

Aggregation of Data



- Areas and Zones
- Interfaces
 - *Flowgates, Cutplanes, and Paths* can be defined as interfaces
- Nomograms
- Super Areas
- Injection Groups
- Substations
- Difference Flows to compare different cases
 - values in the case (loads, gen MW outputs, etc...)
 - Also compare the topology of the case

Area and Zone Records



- Area and Zone definitions are part of standard power system case text formats
- Each bus is assigned to exactly one area
- Each bus is assigned to exactly one zone
- Generators, Shunts, and Loads are normally assigned to the same area as their terminal bus
 - However, they may also be given their own area and zone designation

Area and Zone Layouts

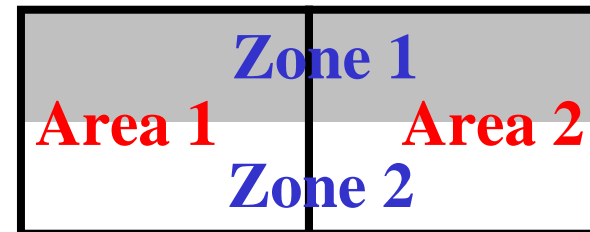


- Areas and Zones do NOT have to be contiguous
- Zones are often “sub-areas”, but this is NOT required. They can overlap as shown below

- Areas (thick lines)

- Zones (shaded/nonshaded)

- A single area may consist of multiple zones, while a single zone can include buses from multiple areas



What are Areas and Zones For?



- Areas and Zones
 - Provide summary data about a group of power system elements (total load, generation, losses, etc...)
 - Provide way to filter data (Area/Zone filters)
 - Limit Monitoring Settings for Area/Zone
 - Toggle settings for equivalencing, scaling, etc...
- Areas ONLY (control settings)
 - Ability to perform automatic generation control (AGC)
 - Ability to specify MW transfer between areas
 - Ability to toggle control settings across a group of elements
 - AGC, Generator AVR, Shunts, Transformers
 - Ability to enable OPF/SCOPF constraint enforcement

Assigning Area and Zone Designations



- To create a new Area or Zone
 - Make sure you're in Edit Mode (for all methods)
 - Open Model Explorer and choose **Network** → **Buses** or open the Bus Dialog and assign an existing bus to a new Area/Zone number; OR
 - Select **Insert...** from the local menu (right-click) in Area Records or Zone Records; OR
 - Auxiliary files or Copy/Paste from Excel

Number	Name	Area Num	Area Name	Nom kV	PU Volt	Volt (kV)
1	1 One	4		138.00	1.05000	144.9
2	2 Two	1 Top		138.00	1.04000	143.5
3	3 Three	1 Top		138.00	0.99269	136.9
4	4 Four	1 Top		138.00	1.00000	138.0
5	5 Five	1 Top		138.00	1.00665	138.9
6	6 Six	2 Left		138.00	1.04000	143.5
7	7 Seven	3 Right		138.00	1.04000	143.5

Enter a new number to create a new Area

Moving Bus Zones and Creating New Zones via the Zone Dialog



- Buses can be assigned individually to zones using the Bus dialog.
- Groups of buses can be moved to different zones using the Zone Information dialog.
- Zone information dialog is available by right-clicking on the zone name on the Zone Records display.

Edit Mode Zone Dialog



Zone number

List of all buses in the zone

To move a group of buses to a new zone, first enter the new zone number here.

Then select buses to move.

Finally click here to move the buses

Bus Number	Bus Name	Bus kV	Area Number	Area Name
1	One	144.9	1	Top
2	Two	143.5	1	Top
3	Three	137.0	1	Top
4	Four	138.0	1	Top
5	Five	138.9	1	Top
6	Six	143.5	2	Left
7	Seven	143.5	3	Right

Run Mode Zone Dialog



Use
combo box
and/or
arrows to
view other
zones

Zone Information dialog box showing the following data:

	MW	Mvar
Load	760.0	130.0
Generation	767.9	103.2
Shunts	0.0	0.0
Losses	7.94	-26.82
Interchange	0.0	0.0

Generation AGC Range:

Maximum Gen Increase (MW)	1432.1
Maximum Gen Decrease (MW)	317.9

Tells
range
of AGC
generation
in zone

Zones can
have tie-lines,
but AGC on
zones is not allowed

Zone Information dialog box showing the Tie Lines tab with the following data:

Tie Type	Near Area Name	Near Number	Near Name	Far Area Name	Far Number	Far Name	Ckt	Meter
None	Defined							

Interface Definition



- Interfaces are groupings of branches and sometimes other elements
- The sum of the flows on these elements can then be monitored in the analysis tools
- Common interfaces are the grouping of tie lines between areas, and groupings of lines between important parts of the system.
- Interfaces can be used to model several commonly described groupings of lines
 - Flowgates – term used in the Eastern United States
 - Cut-Planes – term used in the Western United States
 - Paths – term used in the state of California
 - Nomograms – Used throughout the industry

Interface Records



- Interface records can be used to show flows between areas and/or zones.
- Interface records showing area to area flows can be automatically inserted by
 - Open Model Explorer and choose **Aggregations** → **Interfaces** to display interface records
 - Select **Interface records** → **Auto Insert Interfaces** from the local menu to display Auto Insertion of Interfaces Dialog

Interface Records



The screenshot displays two windows from a software application. The main window, titled 'Interface Definitions', contains a table with the following data:

Number	Name	Interface MW Flow	MW Limit	Percent	Monitor Direction	Monitor Both Directions	Lim A MW	Lim B MW	Lim C MW	Has Contingency
1	Left-Right	40.1	0.0		FROM -> TO	NO	0.0	0.0	0.0	No
2	Left-Top	-40.1	0.0		FROM -> TO	NO	0.0	0.0	0.0	No
3	Right-Top	40.1	0.0		FROM -> TO	NO	0.0	0.0	0.0	No

Below the table is a section for 'Elements' with a table:

Description	Flow
1 Tie lines from Area 'Left (2)' to Area 'Right (3)'	40.07

The 'Auto Insertion of Interfaces' dialog box is open on the right, showing the following settings:

- Type of Interfaces to Insert: Area to Area, Zone to Zone
- Optional Prefix (3 characters maximum): []
- Delete Existing Interfaces
- Only Insert Area/Zones with Area/Zone Filters Set
- Limits: Automatically calculate from component ratings, Use these:
 - Limit A: 0.000
 - Limit B: 0.000
 - Limit C: 0.000
 - Limit D: 0.000
 - Limit E: 0.000

Buttons at the bottom of the dialog are 'Insert Interfaces', 'Cancel', and 'Help'.

Right-click and select
Interface records →
Auto Insert Interfaces

Select either Area to
Area, or Zone to
Zone flows

Defining Custom Interface Records



- Open Model Explorer and choose **Aggregations** → **Interfaces** to view the Interface display.
- Right-click and select **Insert** to add a new interface.
- The Interface Dialog is shown.
- We'll set up interface showing flow on two parallel lines.

Interface Dialog

Interface Name: Top Export

Interface Number: 1

Limits (MW):
Limit A: 400
Limit B: 0.000
Limit C: 0.000
Limit D: 0.000
Limit E: 0.000

Monitoring Direction:
 FROM --> TO
 TO --> FROM

Noncontingent MW Flow Contribution: 0.7
Contingent MW Flow Contribution: 0.0
Total MW Flow: 0.7
PTDF Value (%): 0.00

Interface Elements: OPF Custom

Either: Insert New Element
 Clone Elements From Another Interface
or Right-Click to show the Element Dialog

