GRIDSIGHT PROCEDURES

ELECTRIC POWER ENGINEERS, INC.

VERSION 1
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1 INSTALLING AND OPENING GRIDSIGHT

This section dictates what software and hardware is needed for the use of GridSight and also instructs the user how to open GridSight.

1.1 HARDWARE REQUIREMENTS

If the user hosts their modeling on-site, the following are the recommended hardware requirements:

- Server:
  - Processor: Intel Xeon 3500 series or above or Intel Core i7-3770 or above,
  - Memory: 8 GB Minimum, 16 GB recommended,
  - Storage: Size 500 GB minimum, 1 TB recommended; Technology: SSD recommended.
  - Network: 100BASE-TX Ethernet minimum, 1000BASE-TX recommended
- Advanced User:
  - Processor: Intel Core i5 or above,
  - Memory: 3 GB or above
- Field personnel access:
  - Most tablets and phone devices

1.2 OPENING GRIDSIGHT

The typical user needs to only install a web browser and connect to the local virtual private network (VPN) where the model is stored. It is recommended to only use Google Chrome or Firefox by Mozilla. The user then needs to navigate to the following address: http:// http://gridsightvm.epeconsulting.local/ . The user will then need to enter the correct username and password.

2 NAVIGATING GRIDSIGHT

The following tools will allow the user to explore the model in GridSight and look up information needed for operations and engineering purposes.

2.1 ZOOMING IN AND OUT

Use + and – signs on the right to zoom in and out or use your mouse toggle button to zoom in and out of the model.

2.2 RETURNING TO HOME SCREEN

Use the Home symbol on the right side of the screen to return to the original view of the model at any time.

2.3 Search For a Location

Use the Search Maploc/Address feature to find either a map location or address by typing it in the dialog box and pressing enter. This will aid in finding where a new customer will be added or for linemen out in the field.

2.4 Zooming to a Substation/Feeder

If the user is interested in seeing an entire substation or feeder, use the Legend window and select the Feeders tab to find the respective feeder or substation and double click on it. GridSight will highlight the area of interest.

2.5 Changing Base Map View

If the user is interested in seeing a particular view behind the mapping diagram, the user can change the base map to show the background they are interested in, including topographical, satellite images, roads and rivers. This can be done by going to Tools>Basemap.

2.6 Using the Legend

Under the Legend window, the user can check or uncheck specific parts of the legend, including Loads, Equipment, Lines and Grid, to choose what is shown in the users view.

2.7 The Study Window

Under the Study window, the user can determine what current voltage drop study the model currently shows. In addition, this window will display the Load Scaling, the Voltage Threshold, and the Thermal Threshold currently displayed.

3 Topology Editing

The following tools will enable the user to edit the models in GridSight, provided the user has editing access. The user should select Tools>Topology Editing and check the button Enable Editing in order to begin.

3.1 Editing Properties of an Existing Single Line

After the user enables editing, the user should select the line of interest. A dialog box will pop up and allow the user to edit the properties of that line section, which will be highlighted. This includes changing the conductor size, voltage or phasing of a line.

3.2 Adding a New Line

After the user enables editing, the user should use the toolbox under Topology Editing to choose what type of line will be added. Choose where the new line will begin in the drawing, using a map location or a physical address. Using the new line tool, add the line beginning at the chosen location and draw to the end point by double clicking to end the line. Choose the correct properties for the new line, by selecting the correct phase, correct conductor size and voltage.

3.3 Adding a Large Load

When a request for a small load is received, the user will get a location from the new customer and use GridSight to locate the prospective load on the drawing in relation to the distribution lines, by either typing in a map location or a physical address. After selecting the appropriate load under the Topology Editing toolbar, the user will then add the load at the correct location. They will enter in the proposed kW, including transformer size and any motor attributes.

3.4 Adding Other Equipment (Regulator, Capacitor…)

After the user enables editing, the user should use the toolbox under Topology Editing to choose what type of equipment will be added. Choose where the new equipment will be added in the diagram and click to add it.

3.5 Editing the voltage of a Feeder

If the user would like to change the voltage of a feeder, the user will need to select the first parent out of the substation and edit the properties of the first parent by opening the dialog box and changing the voltage. The parent section will then change the voltage of the corresponding children elements to match.

4 Equipment Catalog

GridSight has a catalog of equipment saved for default use. When additional equipment needs to be added to the catalog, the user must have the correct privileges to add equipment to the catalog.

