

**Provincial Electricity Authority**

**PROVINCIAL ELECTRICITY AUTHORITY**

Procurement, development, installation and maintenance projects

Outage Management System (OMS)

* 1. (2) Scope of Work Description (TOR)

Book 2: Software Functional Specification

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# Software Requirements Requirements

Power failure management systems (OMS) must be designed with various functions or capabilities to support the implementation of power failure remediation. as follows

1. Event Management functions

Support incident management related to power failure management From the start of receiving new event data. Modifying the status of an event Combine or exclude related events Canceling and Ending Events

1. Outage Work Management

Support the order to correct power failures from finding the cause of power failure. Personnel management, fixing power failures Picking up and preparing equipment to fix power failures Withdrawing or changing a device Power cut-off before and after electrical system modification Power return Estimation of the time it takes to take corrective action, etc.

1. User Interface Function

The screen design and how to use it can support the interaction with OMS users to be able to operate conveniently, quickly and efficiently. Both screens for desktop computers at the electrical operations center at the office and screens for mobile devices for frontline workers.

1. Processing functions support outage data processing

Support data processing to support power failure remediation To enable relevant officials to analyze, plan and make decisions about power failure management effectively.

1. System and Support functions
2. Outage Report function
3. System Integration
4. Grid Model Data Management

# Software Specification Details

## Event Management Requirements

* 1. Able to group/group events both automatically and user-based. (Manual) according to PEA's requirements. At least as follows:
     1. Group events using conditions Affected devices under the same power supply circuit.
     2. Group events using location or geographic coordinates criteria
     3. Separate event groups according to user needs, or users can specify separation conditions.
  2. Details of extinguishing plan events can be displayed in calendar format.
  3. Incidents can be referenced with 1 or multiple work orders.
  4. It can handle large volumes of power outages and outages with a large number of affected devices, such as natural disasters, with at least one of the following mechanisms to cope with data volume: In order not to interfere with the operation of the main system. or integration with other systems.
     1. A mechanism to pause notifications to reduce the amount of alerts, allowing the system to work continuously. Users can choose to check by themselves.
     2. Mechanism to automate event pooling to reduce excessive event volume Keep the system running continuously. Users can check the event details later.
     3. A mechanism to modify operating modes that can cope with large incident volumes, each meeting different incident volumes and expectations.
     4. Other mechanisms to cope with large volumes of power outages and outages with a large number of affected devices.
  5. Customer information can be added and updated in the power failure management system that does not exist in the CIS system at least as follows:
* Detailed basic customer information
* Key Customer Information (VIP)
  1. Able to notify users of power outage plans and power failure events in at least 100 cases. as follows
* Customers who are affected but do not call in via Contact Center
* There was a power outage longer than the time specified in the fire plan.
* Confirm that a power outage has been caused by the SCADA system (e.g. signal transition).
* There's been an incident.
* The status of the event has changed.
* It's almost time to start working on the fire plan.
  1. Allows users to efficiently import data about power failure management, including grid mode, from other data formats to save saving time without having to save all the data from scratch or by hand by supporting at least 3 data file formats from the following formats:
     + - MS-Excel (.xsl, .xslx)
       - CSV (Comma Separated Value)
       - RDF (RDF.XML, JSON-LD)
       - CIM based format (CIM/XML, CIM/JSON)
  2. Automatically process/forecast and generate power failure events based on the current state of equipment in the power system. At least as follows:
* Excision device status
* Smart meter status
  1. Can be processed Prioritize power failure incidents and propose information to support decision-making to order power failure management. It is processed from at least 3 related data from the following items:
* Affected power users
* Type of device
* Event type
* Related Expenses
  1. It can be processed and displayed comparatively so that users can use it to make decisions in ordering power failures. Use at least 3 items from the following list:
* Affected power users
* Affected power user moments
* Losing power units
* Economic impact