Element Identifiers:
 Name (Number) Name
 Number (Name) Number

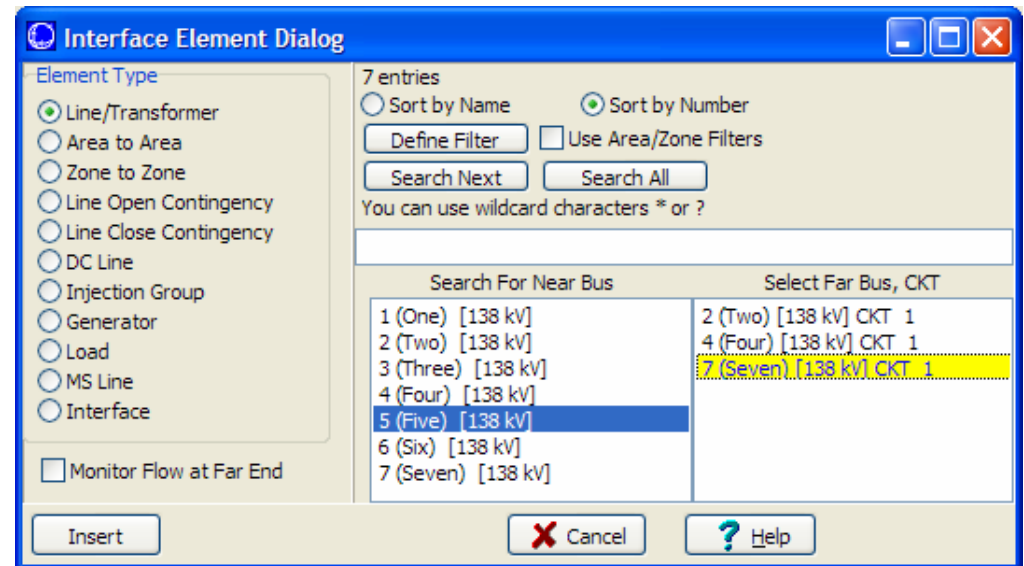
	Description	Flow
1	Line MW flow from bus 'Two (2)' to bus 'Six (6)' circuit 1	40.07
2	Line MW flow from bus 'Five (5)' to bus 'Seven (7)' circuit 1	-39.41

Buttons: OK, Save, Cancel, Help, Print

Monitored Interface Dialog



- Change Interface Name: *Top Export*
- Modify Interface Limit A (MW): *400*
- Click **Insert New Element** button to add a new element
 - Type: *Line/Transformer*
 - Near : *2 (Two)*
 - Far : *6(Six) CKT 1*
- Repeat For
 - Type: *Line/Transf.*
 - Near : *5 (Five)*
 - Far : *7 (Seven)*



Interface Element Type



- Line/Transformer
 - Monitor the flows on a line (direction is important!)
- Area to Area, and Zone to Zone
 - Monitor the sum of the flows on all tie lines
- Line Open/Close Contingency
 - When defining these, it means that all monitoring on this interface is done after this Line Open/Close contingency
- DC Line
 - Monitor the flow on a DC Line
- Injection Group, Generator, Load
 - Monitor the output of a group of generators or loads
 - Allows you to put a limit on the sum of outputs
- MS Line
 - Monitor the flow on a multi-section line
- Interface
 - Monitor the flow/output of another interface
 - *Be careful not create circular references*

Monitored Interface Dialog



Interface Name

Add a new element to the interface

Lists all elements in interface.

Right-Click and Choose **Show Dialog** to modify

Use spin button to view other interfaces

Set weighting of individual elements

Add or delete interfaces

Interface Dialog

Interface Name: Top Export

Interface Number: 1

Labels ...

Limits (MW)

Limit A	400
Limit B	0.000
Limit C	0.000
Limit D	0.000
Limit E	0.000

Monitoring Direction

FROM --> TO

TO --> FROM

Monitor Both Directions

Noncontingent MW Flow Contribution: 0.7

Contingent MW Flow Contribution: 0.0

Total MW Flow: 0.7

PTDF Value (%): 0.00

Interface Elements: OPF Custom

Either

or Right-Click to show the Element Dialog

Element Identifiers

Name (Number) Name

Number (Name) Number

	Description	Weighting	Flow
1	Line MW flow from bus 'Two (2)' to bus 'Six (6)' circuit 1	1.00	40.07
2	Line MW flow from bus 'Five (5)' to bus 'Seven (7)' circuit 1	1.00	-39.41

OK Save Cancel Help Print

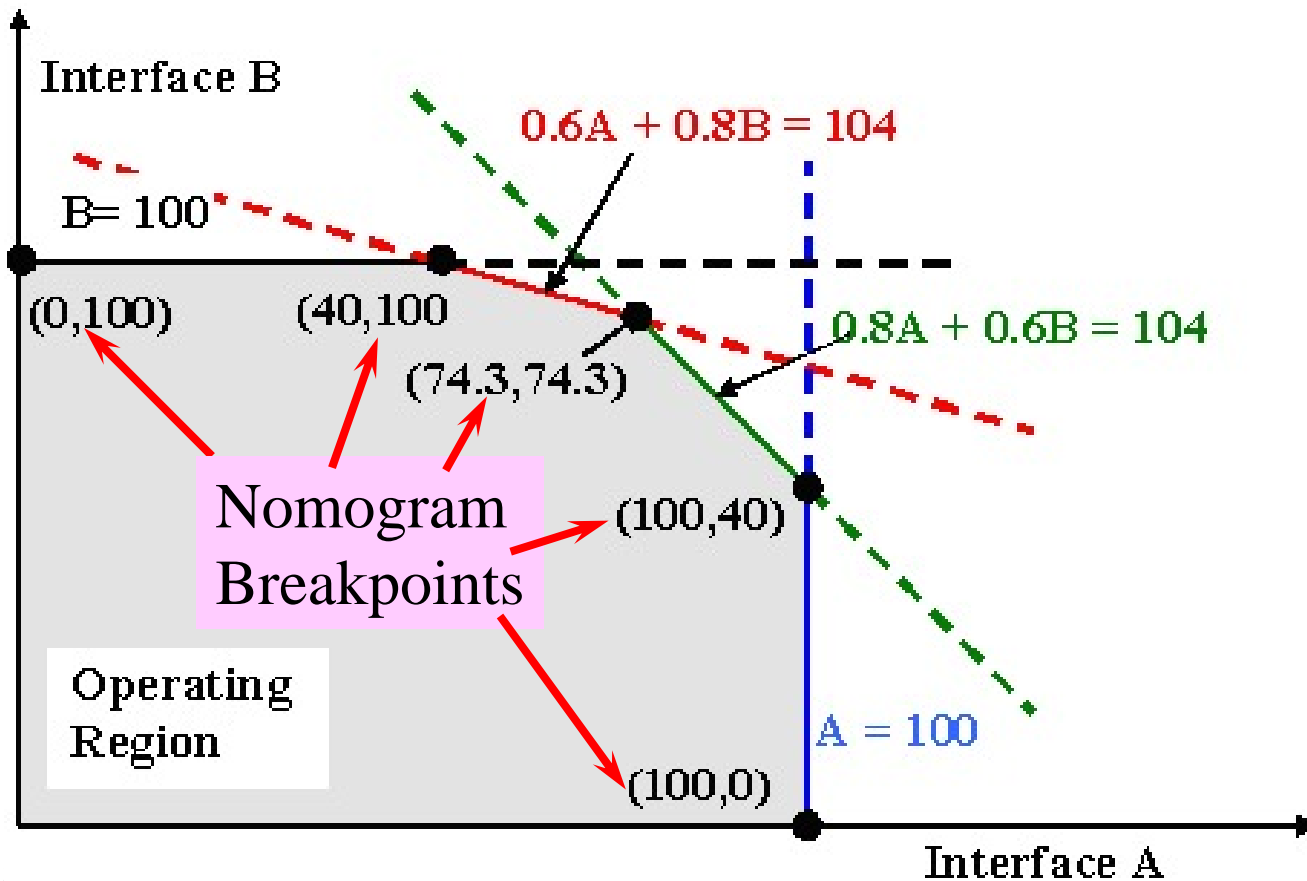
Interface Element Weightings



- Right-click on the list of elements and choose **Display/Column Options**
- Add the columns **Weighting** and **Pre-Weight Flow**
- This allows your interface to monitor the *weighted sum* of flows instead of the pure sum.
- This will be used extensively with **Nomogram Definitions**

Nomograms

- Nomograms allow definition of 2-dimensional limit spaces using 2 interfaces





Nomograms



- Open Model Explorer and choose **Aggregations**
→ **Nomograms** to bring up a list of Nomograms
- Right-click and choose **Insert...** to bring up the Nomogram Dialog for adding a new Nomogram
- A nomogram is defined by
 - Interface A
 - Interface B
 - A set of breakpoints
 - Breakpoints **MUST** create a “convex” region
- Nomogram limits can be used in ATC, contingency analysis, and OPF/SCOPF

