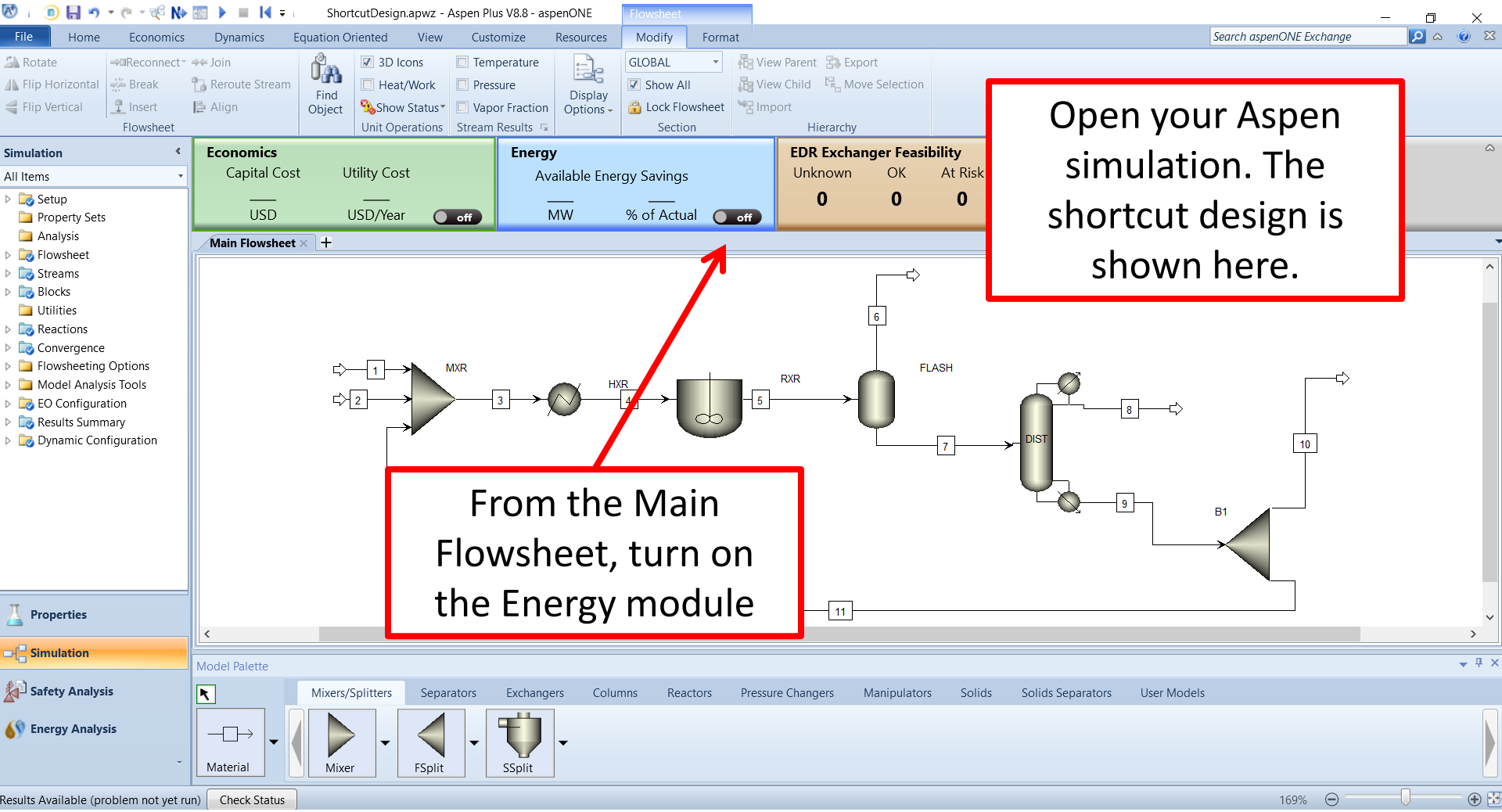
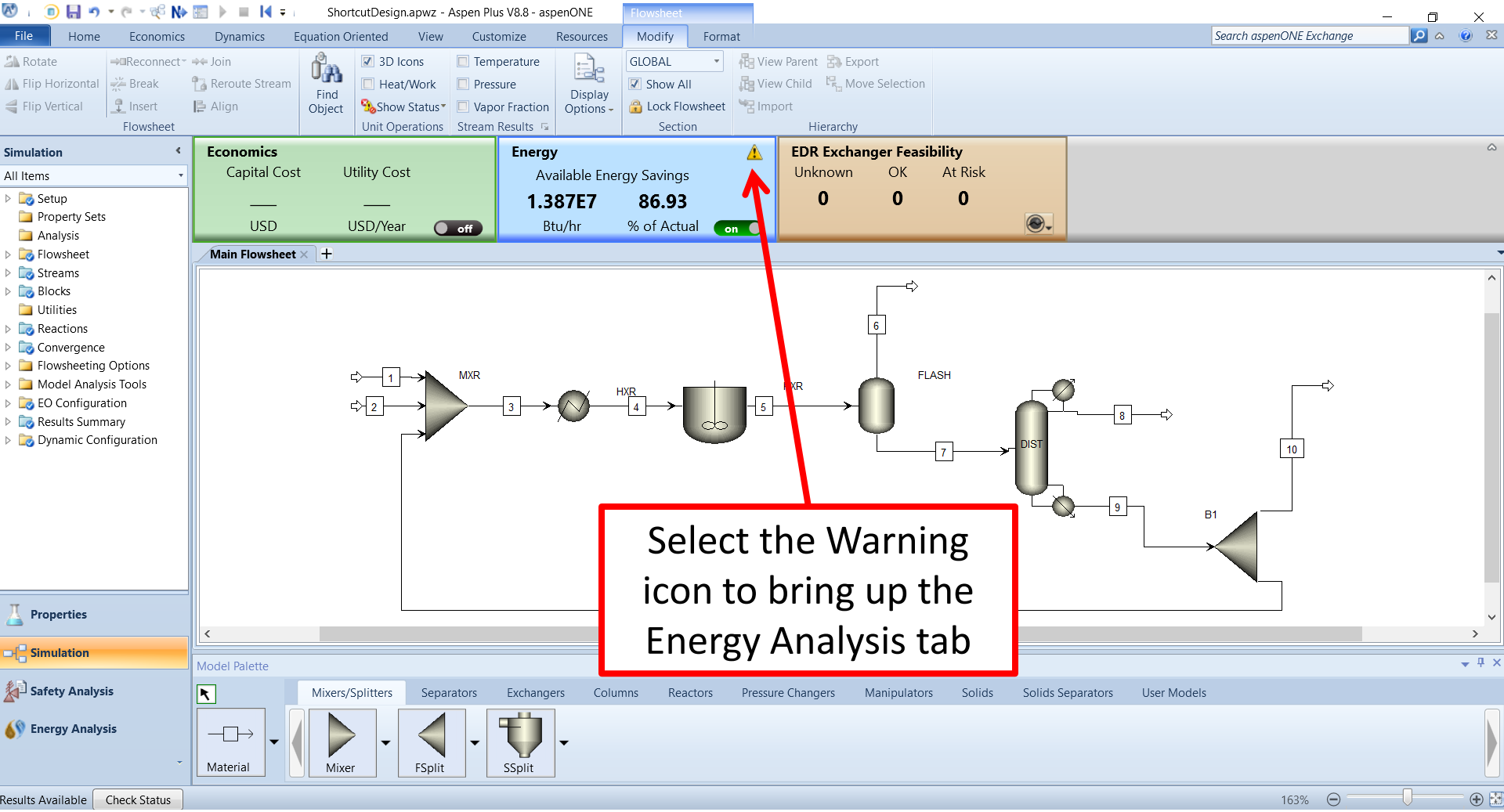
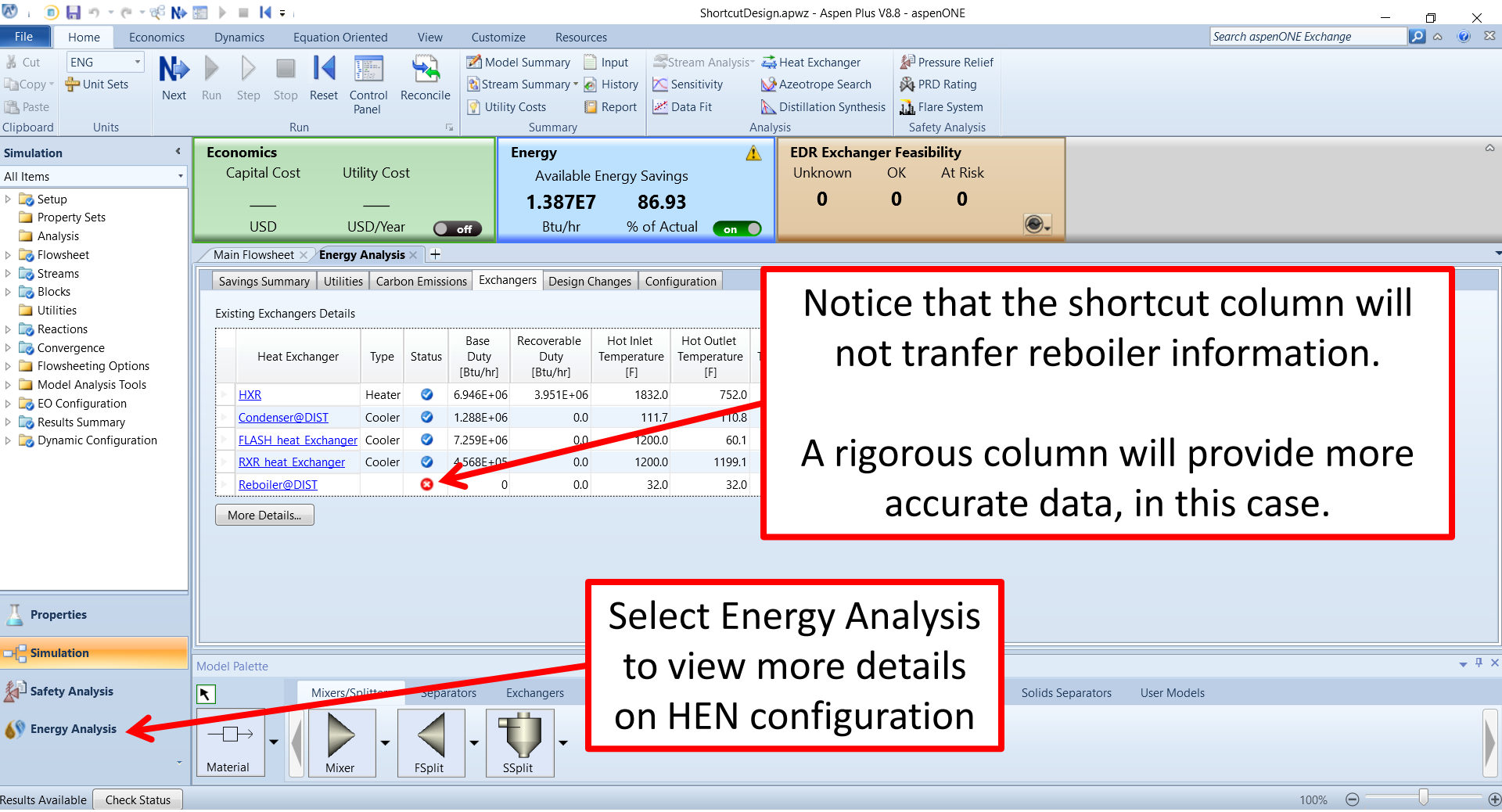
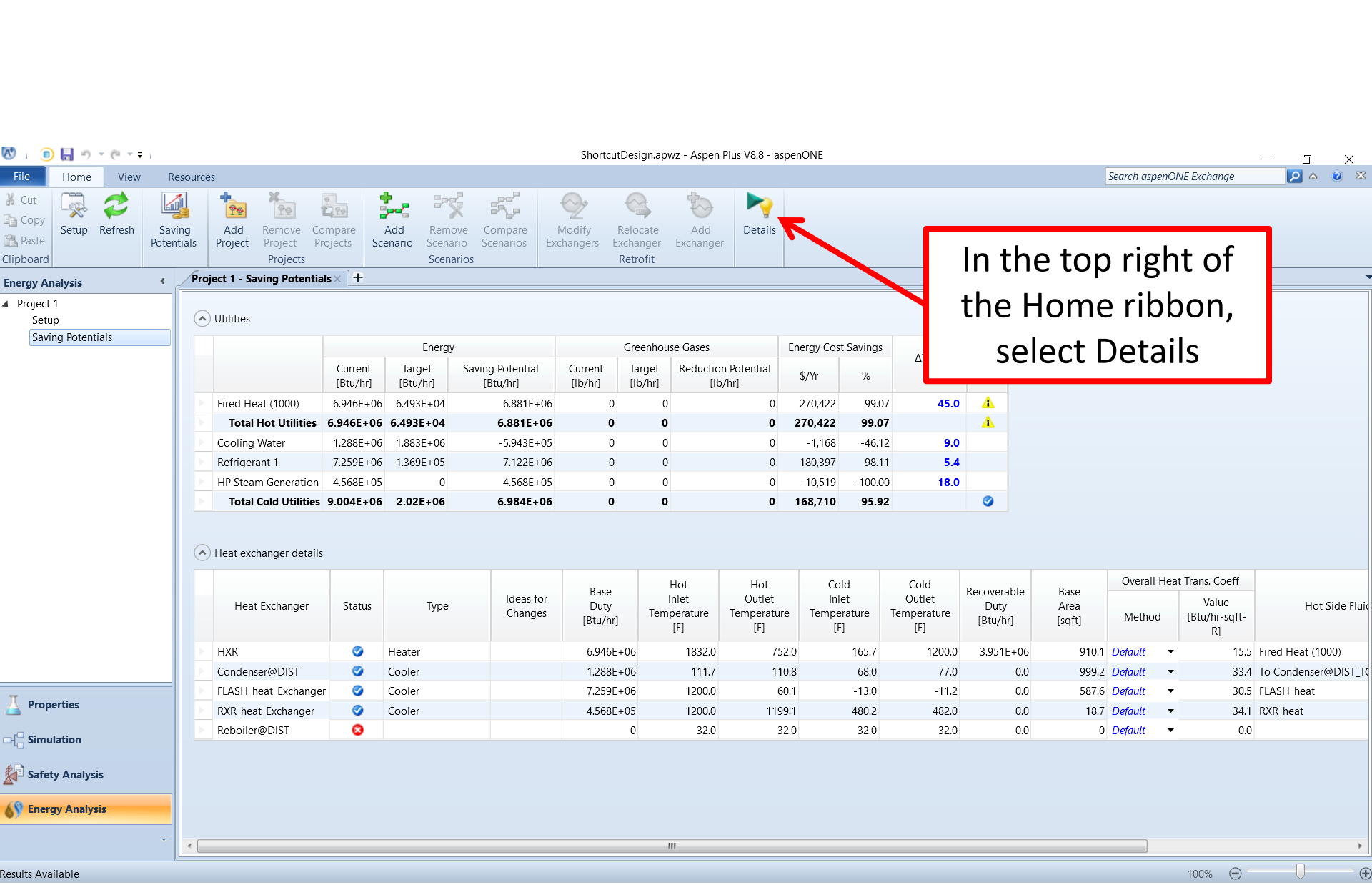
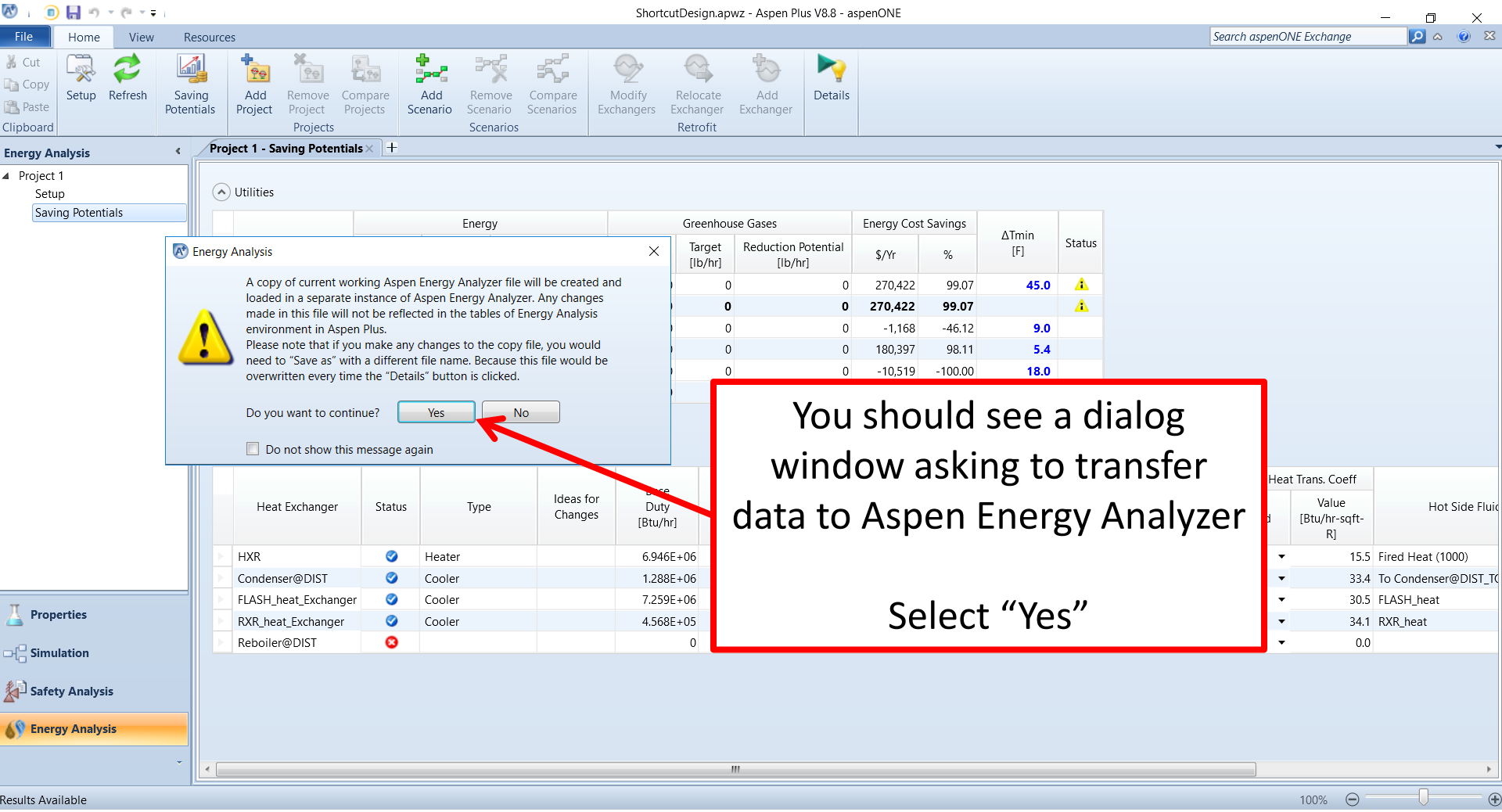
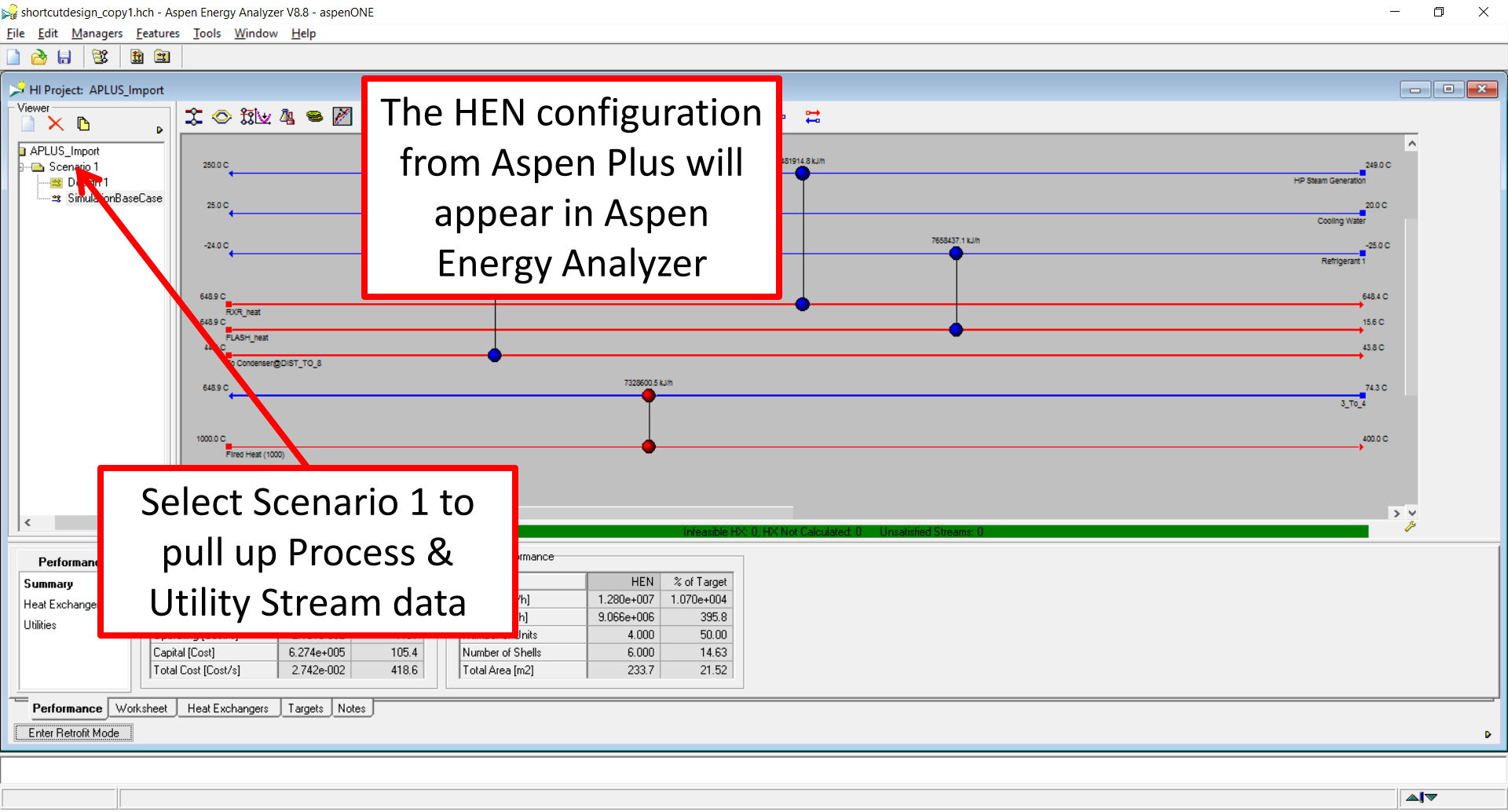

ShortcutDesign.apwz - Aspen Plus V8.8 - aspenONE
Flowsheet
File
Home
Economics
Dynamics
Equation Oriented
View
Customize
Resources
Modify
Format
Search aspenONE Exchange
Rotate
Flip Horizontal
Flip Vertical
Reconnect
Break
Insert
Join
Reroute Stream
Align
Flowsheet
Find Object
3D Icons
Heat/Work
Show Status
Temperature
Pressure
Vapor Fraction
Unit Operations
Stream Results
Display Options
GLOBAL
Show All
Lock Flowsheet
Section
View Parent
View Child
Import
Export
Move Selection
Hierarchy
Simulation
All Items
Setup
Property Sets
Analysis
Flowsheet
Streams
Blocks
Utilities
Reactions
Convergence
Flowsheeting Options
Model Analysis Tools
EO Configuration
Results Summary
Dynamic Configuration
Economics
Capital Cost
Utility Cost
USD
USD/Year
off
Energy
Available Energy Savings
MW
% of Actual
off
EDR Exchanger Feasibility
Unknown
OK
At Risk
0
0
0
Main Flowsheet
Open your Aspen simulation. The shortcut design is shown here.
