

EMS Oneline Topology Diagrams in PowerWorld



2001 South First Street
Champaign, Illinois 61820
+1 (217) 384.6330

support@powerworld.com
<http://www.powerworld.com>

Translation



- Areva EMS users have ability to write out a CSV file that represents a model of the case
 - Using hdbexport command
- The EMS engineers then maintain 100s (even 1000s) of substation topology diagrams for use with this model
 - Areva ESET file (*.ddl text file) provides the formatting for how various objects are drawn
 - Areva DSET file (*.ddl text file) contains the diagrams

Translation



- PowerWorld can import these files
 - Manual translation of ESET into a PowerWorld AUX format to provide mapping between the two formats
 - Only diagrams using the ESETs that have been translated can be loaded into PowerWorld Simulator or Retriever
 - PowerWorld has translated individual substation and overview diagrams for WECC diagrams
 - The “oneline” is then the DSET file

Translation



- ImportDDLAsTranslation script command
 - Loads ESET DDL and converts into translation within Simulator
 - Currently only works with keyset definitions that set links to open onelines
 - Important for linking overview diagrams
 - Loaded at end of the translation file that has been developed for WECC
 - Oneline Browsing Path is used to find files defined with this script command so it is important to set this prior to calling the script command

Translation



```
DATA (AREVADISPLAYMAPPING, [ArevaDisplaySet, ArevaKeyword, ArevaKeywordParam])
{
  "" "display" ""
  <SUBDATA ArevaTranslation>
    AddScreenObject "PWFormOptions" "THESE_OPTIONS_ARE_APPLIED_TO_THE_CURRENT_DISPLAY"
    ChangeSGField "CaseInfoBackgroundColor" "$000000"
    ChangeSGField "OOAFshow" "No"
    ChangeSGField "OOSnapToGrid" "No"
    AddScreenObject "ScreenLayer" "__HIDDEN"
    ChangeSGField "SLShown" "No"
  </SUBDATA>
  "PSST_ONELINES" "gab" "AFTER_LINKED_BUS_BAR"
  <SUBDATA ArevaTranslation>
    AddScreenObject "" ""
    ChangeSGField "SOColor" "$0000FF"
    ChangeSGField "SOwidth" "0"
    ChangeSGField "SOThickness" "5"
    ChangeSGField "FontName" "Courier New"
    ChangeSGField "SOFontSize:1" "-14"
    ChangeSGField "FontColor" "$0000FF"
  </SUBDATA>
  "PSST_ONELINES" "gab" "AFTER_LINKED_LINE"
  <SUBDATA ArevaTranslation>
    AddScreenObject "" ""
    ChangeSGField "SOColor" "$0000FF"
    ChangeSGField "SOwidth" "0"
    ChangeSGField "SOThickness" "2"
    ChangeSGField "FontName" "Courier New"
    ChangeSGField "SOFontSize:1" "-14"
    ChangeSGField "FontColor" "$0000FF"
  </SUBDATA>
  .. .. .. .. ..
  .. .. .. .. ..
}
```

