is triggered
- **Network Match:** Describes the scope or filter for the report
- **Alert Context:** Specifies the format or content of the alert
- **Recipient(s):** Lists the email addresses of the recipients for the report or alert
- **Activate:** Shows the current activation status of the alert
- **Action:** This column contains buttons to manage each listed report or alert:
    - **EDIT:** Allows to modify an existing report/alert setting.
    - **DELETE:** Permanently removes the report/alert.
    - **DEACTIVATE/ACTIVATE:** Toggles the active status of the report/alert.

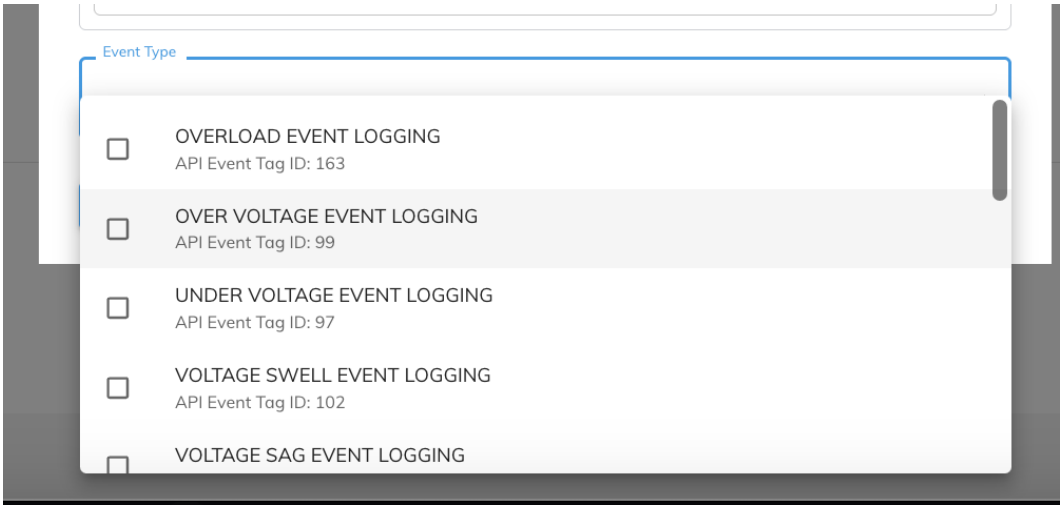
5.2.1 CREATING REPORT/ALERTS

Clicking the "CREATE NEW REPORT" button opens a modal titled "Create Report". This form allows users to configure the parameters for a new scheduled report or setup alert:



- **Type –** There are 3 types of alerts a user can select:
    - Power Quality Summary - send power quality data based on given frequency
    - Events – send alerts whenever an event is triggered
- **Network Match:** A dropdown to filter the monitored assets to be included on monitoring. User can filter asset based on transformer, feeder & substation
- **Select Recipient:** A dropdown to select the recipient who will receive the email alerts.
- **Alert Content:** A dropdown for defining the content or format of the alert.
- **Alert Frequency:** Options to set how often the alert/report should be generated:
    - LIVE – only available when selected type is EVENT. Allow to send the alert real-time.
    - HOURLY – Allow to send the alert or report every hour.
    - DAILY – Allow to send the alert or report daily. The user can select the time zone and the time of the day when to send the alert.
    - WEEKLY – Allow to send the alert or report weekly. The user can select the time zone, the day of the week and the time of the day when to send the alert.
    - MONTHLY – Allow to send the alert or report monthly. The user can select the time zone, the date and the time of the day when to send the alert.

- **Event Type:** For EVENT type, a dropdown to select which events the alert will trigger.



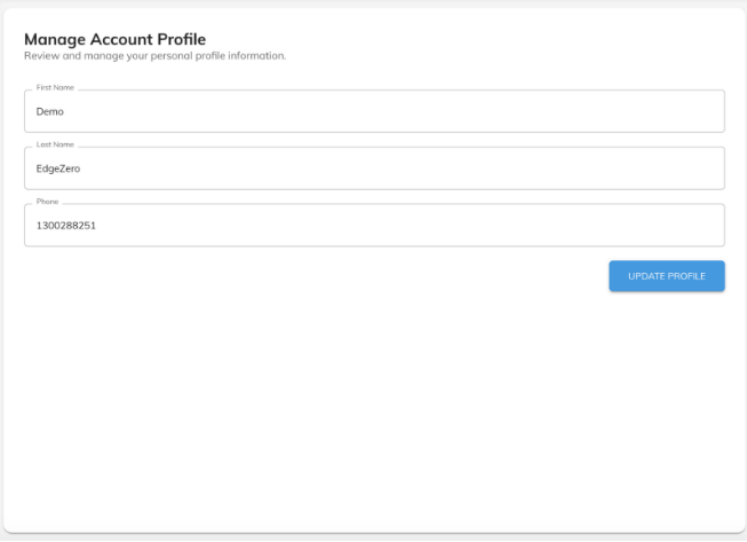
6. ACCOUNT PROFILE

The **Account Profile page** is your central hub for handling personal profile information within the platform.