MXR
HXR
RXR
FLASH
DIST
B1
1
2
3
4
5
6
7
8
9
10
11
From the Main Flowsheet, turn on the Energy module
Properties
Simulation
Safety Analysis
Energy Analysis
Model Palette
Mixers/Splitters
Separators
Exchangers
Columns
Reactors
Pressure Changers
Manipulators
Solids
Solids Separators
User Models
Material
Mixer
FSplit
SSplit
Results Available (problem not yet run)
Check Status
169%

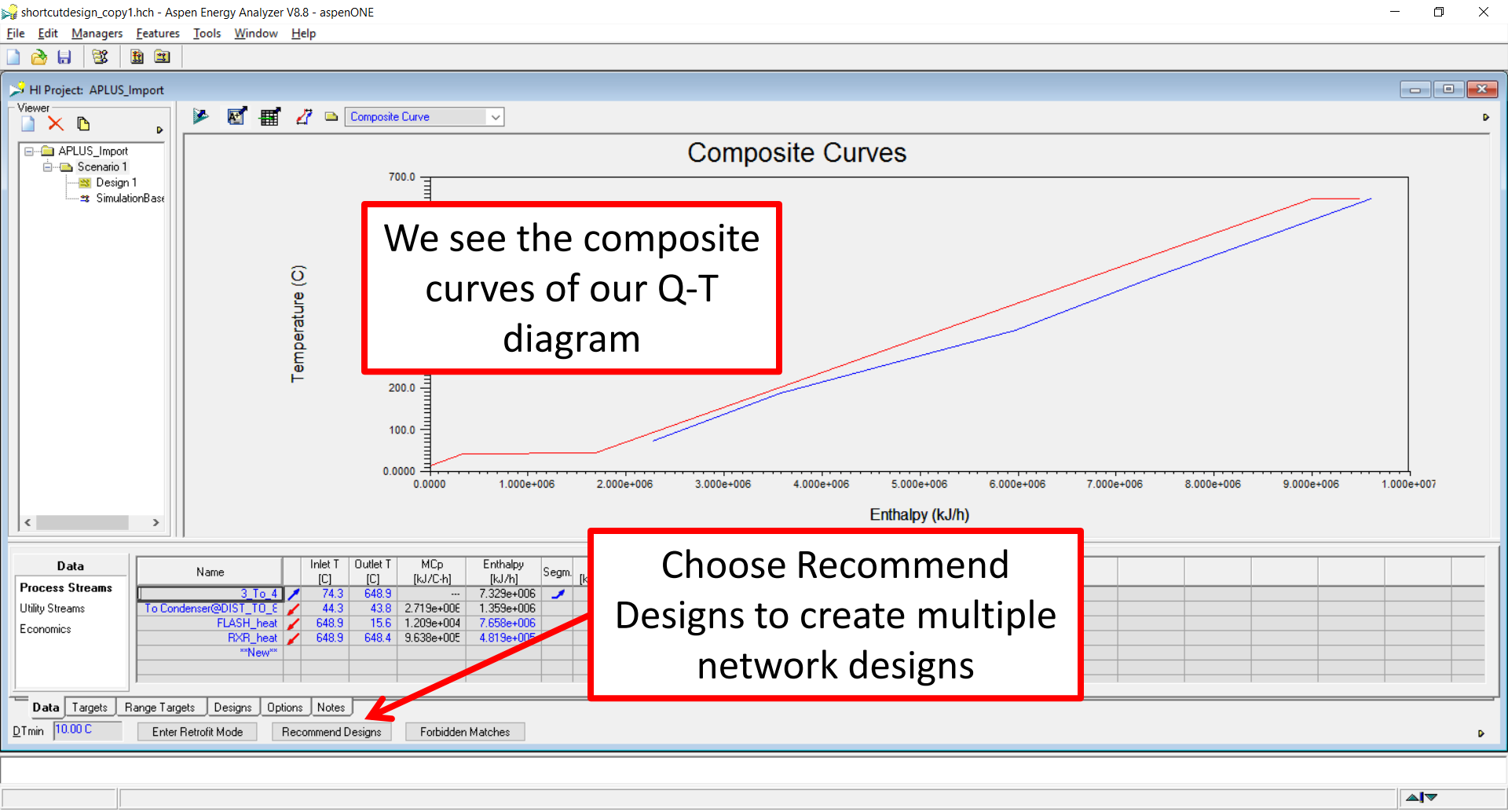

ShortcutDesign.apwz - Aspen Plus V8.8 - aspenONE
Flowsheet
File
Home
Economics
Dynamics
Equation Oriented
View
Customize
Resources
Modify
Format
Search aspenONE Exchange
Rotate
Flip Horizontal
Flip Vertical
Reconnect
Break
Insert
Join
Reroute Stream
Align
Flowsheet
Find Object
3D Icons
Heat/Work
Show Status
Temperature
Pressure
Vapor Fraction
Unit Operations
Stream Results
Display Options
GLOBAL
Show All
Lock Flowsheet
Section
View Parent
View Child
Import
Export
Move Selection
Hierarchy
Simulation
All Items
Setup
Property Sets
Analysis
Flowsheet
Streams
Blocks
Utilities
Reactions
Convergence
Flowsheeting Options
Model Analysis Tools
EO Configuration
Results Summary
Dynamic Configuration
Economics
Capital Cost
Utility Cost
USD
USD/Year
off
Energy
Available Energy Savings
1.387E7
Btu/hr
86.93
% of Actual
on
EDR Exchanger Feasibility
Unknown
OK
At Risk
0
0
0
Main Flowsheet
MXR
HXR
MXR
FLASH
DIST
B1
1
2
3
4
5
6
7
8
9
10
Select the Warning icon to bring up the Energy Analysis tab
Model Palette
Mixers/Splitters
Separators
Exchangers
Columns
Reactors
Pressure Changers
Manipulators
Solids
Solids Separators