Nomogram Dialog



Interfaces are defined the same as before

Define Interface A

Define Interface B

Specify Breakpoints

graphical representation of the breakpoints; operating region may span 4 quadrants

The screenshot shows the 'Nomogram Dialog' window with the following components:

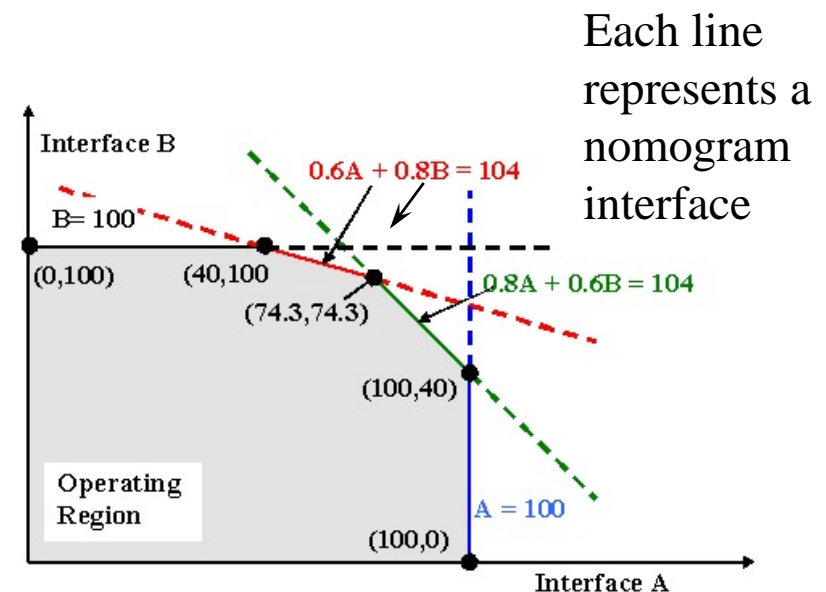
- Nomogram:** Example Nomogram (dropdown menu)
- Buttons:** Save, Save As, Rename, Delete
- Interface A:** Contains one element with ID 1, Description 'Line MW flow from bus 'Two (2)' to bus 'Five (5)' circuit 1', and Flow 78.74.
- Interface B:** Contains one element with ID 1, Description 'Line MW flow from bus 'Two (2)' to bus 'Four (4)' circuit 1', and Flow 32.12.
- Nomogram Breakpoints:** A table with columns 'Int A [MW]' and 'Int B [MW]'. The data points are: (0.00, 100.00), (40.00, 100.00), (74.29, 74.29), (100.00, 40.00), and (100.00, 0.00).
- Nomogram Limiting Boundary:** A graph with 'Interface B [MW]' on the vertical axis and 'Interface A [MW]' on the horizontal axis. A blue shaded area represents the 'Operating Region'. A red dot indicates the 'Operating Point'.
- Buttons:** OK, Cancel, Help

Nomogram Interfaces



- For each nomogram, Simulator creates a list of *nomogram interfaces* which are managed internally

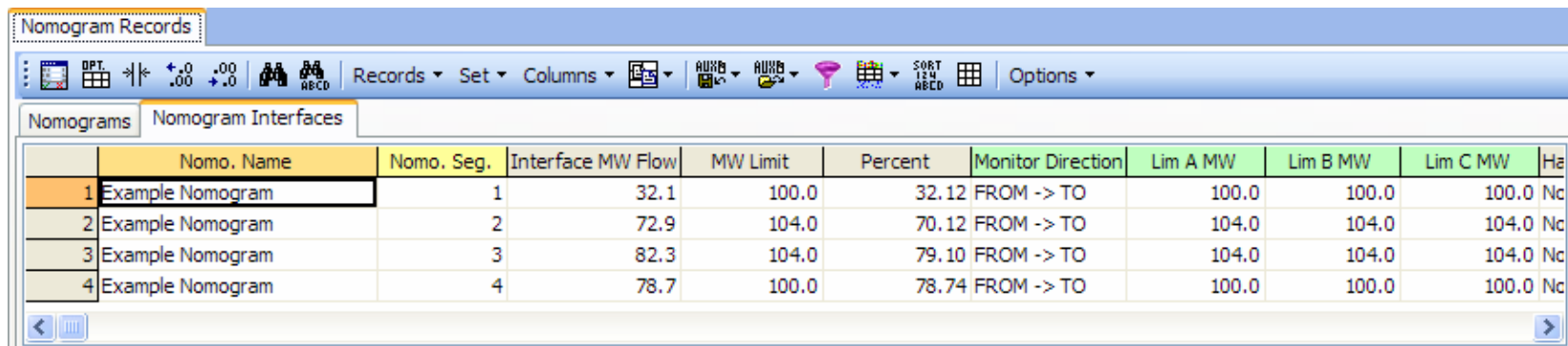
- This is done by using element weightings based on Interface A, Interface B, and the Breakpoints
- “number of breakpoints minus 1” nomogram interfaces are made



- The “monitoring” will then occur for each nomogram interface level.
 - Everywhere you see references to interfaces you will now also see references to nomogram interfaces

Nomogram Interfaces

- Once you have defined a Nomogram, then the Case Information, Nomograms list will have a second tab that lists the Nomogram Interfaces
 - Note: you can not edit Nomogram Interfaces directly. You must modify the Nomogram itself instead
 - Nomogram Interfaces are identified
 - Nomogram Name
 - Nomogram Segment



The screenshot shows a software interface titled "Nomogram Records". It features a toolbar with various icons and a menu bar with options like "Records", "Set", "Columns", and "Options". Below the toolbar, there are two tabs: "Nomograms" and "Nomogram Interfaces". The "Nomogram Interfaces" tab is active, displaying a table with the following data:

	Nomo. Name	Nomo. Seg.	Interface MW Flow	MW Limit	Percent	Monitor Direction	Lim A MW	Lim B MW	Lim C MW	Ha
1	Example Nomogram	1	32.1	100.0	32.12	FROM -> TO	100.0	100.0	100.0	Nc
2	Example Nomogram	2	72.9	104.0	70.12	FROM -> TO	104.0	104.0	104.0	Nc
3	Example Nomogram	3	82.3	104.0	79.10	FROM -> TO	104.0	104.0	104.0	Nc
4	Example Nomogram	4	78.7	100.0	78.74	FROM -> TO	100.0	100.0	100.0	Nc


Area/Zone/Interface Online Graphics



- Online diagrams traditionally contain information regarding individual power system elements (buses, lines, generators, etc...)
- Simulator also allows you to create diagrams based off the aggregate data objects

Area Fields



- Area fields can be added to onelines to show a number of area fields.
- Area fields can also be used to specify base transactions.
-  Area fields are inserted in Edit Mode from the **Draw** ribbon tab, choosing **Field** → **Area Field**
- By default area fields are linked to area associated with closest bus on the oneline.

Area Field Dialog



Anchor the field to the area object so that both can be moved together; include units suffix

Use combo box to select an area or entire case

Other Area Number field entry required

Status can be toggled on the oneline

Area number 0 (zero) represents the whole system!