4.1 Adding New Equipment to Catalog

Once the user has the properties of the conductor, namely the impedances, go to Tools>Equipment Manager to add in the respective properties of the equipment the user is trying to add. The user is responsible for verifying the accuracy of the data for any equipment the user adds.

5 Useful Tools

The following are several tools in GridSight that the user may need on a daily basis:

5.1 Measuring Distance

Go to Measurement and choose which of the following buttons the user needs:

Use the measuring tool by clicking the area you want to begin with and then click the end point of the line you want to measure.

An area can also be selected to see how many acres the selected area is.

5.2 Counting Customers

Select the line section that the user is interested in counting customers from. In the Info window, the user will see the Load Count and Distance from Bay tool. Click this and the Messages window will display the number of customers past this line section, in addition to listing the customer numbers.

6 Importing Data

The following section will assist the user in importing new data, including new billing files or new customers.

6.1 Importing a New Billing File

Go to Tools>Demand Analytics and click Import Billing File. Browse to the location where the new file is saved and give the it a correct time stamp so the user knows what it represents.

6.2 Importing New Customers

Go to Tools>Member Synch and click Import Members. Browse to the location where the new files are saved that include the new customers. This function will only add the new customers in the file and keep the existing customers as they are shown. The new customers that have been added will be shown in the Messages window.

7 Load Allocation

After the user has imported a billing file, the load should be appropriately allocated before running any reports.

7.1 Importing a Load Allocation File

Go to Tools>Demand Analytics and click Import Bay Loading File. Browse to the location where the bay loading file is saved and select it.

8 VOLTAGE DROP

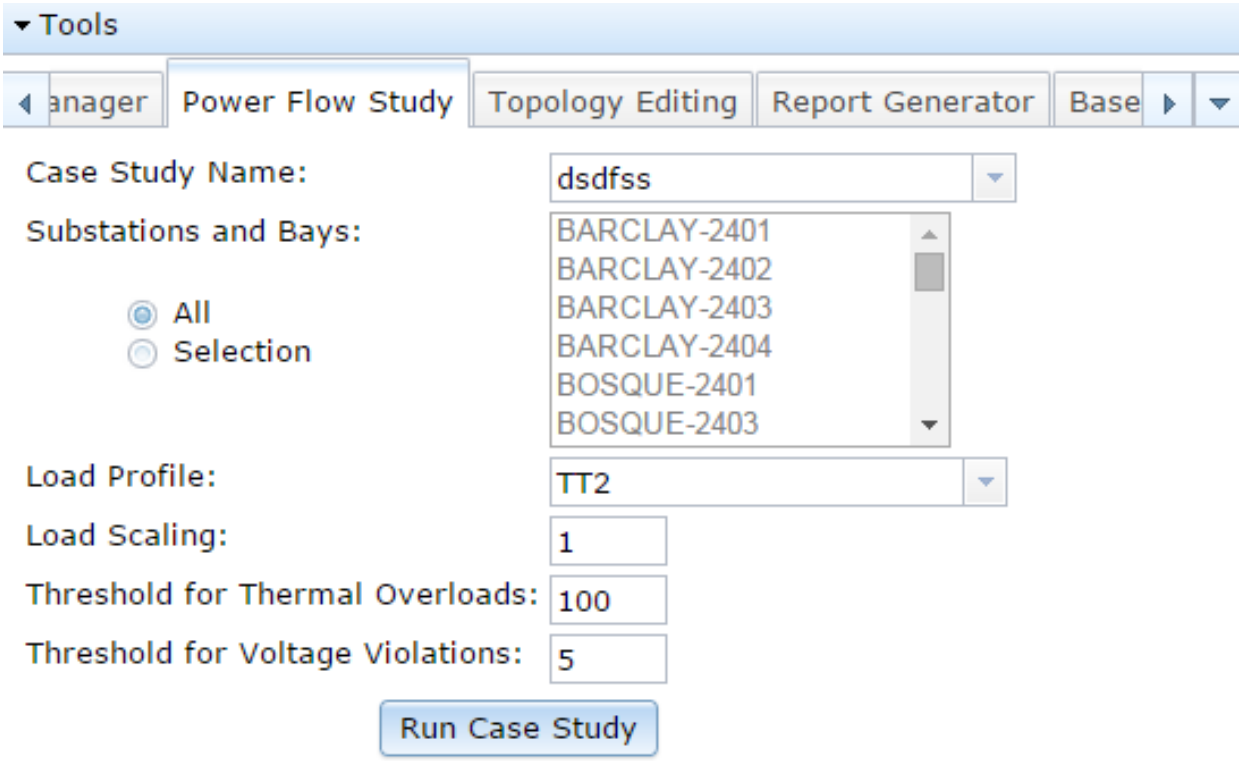
In order to run or select a previous voltage drop calculation, the user should go to Tools>Power Flow Study.