User Models
Material
Mixer
FSplit
SSplit
Properties
Simulation
Safety Analysis
Energy Analysis
Results Available
Check Status
163%

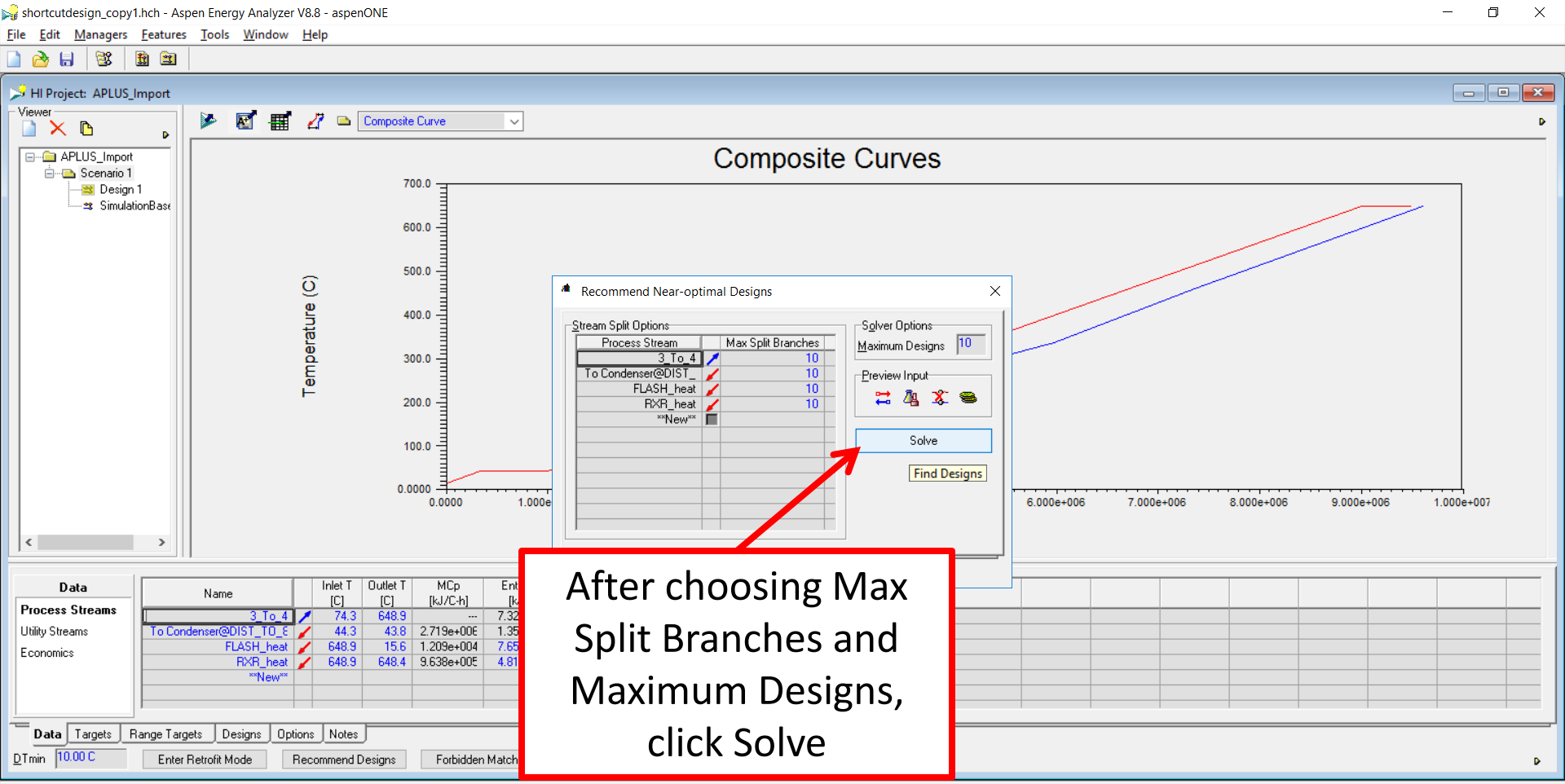

ShortcutDesign.apwz - Aspen Plus V8.8 - aspenONE
File
Home
Economics
Dynamics
Equation Oriented
View
Customize
Resources
Search aspenONE Exchange
Cut
Copy
Paste
Clipboard
ENG
Unit Sets
Units
Next
Run
Step
Stop
Reset
Control Panel
Reconcile
Run
Model Summary
Stream Summary
Utility Costs
Input
History
Report
Summary
Stream Analysis
Sensitivity
Data Fit
Heat Exchanger
Azeotrope Search
Distillation Synthesis
Analysis
Pressure Relief
PRD Rating
Flare System
Safety Analysis
Simulation
All Items
Setup
Property Sets
Analysis
Flowsheet
Streams
Blocks
Utilities
Reactions
Convergence
Flowsheeting Options
Model Analysis Tools
EO Configuration
Results Summary
Dynamic Configuration
Economics
Capital Cost
Utility Cost
USD
USD/Year
off
Energy
Available Energy Savings
1.387E7
86.93
Btu/hr
% of Actual
on
EDR Exchanger Feasibility
Unknown
OK
At Risk
0
0
0
Main Flowsheet
Energy Analysis
Savings Summary
Utilities
Carbon Emissions
Exchangers
Design Changes
Configuration
Existing Exchangers Details
Heat Exchanger
Type
Status
Base Duty [Btu/hr]
Recoverable Duty [Btu/hr]
Hot Inlet Temperature [F]
Hot Outlet Temperature [F]
HXR
Heater
6.946E+06
3.951E+06
1832.0
752.0
Condenser@DIST
Cooler
1.288E+06
0.0
111.7
110.8
FLASH_heat_Exchanger
Cooler
7.259E+06
0.0
1200.0
60.1
RXR_heat_Exchanger
Cooler
4.568E+05
0.0
1200.0
1199.1
Reboiler@DIST
0
0.0
32.0
32.0
More Details...