Area Field Example

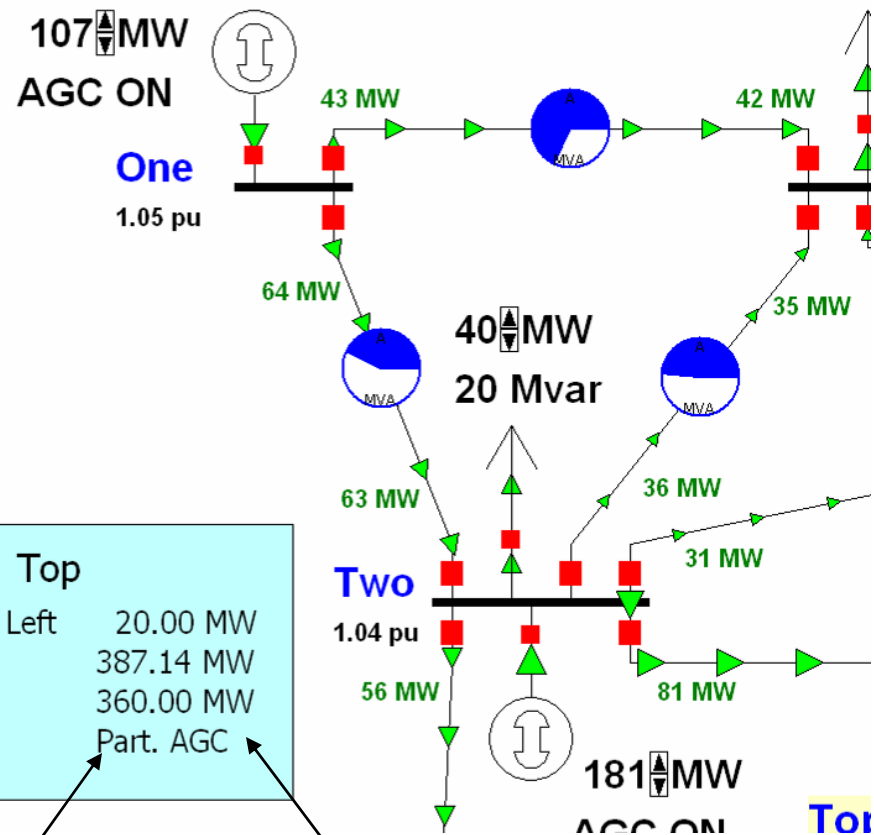


- Add several area fields to the B7FLAT case
 - Area Name
 - Area MW Flow to Other Area (or case)
 - Scheduled Flow to Other Area
 - Load Schedule Multiplier
 - AGC Status

B7FLAT with Area Fields



Scheduled
MW flows








Text fields

Left-click
to toggle AGC

Area fields

Area, Zone, and Super Area Objects

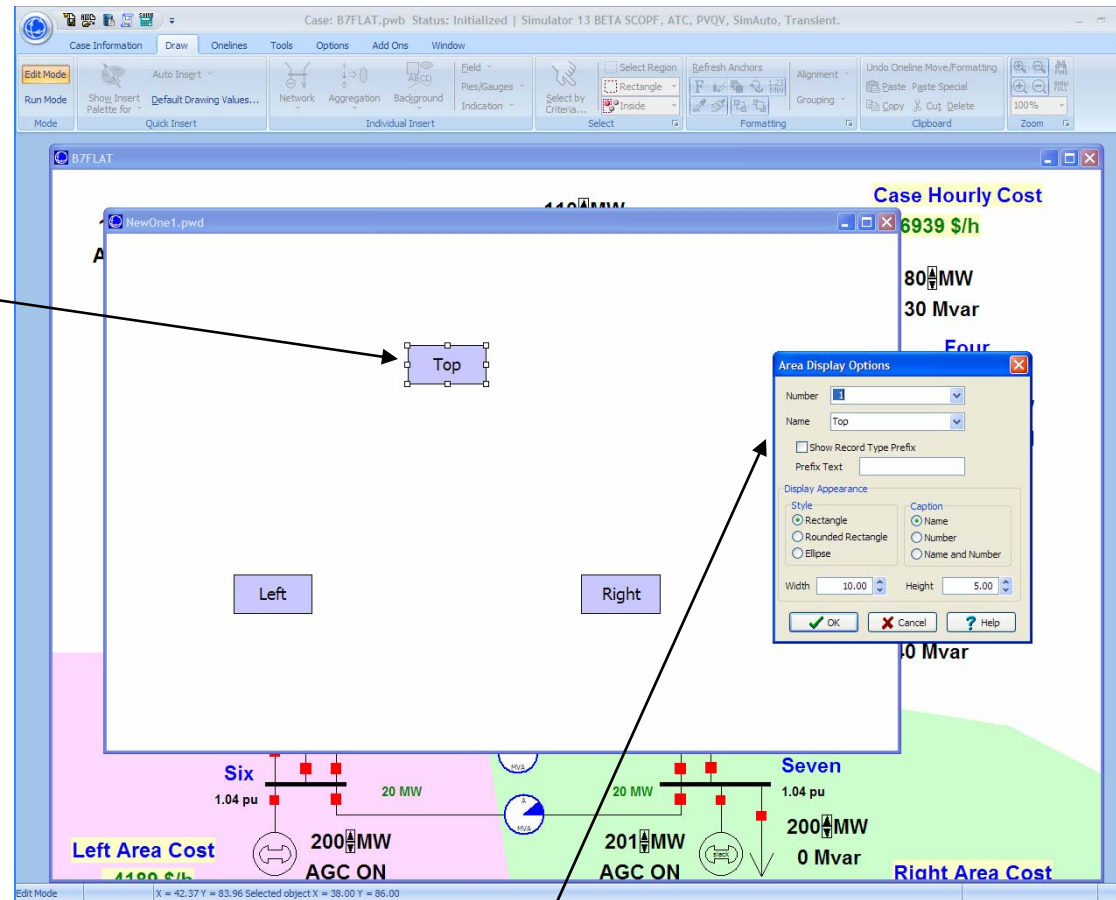


- Separate oneline object types for Areas, Zones, and Super Areas
- On B7FLAT case
 -  – From the  Application Menu, select **New Oneline** to make a new oneline
 -  – Add area objects for each of three areas
 -  – From the  Application Menu, select **Save Oneline** to save the oneline. Use b7flata for the name.
- Zone and Super Area objects are similar

B7FLATA Display



Right-click
on object,
then select
**Information
Dialog...** for
the Area
Display
Options



Same procedure for zones or super areas

Area or Zone Palette



- Similar to the Bus Palette, you can also bring up an Area or Zone Palette
 - On the **Draw** ribbon tab, select **Show Insert Palette For → Zones** (or Areas)

The screenshot shows a software window titled "Zone Palette for Midwest.pwd". The window has a blue title bar and a toolbar with buttons for "History List", "Define a Filter...", "Close", and "Help". Below the toolbar is a table with four columns: "Displayed (28)", "Displayed Neighbors", "Undisplayed Neighbors", and "All Undisplayed (148)".

Displayed (28)	Displayed Neighbors	Undisplayed Neighbors	All Undisplayed (148)
TVAEAST (267)	WEST 8B (237)	NORTH 4A (225)	KACP (541)
UPP (395)	CENT 0C (229)	VP 500KV (239)	KACY (542)
WESTERN (206)	AEP-AP (50)		KAMO (520)
WETU (526)	SOUTH 6B (235)		KU (12)
WSCC (595)	CENT 0A (228)		LACON (308)
WEST 8C (236)			Lafa (503)

Interface Fields



- Several types of objects are used to display interface data on the oneline
 - Interface Objects: like transmission lines
 - Interface Fields: like line fields
 - Interface Pie Charts: like line flow pie charts