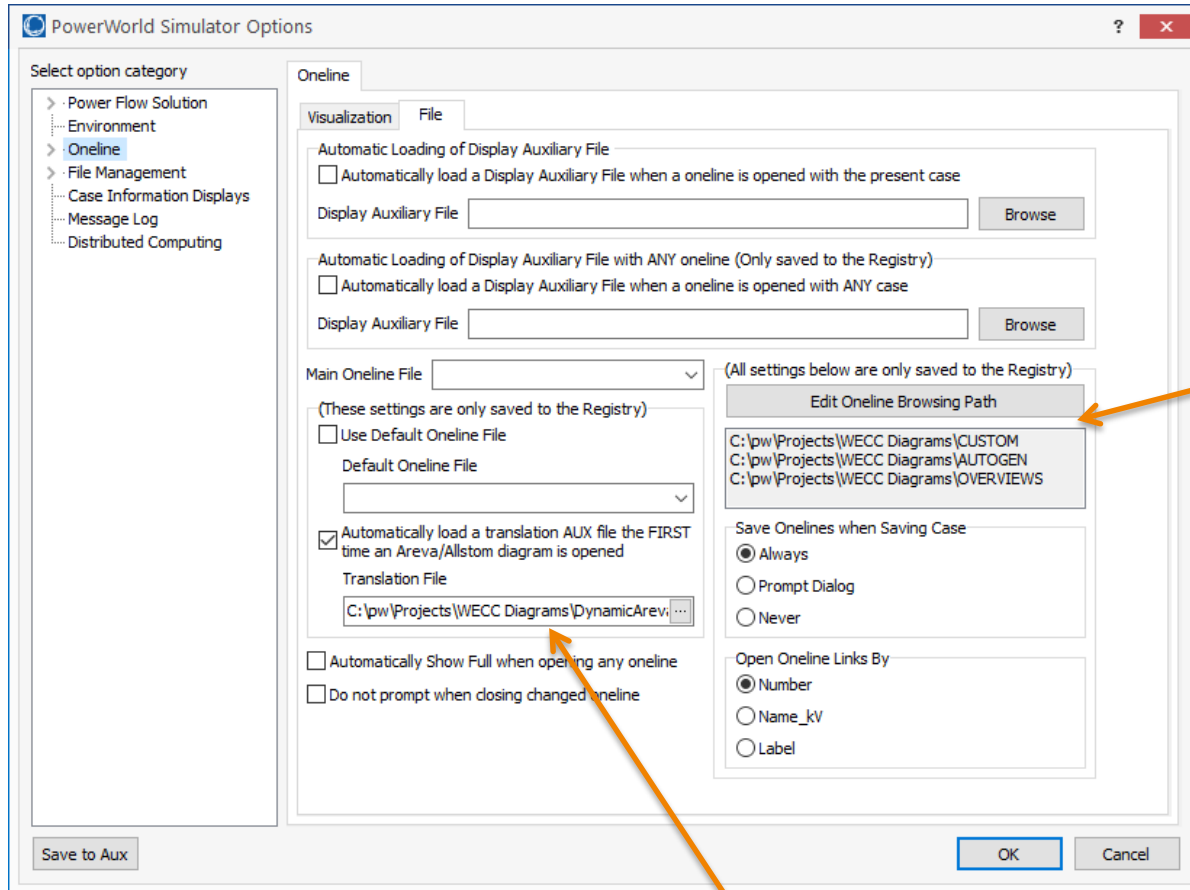
Areva keyword
describing a drawing or
formatting action

Areva ESET

Areva parameter
describing a
particular action

Instructions on how
PowerWorld will format or
draw an object

Convenient Setup



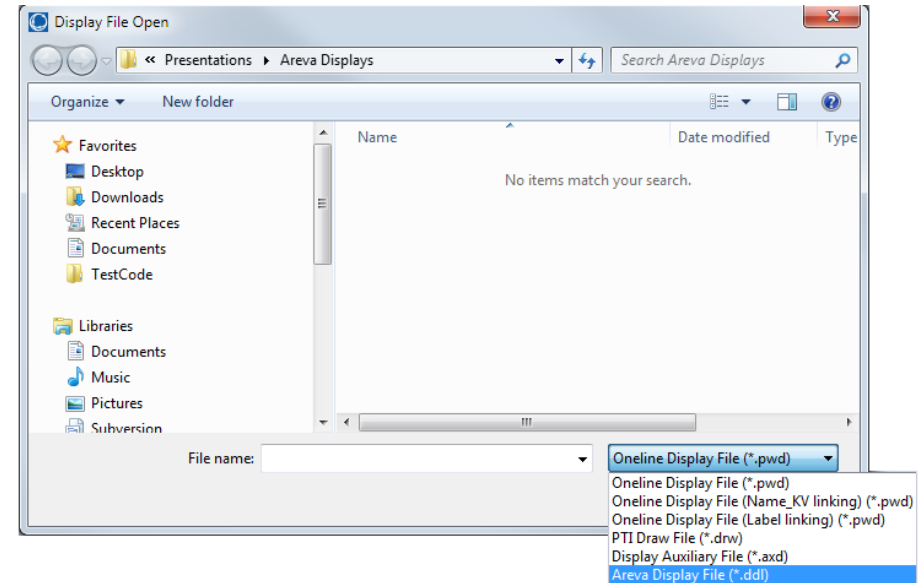
Use the Online Browsing Path to specify the search order for finding DDL files that are called through links in diagrams or script commands. This is stored in computer registry to be used with all cases.

Set option to automatically load the translation file when a DDL diagram is opened. This is stored in computer registry to be used with all cases.