Notice that the shortcut column will not tranfer reboiler information.
A rigorous column will provide more accurate data, in this case.
Select Energy Analysis to view more details on HEN configuration
Properties
Simulation
Safety Analysis
Energy Analysis
Model Palette
Mixers/Splitters
Separators
Exchangers
Solids Separators
User Models
Material
Mixer
FSplit
SSplit
Results Available
Check Status
100%

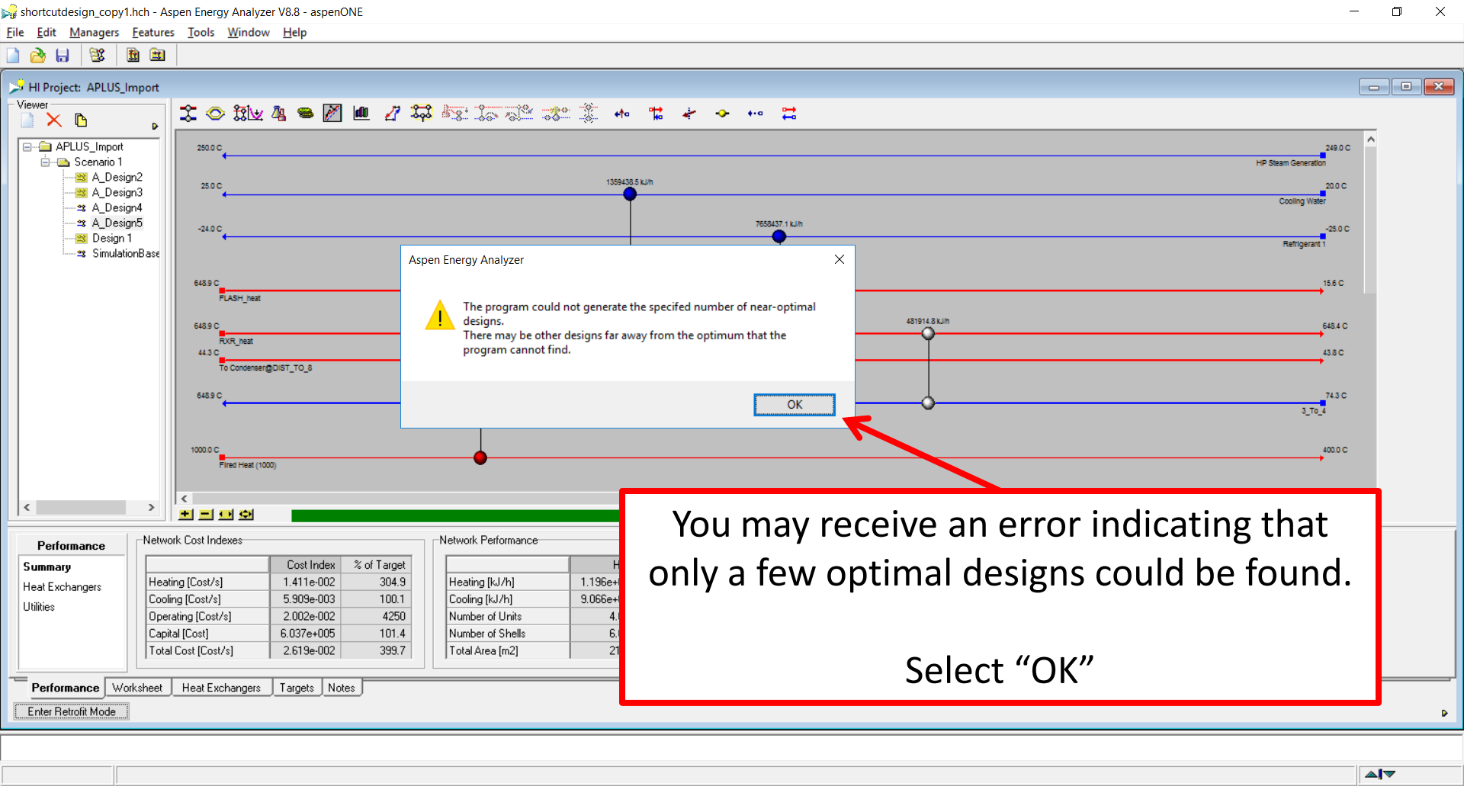

ShortcutDesign.apwz - Aspen Plus V8.8 - aspenONE
File
Home
View
Resources
Search aspenONE Exchange
Cut
Copy
Paste
Clipboard
Setup
Refresh
Saving Potentials
Add Project
Remove Project
Compare Projects
Projects
Add Scenario
Remove Scenario
Compare Scenarios
Scenarios
Modify Exchangers
Relocate Exchanger
Add Exchanger
Retrofit
Details
In the top right of the Home ribbon, select Details
Energy Analysis
Project 1
Setup
Saving Potentials
Project 1 - Saving Potentials
Utilities
Energy
Greenhouse Gases
Energy Cost Savings
Current [Btu/hr]
Target [Btu/hr]
Saving Potential [Btu/hr]
Current [lb/hr]
Target [lb/hr]
Reduction Potential [lb/hr]
$/Yr
%
Fired Heat (1000) 6.946E+06 6.493E+04 6.881E+06 0 0 0 270,422 99.07 45.0
Total Hot Utilities 6.946E+06 6.493E+04 6.881E+06 0 0 0 270,422 99.07
Cooling Water 1.288E+06 1.883E+06 -5.943E+05 0 0 0 -1,168 -46.12 9.0
Refrigerant 1 7.259E+06 1.369E+05 7.122E+06 0 0 0 180,397 98.11 5.4
HP Steam Generation 4.568E+05 0 4.568E+05 0 0 0 -10,519 -100.00 18.0
Total Cold Utilities 9.004E+06 2.02E+06 6.984E+06 0 0 0 168,710 95.92
Heat exchanger details
Heat Exchanger
Status
Type
Ideas for Changes
Base Duty [Btu/hr]
Hot Inlet Temperature [F]
Hot Outlet Temperature [F]
Cold Inlet Temperature [F]
Cold Outlet Temperature [F]
Recoverable Duty [Btu/hr]
Base Area [sqft]
Overall Heat Trans. Coeff
Method
Value [Btu/hr-sqft-R]
Hot Side Fluid
HXR Heater 6.946E+06 1832.0 752.0 165.7 1200.0 3.951E+06 910.1 Default 15.5 Fired Heat (1000)
Condenser@DIST Cooler 1.288E+06 111.7 110.8 68.0 77.0 0.0 999.2 Default 33.4 To Condenser@DIST_TC
FLASH_heat_Exchanger Cooler 7.259E+06 1200.0 60.1 -13.0 -11.2 0.0 587.6 Default 30.5 FLASH_heat
RXR_heat_Exchanger Cooler 4.568E+05 1200.0 1199.1 480.2 482.0 0.0 18.7 Default 34.1 RXR_heat
Reboiler@DIST 0 32.0 32.0 32.0 32.0 0.0 0 Default 0.0
Properties
Simulation
Safety Analysis
Energy Analysis
Results Available
100%


ShortcutDesign.apwz - Aspen Plus V8.8 - aspenONE