Auto Insertion of Interface Objects

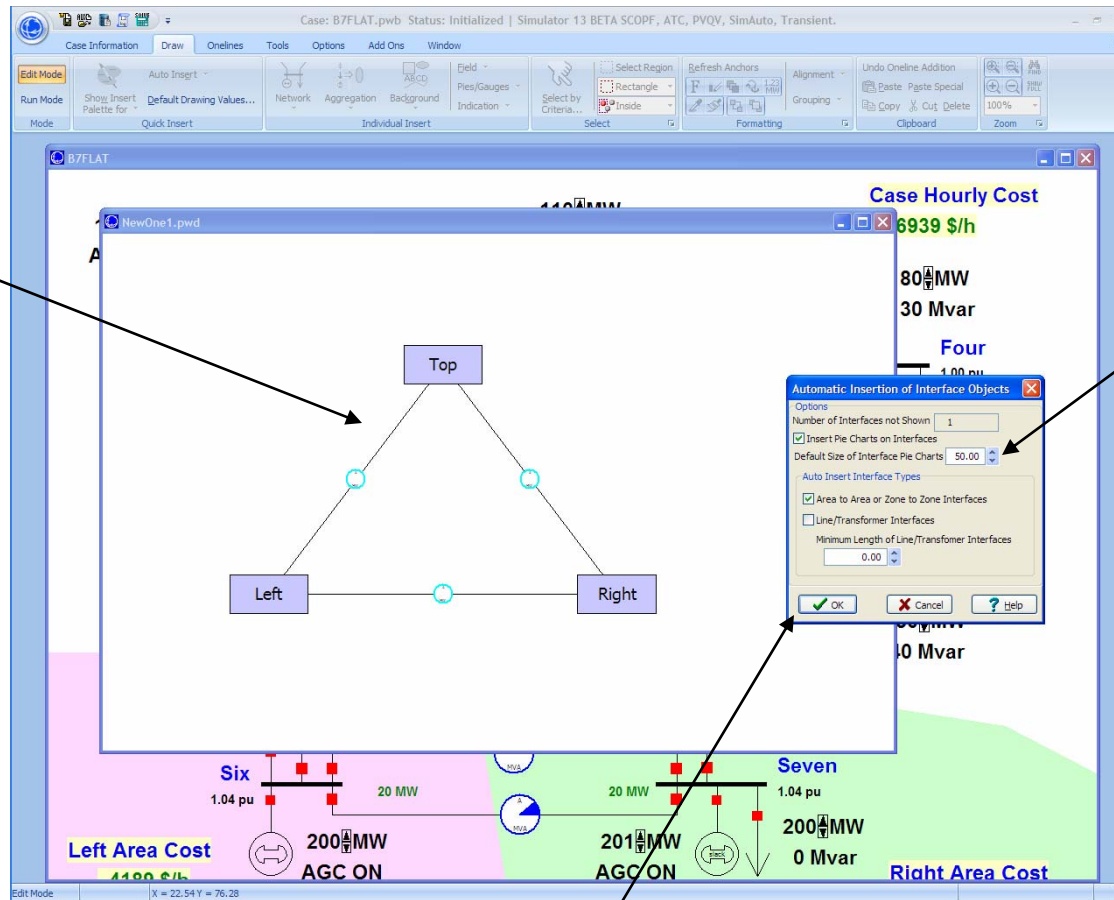


- Interface objects can be auto inserted (just like line objects).
- In edit mode, from the **Draw** ribbon tab, select **Auto Insert → Interfaces**.
- Allows insertion of interfaces and pie charts.
- Interfaces are automatically anchored to area/zone objects.

Auto Insertion of Interface Objects



Example interface object showing flow from area Top to Area Left



Default pie chart size

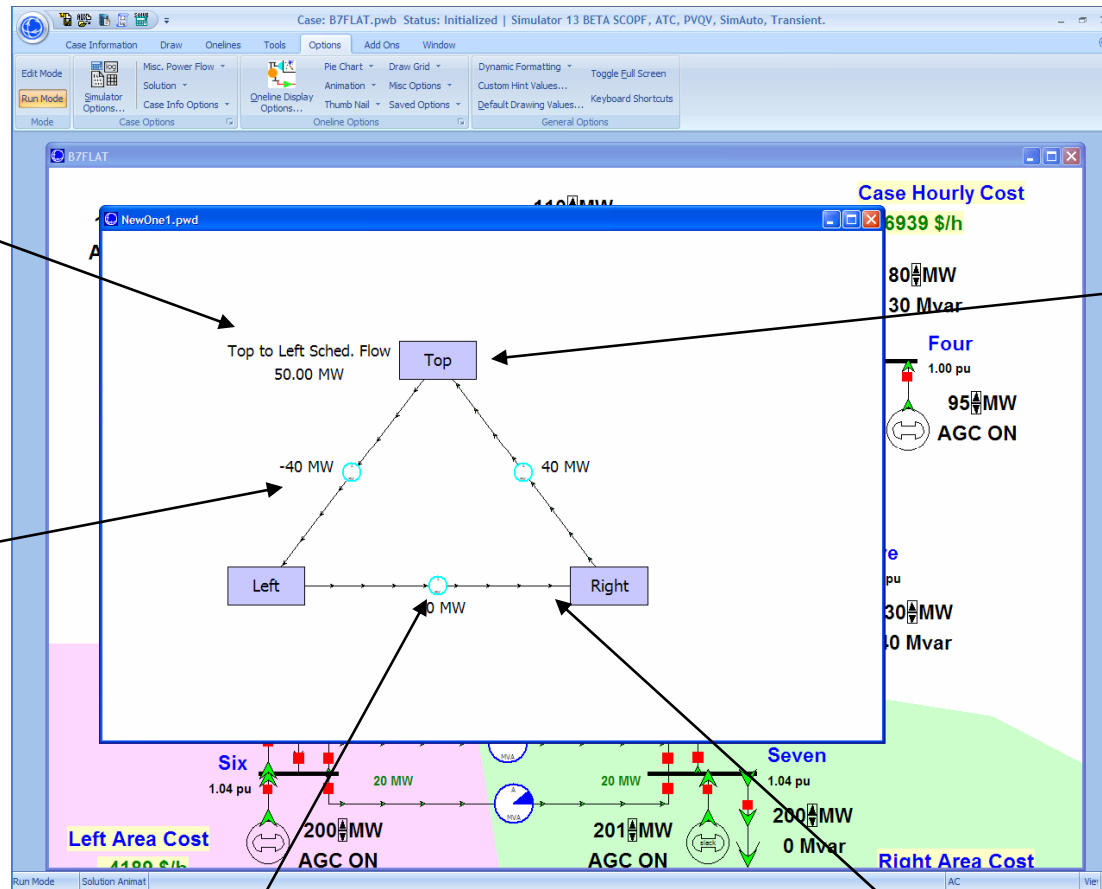
Select **OK** to auto insert the interface objects

With Interface/Area Fields



Text field and area field

Interface field



Right-click on object to view area dialog

Pie charts require that limits be defined

Animated flows can be shown

Super Areas



- Super areas are groupings of individual areas; analogous to an area being a grouping of individual buses
- Super areas can be used to control several areas together
- Open Model Explorer and choose **Aggregations**
→ **Super Areas** to see the Super Area Records
 - Right-click and select **Insert...**
 - Super Area Dialog is displayed with default name assigned to the new super area

Super Area Dialog



Areas
already
included

Area Num	Area Name	Part. Factor
1	1 Top	1.0000
2	2 Left	1.0000
3	3 Right	1.0000

Control for
Super Area;
this control
overrides all
individual area
control settings
unless on *No
Super
Area Control*