Loading an Areva Diagram



- Open EMS power flow case
 - PowerWorld generates labels when reading Areva diagram files and those labels must match the labels used in the EMS model
- Load in translation AUX
 - Or use convenient setup that will do this automatically for all cases
- Open Areva Display File (*.ddl)



Check the Message Log

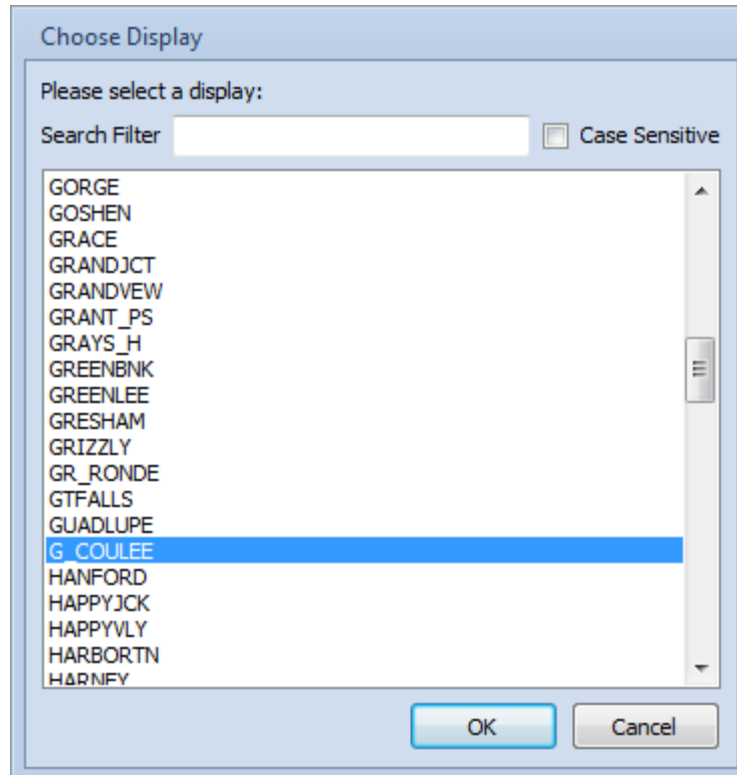


- Any objects that cannot be linked when loading a DDL will send a message to the log
- Clicking on links for which the linked diagram cannot be found will send a message to the log