## Outage Work Management Requirements

* 1. Estimates of the return time of power failure events can be determined both automatically (Automatic) and user-defined (Manual).
     1. Being an industrial estate area
     2. Being an urban area
     3. Service Standards
     4. Types of causes of power failure
     5. Climate
  2. It can create power failure incidents and blackout plans. You can choose from devices in the electrical network that can be displayed in Tree Diagram, Schematic View and Spatial formats.
  3. Can retrieve and resolve power failure event status Work order information, work type, and personnel for fire remediation work or as specified by PEA in the same work screen.
  4. Work orders can be created automatically if:
     1. In case of receiving device status information from SCADA system
     2. In case of receiving information from power users through Contact Center or Mobal Ab
     3. In case of receiving data from a smartmeter
  5. Able to store data/track/display the performance of fire remedy Both the power supply is completed in normal power supply conditions and the temporary power supply is provided with subsequent corrective operations (e.g. temporary wiring at the same voltage level).
  6. One or more tickets can be closed at one time.
  7. Multiple tasks can be assigned to individual employees or groups of employees related to power failure mitigation tasks. They can be executed individually according to the priority of the assigned tasks.
  8. Able to manage the working schedule of individual employees or groups of employees related to power outage mitigation work. Once approved by the competent person, both manual and automatic.
  9. Able to record and track the performance of individual employees or groups of employees related to power outage mitigation work. At least as follows:
* Time Confirmations: start time, end time, duration of work
* Skills and expertise of employees
* Operations/Activities Performed
  1. Able to track/monitor incident history and work orders as follows:
* Date and time when the event was created.
* Status adjustment
  + Open Status
  + Closed status
  + Status Completed
  + Verified status
* Operator
  1. Can support cost calculation It processes resource usage data as follows:
* Timing of power outages and fire outage plans
* expenditure PEA or Customers
* The type of activity that operates
* Types of causes Here's how:
  + tree
  + Animals
  + equipment
  + weather
  + vehicle
  + Natural disasters
  + Power supply circuit (consider the power supply circuit that caused the event).
  1. Able to search for individual employees or groups of employees involved in power outage mitigation work, such as employees, technicians, groups of employees. Fire Fixer Kit Optional work clothes according to the conditions specified by PEA (e.g. name, position, etc.)
  2. Information about power failure correction can be recorded through mobile devices at least as follows:
* Receive and update power failure incidents from the site
* Able to improve the value, estimate the time it takes to return power.
  1. It can support the creation of various types of fire extinguishing plans and power failure remediation plans so that users can use them to make decisions in extinguishing and ordering power failure remediation.
  2. Allows users to record different types of planned outage data and may have different priorities flexibly and efficiently.
  3. Can create a new fire plan, delete a fire plan. Change the planned outage management Change the date and time Change the status of the fire plan. Add/remove/edit plan conditions and details
  4. It can record activity and input values that users have taken to correct power outages in the past so that they can be reused in similar situations. using different input values.
  5. Parameters can be set or adjusted as default to facilitate easier outage planning.
  6. Allows users to attach data files that are involved in the outage resolution process. You can attach at least one of the following files:
* Image data files, at least in JPEG format.
* Document data files in PDF format

## Screen design and user interface requirements

* 1. Customer information and location coordinates can be searched and displayed on the same screen. Spatial and Schematic format conveniently.
  2. Able to automatically modify the network model display (Tree Diagram, Schematic View Single Line Diagram, Spatial) of electrical circuits.
  3. The system must be able to create a power supply model to Schematic View is automatically based on patterns and directions from the GIS system as the basis for creation.
  4. Shade or alarm signals can be displayed in spatial and schematic schematic diagrams in power failure management systems (OMSs). as follows
* Shades of the power supply circuit
* The power supply circuit flashes in case of power failure.
* Fire extinguishing plan
  1. You can view electrical circuits in Tree Diagram, Schematic, Spatial and separate data into at least as follows:
* Transmission Line (HV) System
* Power Station (Substation)
* Medium Force Distribution System (MV)
* Low Voltage Distribution System (LV)
  1. Able to manage tags or comments on device locations in electrical system maps.
  2. The system must be able to display at least 4 multiple screens, with each screen still displaying a resolution of at least 1,280 x 720 dots. You can also edit and customize the interface, including column alignment, column scaling, and manage incidents and tickets according to the user's needs at the same time. 1 screen
  3. Able to support information and manage In case of disaster, show affected customer areas. Distinguish by shade according to how long the user is affected. Support Kit Information Inventory data for use in the War Room command room .
  4. The system can define and update the display of event information and operational status, at least as follows:
     1. Administrative area
     2. Floor Type (Zone Use)
     3. Power outage area location display
     4. Locate electrical devices by type.
     5. Position of the crew/car to fix the fire
     6. Current status information of the device Normal or current cases
     7. Electricity consumption area according to the Ministry of Interior
     8. Electricity consumption area of industrial estates
     9. Major metropolitan electricity consumption areas
  5. Input values can be checked against validation rules as defined in the requirement document for the selected field, and can provide users with error/warning messages if necessary.
  6. All screens can be displayed in Thai and English.
  7. If the Web Browser has an updated version, the system must be able to work according to the latest version at that time.
  8. Data can be validated using rules appropriate to the type of data and effective notification of error logging. To save information in a field on the screen
  9. The list of events can be displayed only for certain fields as needed, and the default values can be set and the conditions that you want to display, such as power failure type conditions. Area Type Conditions
  10. Calendar popup can be displayed in case of saving datetime information to facilitate date and time selection. In case of recording datetime information by hand and can check the accuracy of datetime information.
  11. Able to display data on power failure incident processing Power failure correction status In the form of charts, charts or Gantt Chart as appropriate and the data request feature.
  12. It can be displayed appropriately and easily understood. corresponds to the type of data displayed, such as the type of power supply. Type of power failure, etc.
  13. Able to display and have scroll bars both vertically and horizontally. (Horizontal) to be able to choose to display the full information.
  14. Able to copy items that have been recorded in the past in Templates for efficient reuse to save recording time without having to start recording all data from scratch or record it all by hand.