Add by name
or add by
numbers

Super Area Dialog

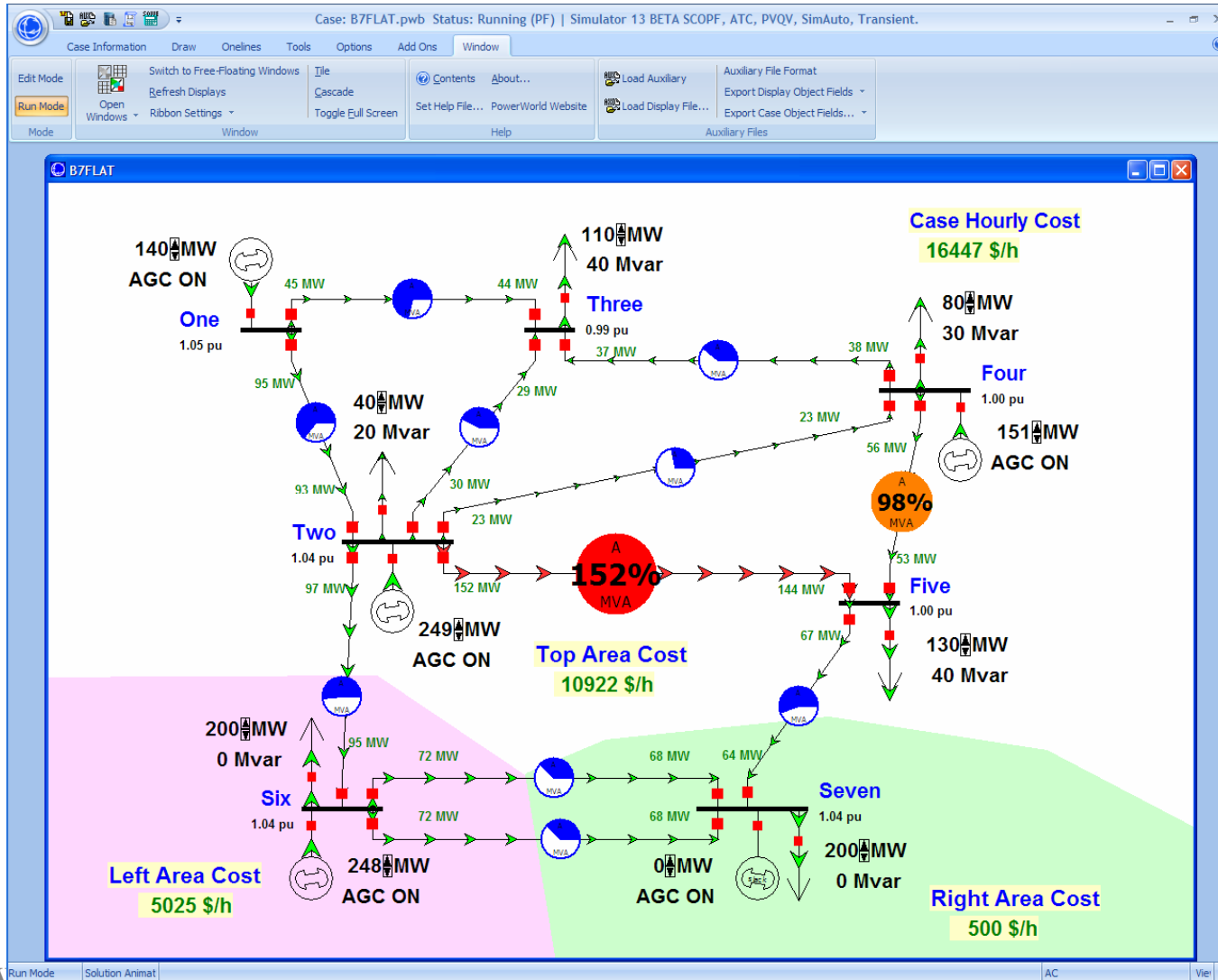


Area
Interchange
Information

	MW	Mvar
Load	0.0	0.0
Generation	0.0	0.0
Shunts	0.0	0.0
Losses	0.00	0.00
Interchange	0.0	0.0

Super area
summary
information

Super Area ED Control for B7Flat Case



Injection Groups



- Represents grouping of injections of power
 - Loads
 - Generators
 - Switched Shunts
 - Other Injection Groups (*be careful of circular references*)
- Useful for defining more specific groups of sources and sinks in many tools
 - Especially useful for ATC, PVQV tools. Also for Sensitivities (PTDF, TLR, etc...)
 - Also useful for generally reporting.
 - Can make an aggregation of generators and show the sum of their output

Injection Groups



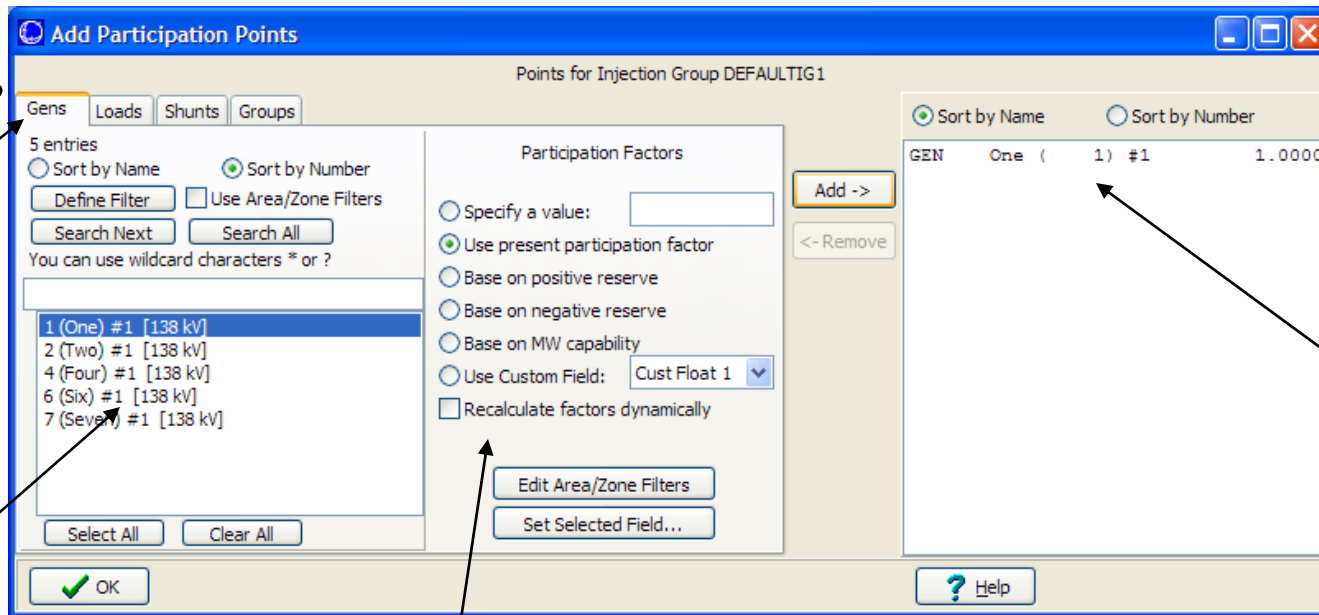
- Open Model Explorer and choose **Aggregations**
→ **Injection Groups**
 - Right-click, select **Insert...**
 - Injection Groups Dialog is displayed with default name assigned to the new injection group
 - Right-click in the Participation Points grid and **Insert** elements into the injection group or click **Insert Points**
- Auto Insertion also available from the local menu in Model Explorer

Injection Groups



Add loads, generators, shunts, or other injection groups

Elements available for adding



Elements already in the injection group

Choose how to determine the participation factor for each element

Injection Group Participation Points



- Injection Groups are made up of “Participation Points” which have two main attributes
 - Reference to a generator, load, switched shunt, or another injection group
 - Participation factor
 - Note: this participation factor is *independent* of the generator object’s participation factor
- When you create a participation point, you can define the initial participation factor for the point using various methods.
 - This is depicted on the following slide

Injection Group Participation Points: Participation Factors



- For a generator the choices for participation factor are shown to the right
 - Specify particular value
 - Use generator's participation factor
 - Base on positive reserve (Max – Present MW)
 - All units will hit their maximum at same time
 - Base on negative reserve (Present – Min)
 - All units will hit their minimum at same time
 - Base on MW capability (Max MW)
 - Use Custom Floating Point Field
- Recalculate Factor Dynamically
 - Normally the participation factor will only be calculated at this time.
 - Check this box to automatically recalculate the factors *EVERY TIME* they are used
 - This way if you use the injection group with a different case or different system state it will still be what you intend.

Participation Factors

Specify a value:

Use present participation factor

Base on positive reserve

Base on negative reserve

Base on MW capability

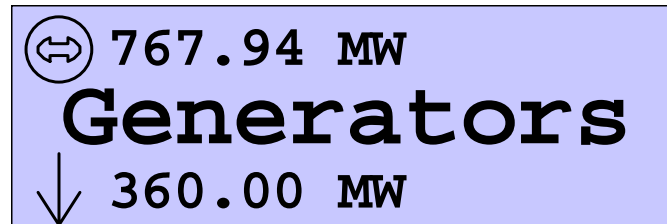
Use Custom Field:

Recalculate factors dynamically

Injection Group Display Objects



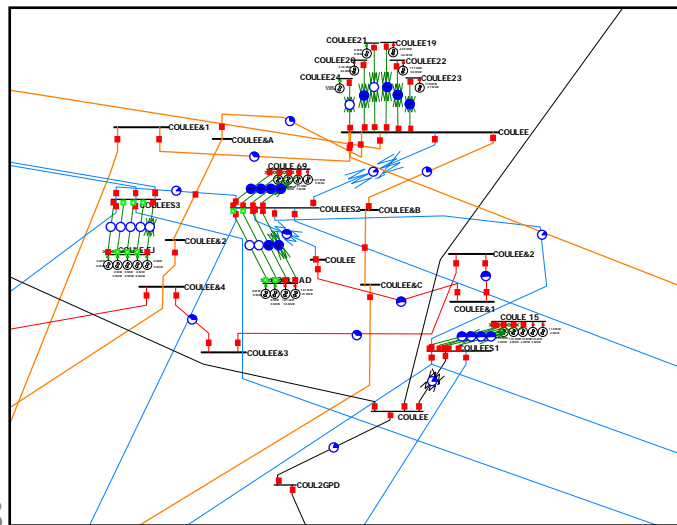
- You can also insert display objects which represent Injection Groups
- On the **Draw** ribbon tab, choose **Aggregation → Injection Group**
- Click on the oneline where you would like to place the injection group
- Display objects show the generation and load which exist inside the group