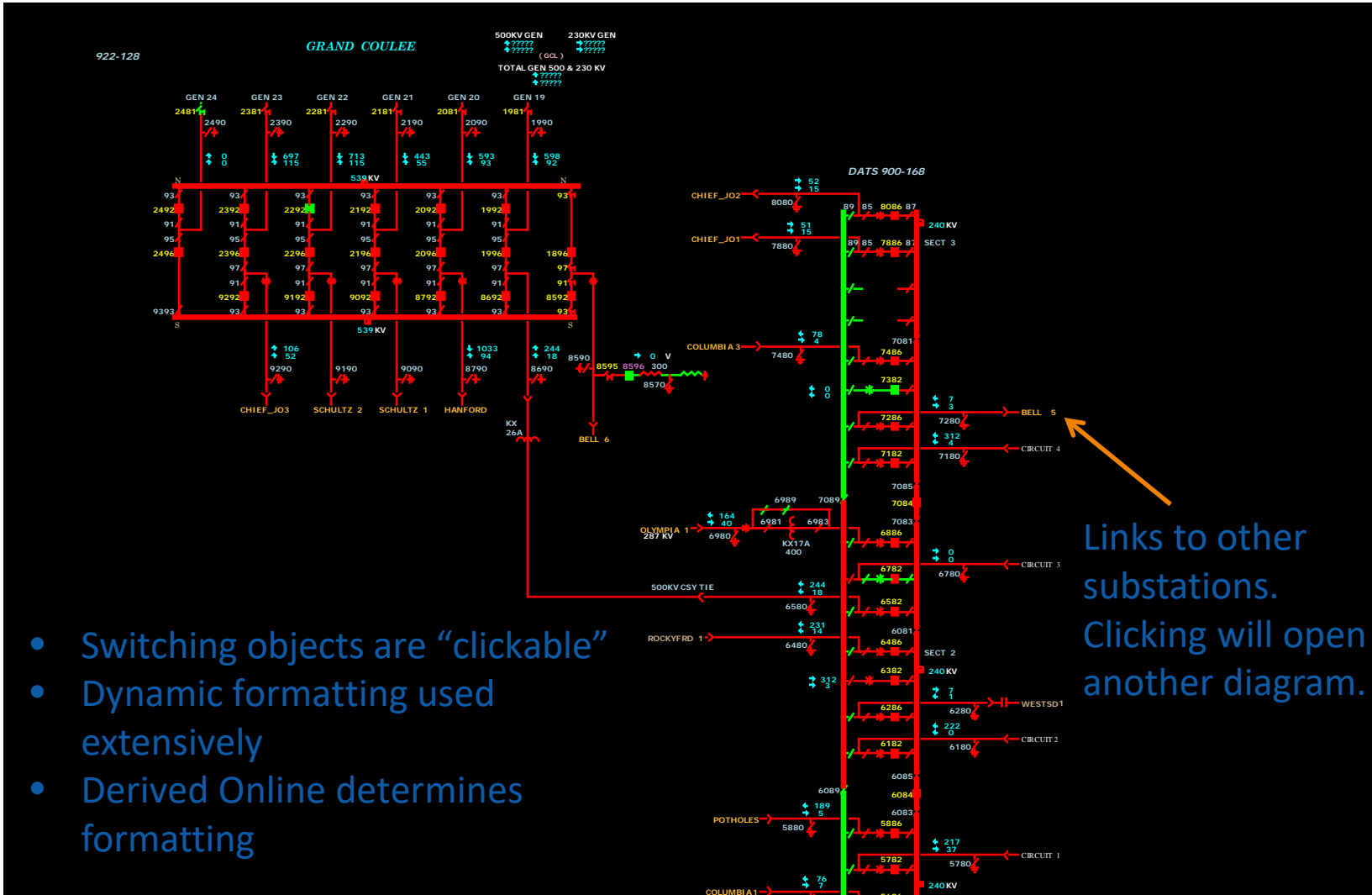
Loading an Areva Diagram



- Select a DSET (*.ddl) file
 - Each DSET file can contain multiple diagrams



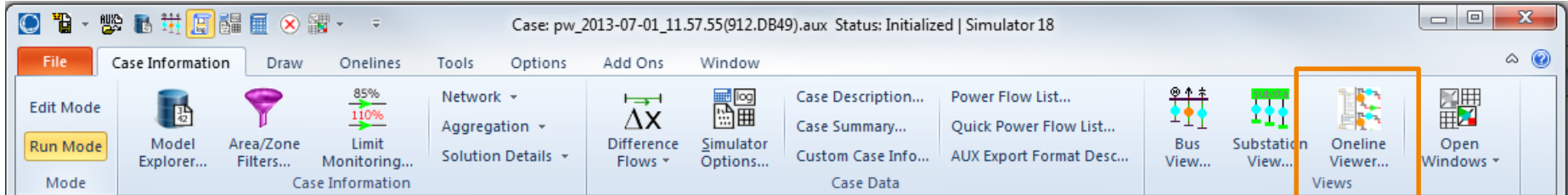
Loading an Areva Diagram



- Switching objects are “clickable”
- Dynamic formatting used extensively
- Derived Online determines formatting

Links to other substations. Clicking will open another diagram.

Online Viewer



- Manage and browse through a large list of diagrams
- Works with all diagram formats that PowerWorld supports

Online Viewer



Open diagrams to browse

History buttons for browsing

Specify folder to search for diagrams

List of available diagrams.
Double-click to open in a tab.

The screenshot shows the 'Online Viewer' application window. On the left, a 'Files' pane lists various diagram files (e.g., 1000aire_dset.ddl, 26r_dset.ddl, etc.). An arrow points from the text 'Specify folder to search for diagrams' to the 'Browse' button above the file list. Another arrow points from the text 'List of available diagrams. Double-click to open in a tab.' to the file list. The main area displays a power diagram titled 'ALCOA Alcoa (BA: BPA)'. The diagram shows a network of 118.0KV lines, breakers (B200, B1896, B1898, B238, B230, B236), a switch (SW48), and a load (LD: EVRGRN2). An arrow points from the text 'History buttons for browsing' to the navigation buttons (back, forward, home) at the top of the diagram area. The window title bar shows 'ALCOA' and 'ADLNT0' tabs. A 'Close' button is visible at the bottom left.