The Account Profile page is organized into two primary, clearly defined sections:

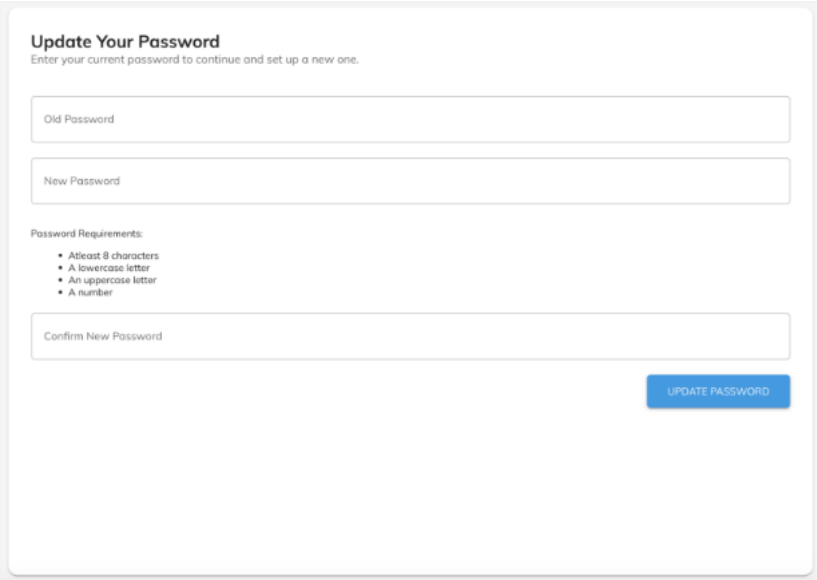
6.1. MANAGE ACCOUNT PROFILE

This is the main view upon opening the page, allowing you to review and update your personal information:



6.2. MANAGE ACCOUNT PASSWORD

This dedicated panel, accessible via the side menu, provides a secure and guided process for changing your login credentials. The form requires your Old Password, New Password, and a Confirmation for enhanced security.



7. AUDIT TRAILS

The **Audit Trails** page provides a comprehensive record of all key changes and actions performed within the system, categorized by service type (e.g., User Account Audit Logs, Device, Setting...). This feature allows authorized users to review historical activity for accountability, troubleshooting, and compliance purposes.

Each audit record includes:

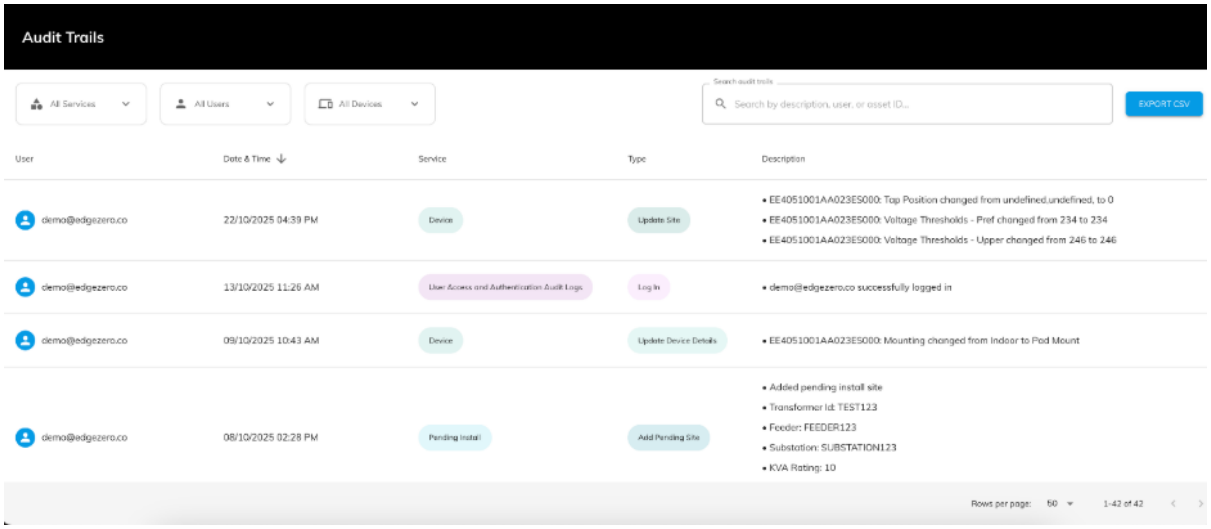
- **User who performed the action** – The account responsible for the change.
- **Date and time of the action** – When the change occurred.
- **Service where the change occurred** – The module or section of the system affected (e.g., User Account Audit Logs, Device, Setting...).
- **Type** – The action type (e.g., Create, Update, Delete).
- **Description of the action performed** – A brief summary of what was changed or updated.