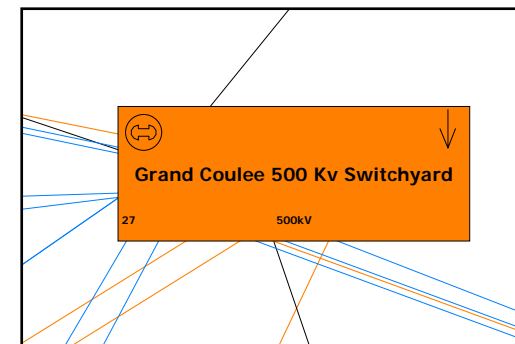
Substations



- Some substations in a power system have a large number of buses in them
 - Large power stations
 - Other important places in a power system
- Traditional Power System Cases do not have any reference to which “substation” a bus is inside.
- Simulator allows you to define this relationship and then create substation-based diagrams



27 Grand Coulee
Buses are placed
in a single
substation



Creating Substations



- To create a new Substation
 - Make sure you're in Edit Mode (for all methods)
 - Open **Network** → **Buses** in the Model Explorer or open the Bus Dialog and assign an existing bus to a new Substation number; OR
 - Select **Insert...** from the local menu (right-click) in Substation Records; OR
 - Auxiliary files or Copy/Paste from Excel

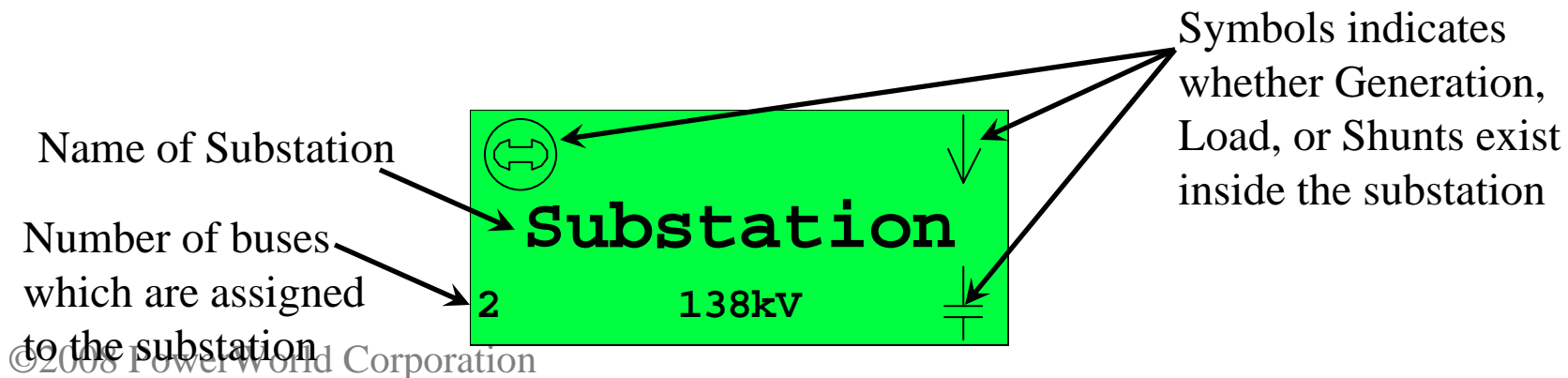
Sub Num	Sub Name	Number	Name	Area Name	Nom kV	PU Volt	Volt (kV)	Angle (D)
1	1 One	1 One	Top	138.00	1.05000	144.900	16.	
2	11 Eleven	2 Two	Top	138.00	1.04000	143.520	13.	
3		3 Three	Top	138.00	0.99272	136.995	10.	
4		4 Four	Top	138.00	1.00000	138.000	11.	
5		5 Five	Top	138.00	1.00071	138.097	3.	
6		6 Six	Left	138.00	1.04000	143.520	9.	
7		7 Seven	Right	138.00	1.04000	143.520	0.	

Enter a new number
to create a new
Substation

Substation Display Objects



- You can also insert display objects which represent Substations
- From the **Draw** ribbon tab, choose **Aggregation** → **Substation**
- Click on the oneline where you would like to place the injection group
- Note: You can also auto-insert transmission lines between Substation objects



Difference Flows



- Simulator allows two different power system cases to be simultaneously loaded
 - Present Case
 - Base Case
- Difference flows allow viewing of either case or differences between the cases

Difference Flows Dialog



- Difference Flows Dialog is used to control which case is being viewed.
- Difference Flows Dialog can be viewed by either
 - **Difference Flows** option on oneline local menu
 - **Difference Flows** on the **Tools** ribbon tab while in Run Mode