Online Viewer



- Custom Menus
 - Import definitions from EMS system
 - Right-click in the tree view for option *Import WebFG Definition*
 - Stored on a per-user basis in user profile
 - Save settings in auxiliary file
 - Save to Aux button on Simulator Options dialog
 - CustomMenuNode object type
 - Can also be loaded from auxiliary file
 - Clear custom menus
 - Right-click on tree view for option

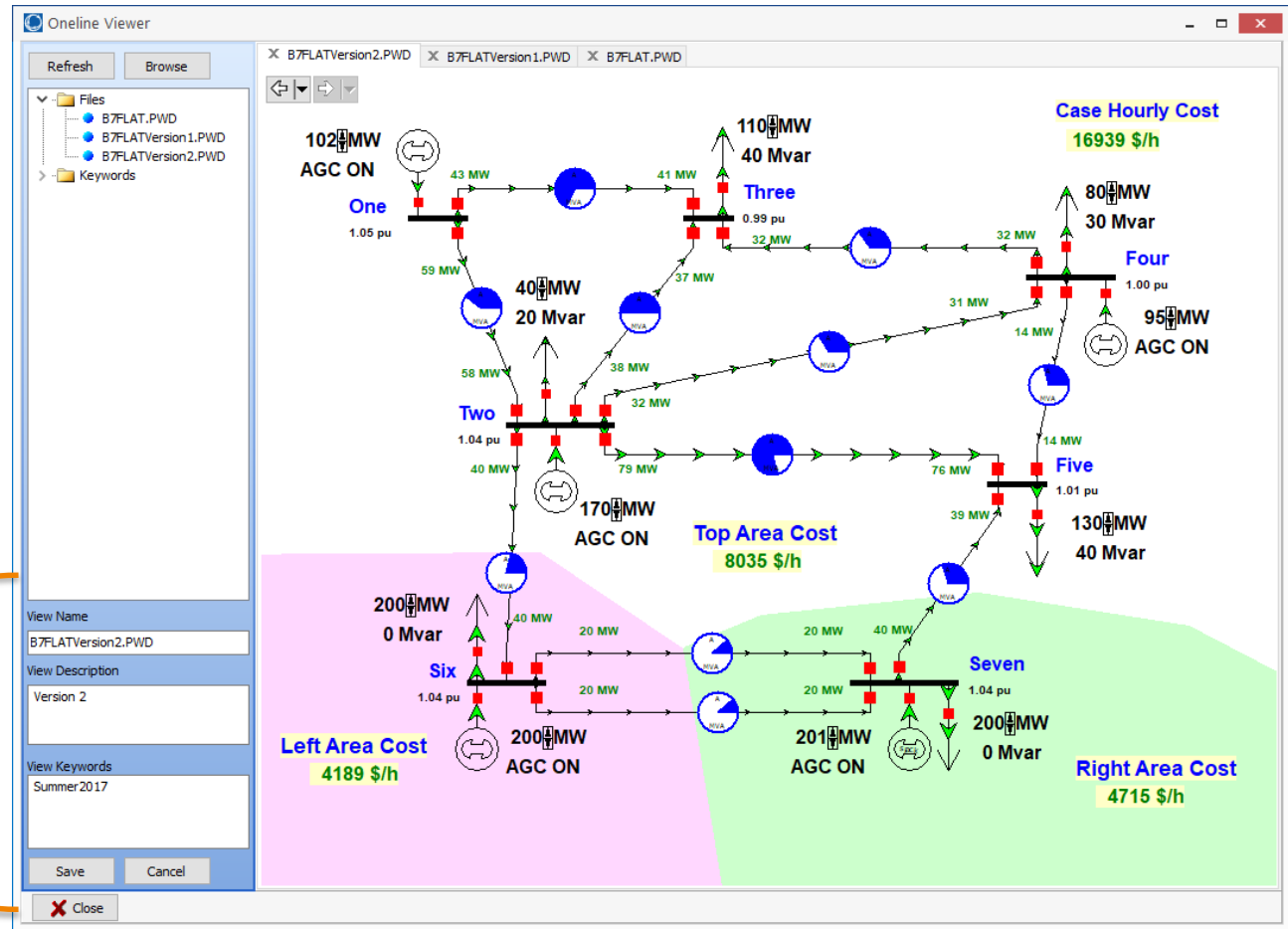
Online Viewer

Keywords



- Only applies to PWD diagrams
- Metadata can be assigned to diagrams
 - These are listed in the Keywords folder
- Onelines can then be selected based on the metadata that they contain
- Metadata will be saved with the PWD file