## Outage Data Processing

* 1. Able to collect detailed device/event data for analysis and calculation of equipment usage efficiency by selecting the following conditions:
* Device Type, Device ID
* Operating and non-operating time of the device during the considered period.
* Reasons why the device may not work
  1. Keep a history of power failures to plan and determine the duration of preventive equipment maintenance in the future . Data history covers at least the following:
* Affected devices
* Frequency of power failure requests
* Power return period
  1. Able to retrieve the utilization factor of the device by device type and device code according to the time interval specified by PEA and can export the data according to the format specified by PEA.
  2. The index can be analyzed according to at least the following conditions:
* According to the power supply area
* By Industrial Estate Area
* By municipality Certain towns, sub-district municipalities and rural municipalities
* By device type
* According to voltage level, transmission line system, substation, distribution system.
* According to customer groups, such as large enterprises, housing,
  1. Able to display information on power failure events and fire outage plans automatically with at least the following details:
* Customer Information
* Work order information
* Information Devices affected by power failure
  1. Able to display information of distribution transformers and electrical equipment installed in the electrical system network at least as follows:
* Transformer Location
* Serial Number
  1. Instantly search and display information such as power failures, work orders, employees, customers, etc.
  2. Able to select and display detailed equipment/event information to analyze and calculate the efficiency of using the device as required on the operation screen, such as filter according to the date and time of the power failure event. Types of customers affected by blackout plans and power failure events, etc.
  3. Reports as specified by PEA can be displayed in the form of Dash Board or BI.
  4. Able to support data transmission through PEA Edge Web Portal at least as follows:
* Power failure incident summary
* Graph showing the number of customers affected
* Report power failure incident data
* Fire extinguishing plan on geographical map
  1. Able to display data to calculate Outage Claim and related information as specified by PEA. At least the following:
* List of affected customers by type, such as large customers, VIP customers, etc.
* Power outage duration
  1. The list of power failure events can be displayed by sorting the rows by specific conditions, either one column or more than one column.
  2. A list of power failure events can be displayed. Conditions can be defined to sort or filter individual fields.
  3. The results can be exported to electronic file format. At least in the following ways:
* MS-Excel (.xsl, .xslx)
* CSV (Comma Separated Value)
* RDF (RDF.XML, JSON-LD)
* CIM based format (CIM.XML, CIM/JSON)