8.1 SELECTING A PREVIOUS VOLTAGE DROP STUDY

Go to Tools>Power Flow Study. Under Case Study Name, choose the name of the previous study the user wishes to display.

8.2 RUNNING A NEW VOLTAGE DROP STUDY

Go to Tools>Power Flow Study. Under Case Study Name, type the name of the new study. Select All or make a selection of the feeders the user wishes to include. Next, select the Load Profile the user wishes to run. Next, if the user wants to scale the load up or down, the user should enter in an appropriate value in the Load Scaling Box. Otherwise, the value should be left at 1, where the load will be left as is. Next the user should select appropriate values for Threshold for Thermal Overloads and Threshold for Voltage Violations. These two boxes define the limits the user wishes to see for thermal overloads and voltage problems.



8.3 Deleting a Previous Voltage Drop Study

In the user wishes to delete a previous voltage drop study, go to Tools>Manage Case Studies. Select the appropriate study that the user wishes to delete from the drop down study. Next click the Delete Case Study button to delete the study.

8.4 Checking Power Factor Correction on a Feeder

In addition, if any Large Loads are on the feeder, make sure their power factors are also correctly modeled. Any capacitor banks should be correctly represented also. To check the corrected power factor at the beginning of a feeder, run a voltage drop. Once the calculation has finished, the user can either check the conductor just out of the substation or the voltage drop report to determine the corrected power factor.

9 Analysis and Reporting

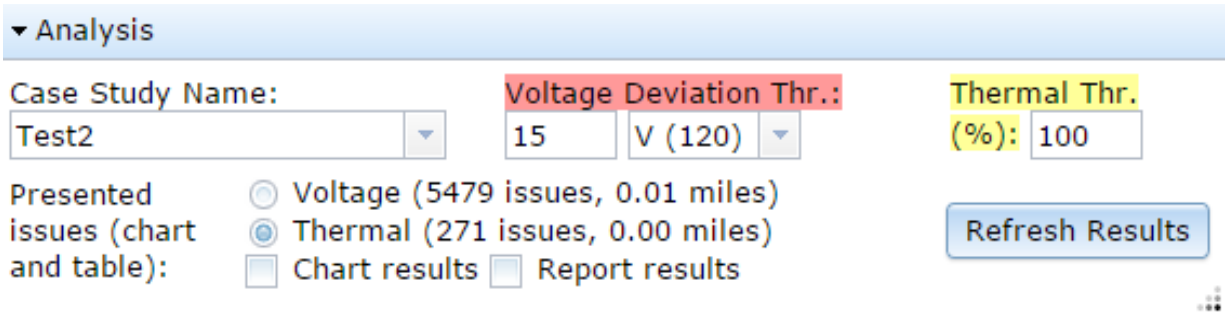
This section will allow the user to display analysis results and export the reports generated by studies performed by the user.

9.1 Displaying the Current Report

Go to Tools>Report Generator. Next click the Show Current Analysis Report button. The tool will display the last report for the latest study completed in a new tab in the user's browser.

9.2 Displaying the Results on the Mapping Diagram

Go to the Analysis window. Next the user should choose the latest study completed that they wish to display results for. Next the user should select the limit at which they would like to highlight voltage deviations and thermal overloads by adding these limits in the Voltage Deviation Thr. And the Thermal Thr. boxes. The voltage deviations over the limit will be highlighted red and the thermal overloads will be highlighted in yellow. The user can also select whether only voltage or thermal issues will be displayed by selecting the appropriate boxes as shown below. In addition, the checkboxes can be chosen for charting or reporting results. The user should click Refresh Results to show the results on the diagram.



9.3 Clearing the Current Analysis Highlighting

If the user wishes to clear any analysis highlighting, the user should go to Tools>View. Next the user should choose the Clear Analysis Highlighting in order to clear the map of any highlighting.