Online Viewer Keywords



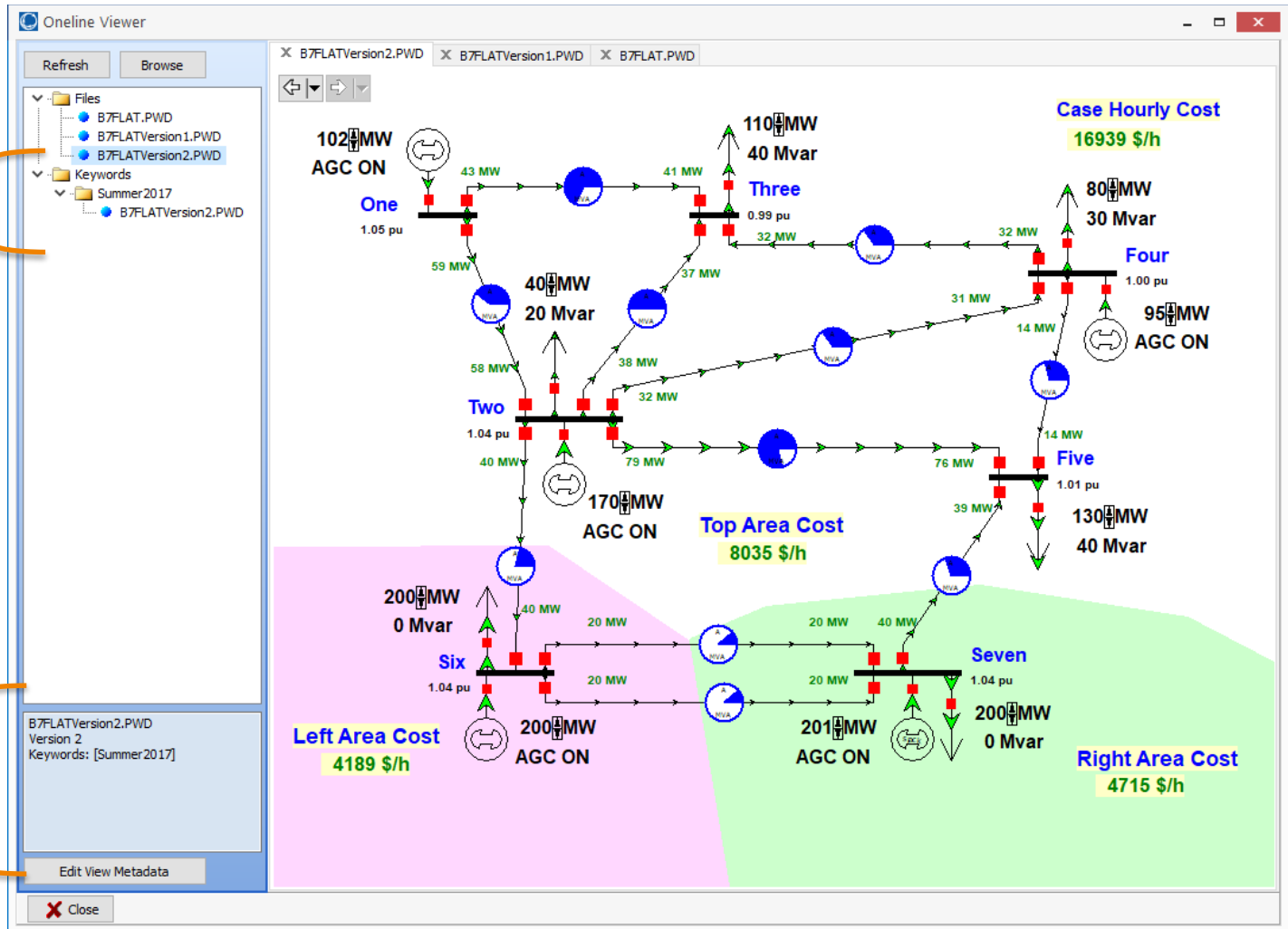
Edit metadata

Clicking Save will cause the PWD file to be saved

Online Viewer Keywords



List of keywords and diagrams using those keywords



Metadata assigned to selected diagram