## System and Support Requirements

* 1. Data can be automatically linked to mobile devices.
  2. Able to work in Study mode or Demo mode (Simulator Mode) for training or simulation. Power failure or power outage plan
  3. You can find information to add, modify, modify at least the following values:
* Role-based user rights
* System parameters
* Parameter values for Network Analysis
* REFERENCES
* Manage message forwarding
* Create reports according to the format specified by PEA.
  1. Data can be collected to prepare an audit trail of creating changes/modifications of users and display at least the following information:
* Transaction Date
* User ID
* User Name
* Idle time
* Create Transaction
* Editing/changing data items
  1. Can retrieve data (Adhoc) divided by conditions At least the following:
* De-energised Feeder Section
* Electrical network equipment in abnormal state, such as low gas device status , High Temperature, etc.
* Interconnection points between feeders such as Tie Line , etc.
* Connectivity without a power supply and Roaming Connectivity
  1. Able to upgrade the system without causing downtime and without interfering with the system or integration with other external systems.
  2. Able to process and provide advice to support the management of power failures. Taking into account the following dimensions:
* Energy Gross Margin (EGM)
* Ancillary Services : AS:
* Resource Adequacy (RA)
* Incremental Cost : IC

## Outage Report Requirements

* 1. Permission to modify the conditions of the report call, such as the duration of the power outage, can be determined. Number of customers affected Causes, etc. The report must be kept for a period of at least 5 years.
  2. Report creation permissions can be set according to various conditions and restrict usage permissions, such as:
     1. Browse and edit reports For example, it is divided into 4 levels: Management Information, Major Customer Reports, Asset Management Reports, General Outage Reports.
     2. Permissions can be set individually for special users.
  3. The information can be printed according to the fire extinguishing plan form with details of the affected areas in the form of maps or messages specified by PEA to be used in the notification of fire extinguishing notices. The detailed list of affected areas will be divided according to various conditions such as equipment, location, customer, etc. Both electronic file and hard copy
  4. KPI reports can be generated according to the format specified by PEA at least as follows:
     1. SAIFI, SAIDI, MAIFI, CAIDI, CAIFI, ASAI, MAIFIe, CEMIn, CEMSMIn, Outage cost, ENS Report
     2. Up Time and Down Time of the device
     3. Response time by location
     4. Performance of engineers and technicians both of PEA itself and its employees.
     5. Failure Rate (Up Time and Down Time)
     6. Up Time and Down Time of the device
     7. Response time by location
     8. Performance of engineers and technicians both of PEA itself and its employees.
     9. Failure Rate (Up Time and Down Time)
  5. Power failure reports can be generated with conditions . At least as follows:
     1. Device failure cause information (e.g., cause of power failure, Affected parts of the device Type of Breakdown)
     2. Area/owner information (e.g. Electricity Authority office, sub-district)
     3. Switching process information (e.g. fire plan incident data)
     4. Electrical equipment information (e.g. device ID, circuit, device status, voltage level)
     5. Customer data (such as the number of customers affected by power outages)
     6. Fire correction period
     7. Customer outage history data from past and present (can be retrieved immediately upon request)
  6. Able to generate reports in PEA standard format as specified by PEA.
  7. Able to issue periodic reports for at least as follows:
* daily
* weekly
* monthly
* Quarterly
* yearly

Every report must have a page number, the date and time the report was issued, along with the name of the issuer.

* 1. The report can be separated according to the PEA's agencies at least as follows:
* By Country Overview
* By Region
* By District
* Classified by responsible electricity
  1. Data can be exported in electronic form in that format. PEA requires that it can be used to process PEA's reporting system by at least comprising detailed information in accordance with Annex B.