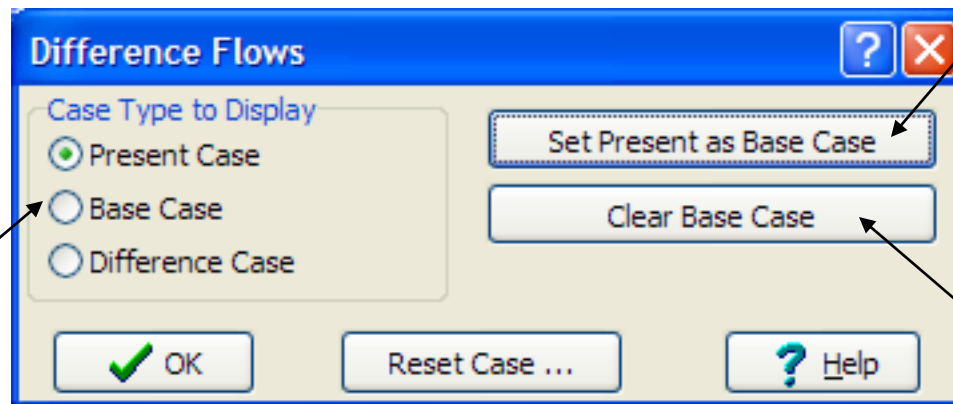


Difference Flows Dialog



Once base case has been set its values can not be changed

Select to set present case as the base case

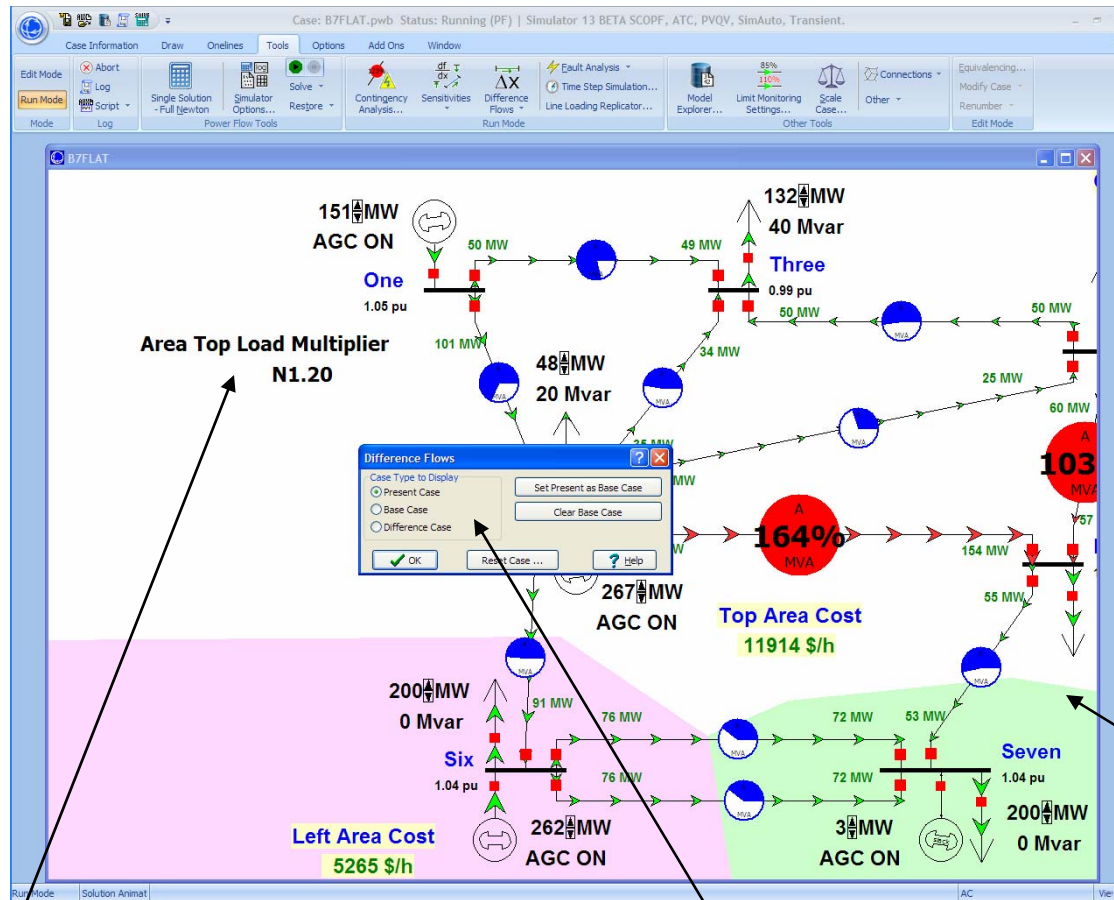


Select to change which case is being viewed

Clears the base case from memory

The difference flows options affect the onelines AND the case information displays

Load Increased by 20%



Load increased by 20 percent

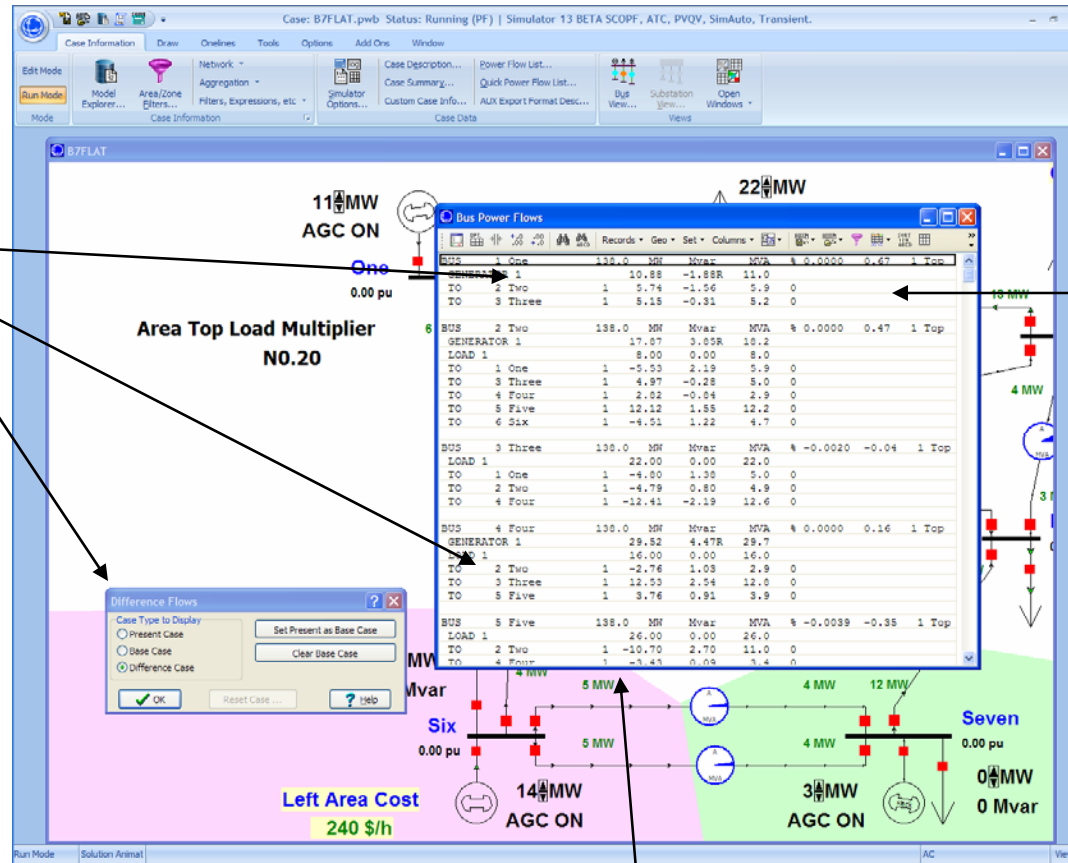
Click to change view

Current case

Difference Flows



Difference flows
You can NOT change values in the difference mode!



Case Information Displays are also showing differences

Notice that all fields are now showing the difference between the present case and the base case.

Comparing Two Different Case Files



- Simulator only allows one case to be open at a time.
- When you open a case, all information about the previously opened case is removed, with one exception
 - The Difference flows information is kept
- Thus to compare two cases, you
 - Open case #1, and go to Run Mode
 - Open Difference Flows and choose Set Present as Base Case
 - Open case #2
 - Open Difference Flows and change to Difference Case

Topological Comparison of Cases



- On the **Tools** ribbon tab, choose **Difference Flows** → **Present Topological Differences from Base Case ...**

Go to tabs
for
detailed
lists

Element Type	New	Removed	Both
Bus	0	0	7
Load	0	0	6
Switched Shunt	0	0	0
Generator	0	0	5
Branch	0	1	10
DC Line	0	0	0
Area	0	0	3
Zone	0	0	1
SuperArea	0	0	1
Transformer	0	0	0

Columns show the number of new, removed elements

New: elements in the present case which are not in the base case

Removed: elements not in the present case which were in the base case

Both: element in the present case and the base case

Topological Differences: Elements Removed Tab



- Tab provides a list of removed elements
- Also provides a reason why they were not found in the present case.

Present Case Topological Differences from the Base Case

Summary Elements Added Elements Removed Elements In Both Create Bus Swap List

Elements which exist in the base case: K:\Transmission Atlas\FERC 2002\WECC\03hsp1ap v80.pwb
but not the present case: K:\Transmission Atlas\FERC 2002\WECC\06hs2sap.pwb

Areas (0) Zones (5) SuperAreas (0) Transformers (341) Interfaces (0)
Injection Groups (0) Substations (0) Nomograms (0) MT DC Records (0)
Buses (364) Loads (590) Switched Shunts (35) Generators (113) Branches (1041) DC Lines (0)

	Link Status	From Number	Name	Nom kV	Area Name	Area Num	Zone Name
203	No Branch with ID	22132	CHOLLAS	69.00	SANDIEGO	22	SDGE EAS
204	No To Bus	22216	ELLIOTT	69.00	SANDIEGO	22	SDGE BEA
205	No Branch with ID	22227	ENCINATP	230.00	SANDIEGO	22	SDGE NOR
206	No Branch with ID	22232	ENCINA	230.00	SANDIEGO	22	SDGE NOR
207	No Branch with ID	22256	ESCNDIDO	69.00	SANDIEGO	22	SDGE NOR
208	No Branch with ID	22256	ESCNDIDO	69.00	SANDIEGO	22	SDGE NOR
209	No Branch with ID	22256	ESCNDIDO	69.00	SANDIEGO	22	SDGE NOR
210	No From Bus	22268	ESCNDOS1	138.00	SANDIEGO	22	SDGE NOR
211	No Branch with ID	22306	GARFIELD	69.00	SANDIEGO	22	SDGE EAS
212	No To Bus	22316	GENESEE	69.00	SANDIEGO	22	SDGE BEA
213	No Branch with ID	22372	KEARNY	69.00	SANDIEGO	22	SDGE BEA
214	No Branch with ID	22404	LILAC	69.00	SANDIEGO	22	SDGE NOR
215	No To Bus	22408	LOSCOCHS	69.00	SANDIEGO	22	SDGE EAS
216	No To Bus	22420	MAIN ST	69.00	SANDIEGO	22	SDGE CON
217	No From Bus	22428	MAINST51	138.00	SANDIEGO	22	SDGE CON

Close