Available functions include search, filter, and export, enabling users to quickly locate specific records and generate reports.

To access the **Audit Trails**, go to the menu and navigate to **Log & Audit Trails > Audit Trails.**

The implemented **category**, **service**, and **type** are listed in the following table:

Category	Service	Type
User	User Account Audit Logs	Add User
		Delete User
		Update User
		Deactivate User
		Reactivate User
	User Access & Authentication Audit Logs	Log In
		Reset Password
		Wrong Email
		Wrong Password
		User Blocked
		Log Out
Device		Approve Device
		Decline Device
		Update Device Details
		Reset Device
		Update Site
		Retire Site
		Update Polarity
		Event Configuration
		Move to Approve List
		Clear Site Record
Setting		Master Configuration
Report	Event Report	Create Report
		Edit Report
		Delete Report
		Deactivate Report
		Activate Report
Pending Install		Add Pending Site
		Update Pending Site
		Delete Pending Site



7.1 USER

The user category will be divided into 2 sections:

- **User Account Audit Logs**

  This section records all key actions performed on user accounts. *Action performed via **User Management > Manage User***.

  - **Add User** – Logs when a new user account is created.
  - **Delete User** – Logs when a user account is permanently removed.
  - **Update User** – Logs changes to user details (First Name, Last Name, Role, Phone Number, etc.)
  - **Deactivate User** – Logs when a user account is disabled, preventing access.
  - **Reactivate User** – Logs when a previously deactivated account is restored.

  Once these actions are performed, the corresponding records can be viewed and filtered under **User > User Account Audit Logs.**

- **User Access & Authentication Audit Logs**

  This section tracks all key activities related to user login, logout, and authentication events. These logs help monitor system access patterns and identify potential security issues.

  - **Log In** – Logs when a user successfully signs into the system.
  - **Reset Password** – Logs when a password reset request is initiated or completed.
  - **Wrong Email** – Logs failed login attempts caused by an incorrect email address.
  - **Wrong Password** – Logs failed login attempts caused by an incorrect password.
  - **User Blocked** – Logs when a user account is blocked after 5 times failed login attempts
  - **Log Out** – Logs when a user signs out of the system.

  Once these actions are performed, the corresponding records can be viewed and filtered under **User > User Access & Authentication Audit Logs**.

7.2 DEVICE

The **Device** audit logs record all major actions related to device management and site configurations.

- **Approve Device** – Logs when a device is approved for use in the system. *Action performed via* **Device Management > Approve Device**.
- **Decline Device** – Logs when a device is rejected. *Action performed via* **Device Management > Approve Device**.
- **Update Device Details** – Logs when device information or settings are modified. *Action performed via* **Device Management > Approve Device**.
- **Reset Device** – Logs when a device is reset to its default or initial state. *Action performed via* **Device Management > Approve Device**.
- **Move to Approve List** – Logs when a device is moved to the approval list. *Action performed via* **Device Management > Retired Devices**.
- **Update Site** – Logs when site information linked to a device is updated. *Action performed via* **Manage Site Modal**.
- **Retire Site** – Logs when a site is moved from active status to retired status. *Action performed via* **Manage Site Modal**.
- **Clear Site Record** – Logs when all records for a site are cleared from the system. *Action performed via* **Manage Site Modal**.
- **Update Polarity** – Logs when a device's polarity settings are changed. *Action performed via* **Update Polarity Modal**.
- **Event Configuration** – Logs when device event settings are updated. *Action performed via* **Event Logs Page**.

Once these actions are performed, the corresponding records can be viewed and filtered under **Device** in the audit trails.

7.3 SETTING

The **setting** audit logs track changes made to system configuration settings.

- **Master Configuration** – Logs updates to the system's master configuration settings. Action performed via **Network Config > Network Configuration > Update Master Config**.

Once these actions are performed, the corresponding records can be viewed and filtered under **Setting** in the audit trails.

7.4 REPORT

The report category will be divided into 2 sections:

- **Event Report**

  This section records all key actions performed on event reports. Action performed via **Report Management > Create Event Report**.

  - **Create Report** – Logs when a new report is created.
  - **Edit Report** – Logs when an existing report is updated.

- **Delete Report** – Logs when a report is removed.
- **Deactivate Report** – Logs when a report is disabled and no longer accessible.
- **Activate Report** – Logs when a previously deactivated report is enabled.

Once these actions are performed, the corresponding records can be viewed and filtered under **Report > Event Report** in the audit trails.

7.5 PENDING INSTALLS

This section records all key actions performed on pending site installations. Action performed via **Device Management > Pending Installs.**

- **Add Pending Site** – Logs when a new pending site is added.
- **Update Pending Site** – Logs when details of a pending site are updated.
- **Delete Pending Site** – Logs when a pending site is removed.

Once these actions are performed, the corresponding records can be viewed and filtered under **Pending Install** in the audit trails.