## System Integration Requirements

* 1. Able to support interface with climate forecast update data from Internet automatically for system analysis, evaluation and display. Areas where power outages are expected
  2. Able to link (Integrate) with GIS system automatically by transmitting and receiving data on electrical equipment location from EGAT power supply to low-voltage meter, both initial and incremental.
  3. Able to call Map Service from GIS system to display in the power failure management system. Automatic to view the following information:
     1. Administrative area
     2. Zone Use
     3. Electricity Area
     4. Power outage area location display
     5. Locate electrical devices according to the data layer (Layer)
     6. Position of the crew/car to fix the fire
     7. Current status information of the device Normal or current cases When there is an impact from a power failure which causes the device status position to not match the normal status on the Spatial view according to the format specified by PEA, both automatically and retrievably as scheduled.
     8. Electricity areas such as industrial estates Municipalities Municipalities Sub-district municipalities countryside, etc.
     9. Administrative areas according to the Ministry of Interior such as provinces, districts, industrial estates Large urban areas as specified by PEA, etc.
  4. Able to transmit updated area data such as zones, electricity areas ~~(5 areas),~~ etc., and send the data to the GIS system.
  5. Able to link (Integrate) with SCADA system automatically with data transmission as specified by PEA as specified by at least as follows:
     1. Receive device status from SCADA system by receiving only changed device status.
     2. Receive measurements such as voltage, current, megawatts, both over time, in normal cases, and instantly in the event of a power failure.
     3. Get the Switching Order process
     4. Alarms and Warnings
     5. Get cut and jump information
     6. Receive Tag (Note) and Comment (In case of device defect, SCADA will send to MMS)
     7. Send the location information of the fire fix.
     8. Send the number of affected power users according to the switching procedure.
     9. Receive Section information on specified power failure from SCADA system.
     10. Receive short circuit current in the event of a power failure from the SCADA system.
     11. If the SCADA system has a network problem that cannot be contacted. Notification is required in Power Failure Management (OMS).
     12. Automatically send fire plan incidents confirmed by the system to SCADA
  6. Able to link (Integrate) to connect to customer data transmission At least as follows:
* Customer electricity location information
* Customer detail information
* Meter Information
* Fire Type Information
* Electricity consumption unit information ~~Operating time data~~
  1. Receive updated phone number information from Contact Center
  2. Able to send updated customer data, ~~including customer priority, and send data to relevant systems.~~
  3. Able to receive information from Contact Center from the answering system and call officer to create an incident to report electrical problems in the system automatically.
  4. Able to link (Integrate) to Contact Center to send and receive data. Power failure incident number (both location-based and time-noted)
  5. Able to link (Integrate) with the maintenance system to automatically bring the maintenance plan to create fire extinguishing plan events and can update the appropriate work plan from the Power Failure Management System (OMS) to update the information in the maintenance system.
  6. Able to send notification information to relevant systems, such as in case of power management system failure. OM S has unusually high equipment operation data (Condition Base Maintenance) and can track work plans or maintenance orders from alerts as follows:
     1. Activities performed on each device
     2. Duration of work
     3. Responsible departments of each activity
  7. Able to link (Integrate) and receive information from the human resource management system (only groups of employees, employees, technicians, workers involved in fire remediation work) at least as follows:
     1. First Name Last Name
     2. Identity
     3. ID card number
     4. skill
     5. Schedule of work schedules
  8. Able to link (Integrate) with the human resource management system by sending the actual work data of the fire solving kit to improve personnel information related to fire solving work. Previously executed work order information, including: Identity Date and time the information was updated.
  9. Able to send equipment usage data used to solve power outages to the parcel management system. To be used in the analysis of the procurement of replacement equipment at the power failure depot.
  10. Able to link (Integrate) with the Asset/Electrical Equipment Database System to prepare reports related to electrical assets/equipment (e.g. Failure Rate Report) with basic information as specified by PEA as follows:
      1. Electrical Equipment Type
      2. Electrical Equipment Brand
      3. Failure Duration (e.g. from Failure to Re-energise State)
      4. Average Load and Peak Load data of the meter to be used in calculating the transformer load distribution system.
      5. Electricity consumption and load distribution percentage of distribution transformers by electricity sector/power supply area
      6. Electricity consumption and percentage Unbalance current of equipment, high voltage, high voltage drop out fuse, distribution transformer, low voltage system
      7. Idle meter data Defective meter data broken down by power supply area.
      8. Failure Rate (i.e. based on the number of faulty devices divided by the total number of devices)
      9. The data needed to organize these reports is drawn from external systems such as ADS, SCADA, GIS, CIS.
  11. Able to connect (Interface) to Mobile Device automatically as follows
      1. Work device location information
      2. Electrical failure information
      3. Fire Relief Information or Fire Relief Instruction Plan
      4. Affected customer data
      5. Work orders can be received and updated to make the fixer kit work.
      6. Work Order information as specified by PEA (e.g. Work Order number, planned activities including Switching Steps and parcel information), etc.
      7. Traffic information from the Traffic Division Both normal and emergency conditions, including the condition of the route that affects the vehicle, solve the fire, and analyze it in accordance with the route to the point of the power failure.
      8. Incidents in the power management system
      9. Tickets in the power management system are disrupted.
      10. Work order status
      11. Event detail information
      12. Attachments (such as photos and messages) before and after the fire correction
      13. Report power failures from customers such as power outages, power outages, etc.
      14. Mobile must be able to work in offline mode and when able to use online normally, it must be synced.
  12. Data can be automatically transmitted to Mobile Devices and external systems for Power Failure Management System (OMS) according to PEA defines at least as follows:
      1. Incidents in the power management system
      2. Tickets in the power management system are disrupted.
      3. Work order status (e.g. pending, closed)
      4. Power failure data (e.g. cause of power failure, power return time Details of equipment used to solve fires, etc.)
      5. Attachments (such as photos and messages) before and after the fire correction
      6. Report power failures from customers such as power outages, power outages, etc.
      7. Record Observations/Notes
  13. Able to link (Integrate) with meter data management system such as Meter Device Management System (MDMS) (AMR and AMI) to transmit data such as at least as follows:
      1. Receive power failure notifications and create events only for events that cannot be monitored by SCADA systems.
      2. Receive and update data of major and minor meters such as power consumption unit, peak load, voltage, current, etc. Every 30 minutes
      3. Send and receive test data of large and minor meters (Ping) (e.g. Meter Ping Request and test results such as meter with or without power, etc.), various measurements such as power consumption unit (Watt), peak load, voltage, current, etc. The data must be available from the Power Failure Management System (OMS).
      4. It can distinguish the status of the meter from the meter that has been cut off or the meter that has caused a power failure without accepting the unit of electricity consumption, Watt, peak load, voltage, current, etc. of the meter that is in the disconnected state.
      5. Power Outage Notification (PON) information can be obtained.
  14. Able to connect with the treasury system to manage costs and expenses.
  15. Can be linked with Smart Grid and Micro Grid system
  16. Able to link (Integrate) with PEA Mobile Application to receive - transmit data, receive reports of electrical problems, power failure information. Fire Plan Information Location and operation status information of the fixer kit
  17. Able to send information via ~~SMS~~ and/ or various applications that PEA has to executives or employees. PEA related to provide information as required by PEA. Define at least as follows:
      1. Summary of power outages (e.g. major power outages, incident areas, key customers affected)
      2. Major issues (e.g. long time to fix)
  18. Able to check the accuracy and errors of data transmitted between systems.
  19. To update data from other systems linked to power failure management systems. The OMS must be able to update only the data that changes automatically without affecting the users of the system.
  20. Able to import the initial data and verify the accuracy from the relevant work system as specified by PEA at least as follows:
      1. GIS system, EGAT power supply, transmission line (HV), power station (Substation), medium voltage distribution (MV), low voltage distribution system (LV)
      2. Customer information system, meter data and employee information system, at least as follows:
* Customer Name
* Meter number
* Customer number
* Employee Name
* Flap position
* Work skills
  + 1. system SCADA Device information such as Site ID or Location ID, voltage value, current value, etc.
  1. Link requirements use open or international standards such as OpenAPI and OData to enable efficient data linkage. Be neutral It does not depend on a particular software product.
  2. It can be linked to other software by using API technology to effectively support further development. It has been developed to be able to link data from external software systems without affecting the performance of the main system.
  3. Able to store data flow history and link data with other software and can retrieve data for use automatically. without affecting the performance of the core system.
  4. Able to link data with relevant systems to obtain data and export data required in Power Failure Management (OMS). Data links include:
     1. Geographic Information System (GIS)
     2. Electric Command System (SCADA)
     3. Contact Center Channel Management System
     4. Enterprise Resource Planning System (SAP-ERP)
     5. Power distribution support system (UTP or SAP-ISU)
     6. Enterprise Asset Management System in Electrical System (EAM)
     7. Smartmeter System (AMI)
     8. Power User Mobile App (MobileApp)
     9. Mobile Workforce (MWM)

## Grid Model Data Management Requirements

* 1. The device status on the Network Model can be adjusted by the user. At least as follows:
     1. Adjust the device status on the Tree Diagram
     2. Adjust the device state on the schematic diagram.
     3. Adjust device status on Spatial Views
  2. It can display and establish relationships between device locations. In schematic, spatial output format can be at least as follows:
     1. Location Information (Site),
     2. Boundary Information
     3. Substation Boundary,
     4. Device information ~~and~~
     5. Connectivity Information
  3. Can display device, device location Device status, such as normal or current When the impact of a power outage occurs This causes the device status location to not match the normal status on the geomap. The symbol can be adjusted. color and display format.
  4. Able to view the network model or grid model