File
Home
View
Resources
Search aspenONE Exchange
Cut
Copy
Paste
Clipboard
Setup
Refresh
Saving Potentials
Add Project
Remove Project
Compare Projects
Projects
Add Scenario
Remove Scenario
Compare Scenarios
Scenarios
Modify Exchangers
Relocate Exchanger
Add Exchanger
Retrofit
Details
Energy Analysis
Project 1
Setup
Saving Potentials
Project 1 - Saving Potentials
Utilities
Energy
Greenhouse Gases
Energy Cost Savings
ΔTmin [F]
Status
Target [lb/hr]
Reduction Potential [lb/hr]
$/Yr
%
0
0
270,422
99.07
45.0
0
0
270,422
99.07
0
0
-1,168
-46.12
9.0
0
0
180,397
98.11
5.4
0
0
-10,519
-100.00
18.0
Energy Analysis
A copy of current working Aspen Energy Analyzer file will be created and loaded in a separate instance of Aspen Energy Analyzer. Any changes made in this file will not be reflected in the tables of Energy Analysis environment in Aspen Plus.
Please note that if you make any changes to the copy file, you would need to "Save as" with a different file name. Because this file would be overwritten every time the "Details" button is clicked.
Do you want to continue?
Yes
No
Do not show this message again
You should see a dialog window asking to transfer data to Aspen Energy Analyzer
Select "Yes"
Heat Exchanger
Status
Type
Ideas for Changes
Duty [Btu/hr]
Heat Trans. Coeff
Value [Btu/hr-sqft-R]
Hot Side Fluid
HXR
Heater
6.946E+06
15.5
Fired Heat (1000)
Condenser@DIST
Cooler
1.288E+06
33.4
To Condenser@DIST_TO
FLASH_heat_Exchanger
Cooler
7.259E+06
30.5
FLASH_heat
RXR_heat_Exchanger
Cooler
4.568E+05
34.1
RXR_heat
Reboiler@DIST
0
0.0
Properties
Simulation
Safety Analysis
Energy Analysis
Results Available
100%


shortcutdesign_copy1.hch - Aspen Energy Analyzer V8.8 - aspenONE
File Edit Managers Features Tools Window Help
HI Project: APLUS_Import
Viewer
APLUS_Import
Scenario 1
The HEN configuration from Aspen Plus will appear in Aspen Energy Analyzer
Select Scenario 1 to pull up Process & Utility Stream data
HP Steam Generation
Cooling Water
Refrigerant 1
RXR_heat
FLASH_heat
Fired Heat (1000)
3_To_4
Infeasible HX: 0, HX Not Calculated: 0 Unsatisfied Streams: 0
Summary
Heat Exchange
Utilities
HEN
% of Target
1.280e+007
1.070e+004
9.066e+006
395.8
4.000
50.00
Capital [Cost] 6.274e+005 105.4
Total Cost [Cost/s] 2.742e-002 418.6
Number of Shells 6.000 14.63
Total Area [m2] 233.7 21.52
Performance
Worksheet
Heat Exchangers
Targets
Notes
Enter Retrofit Mode

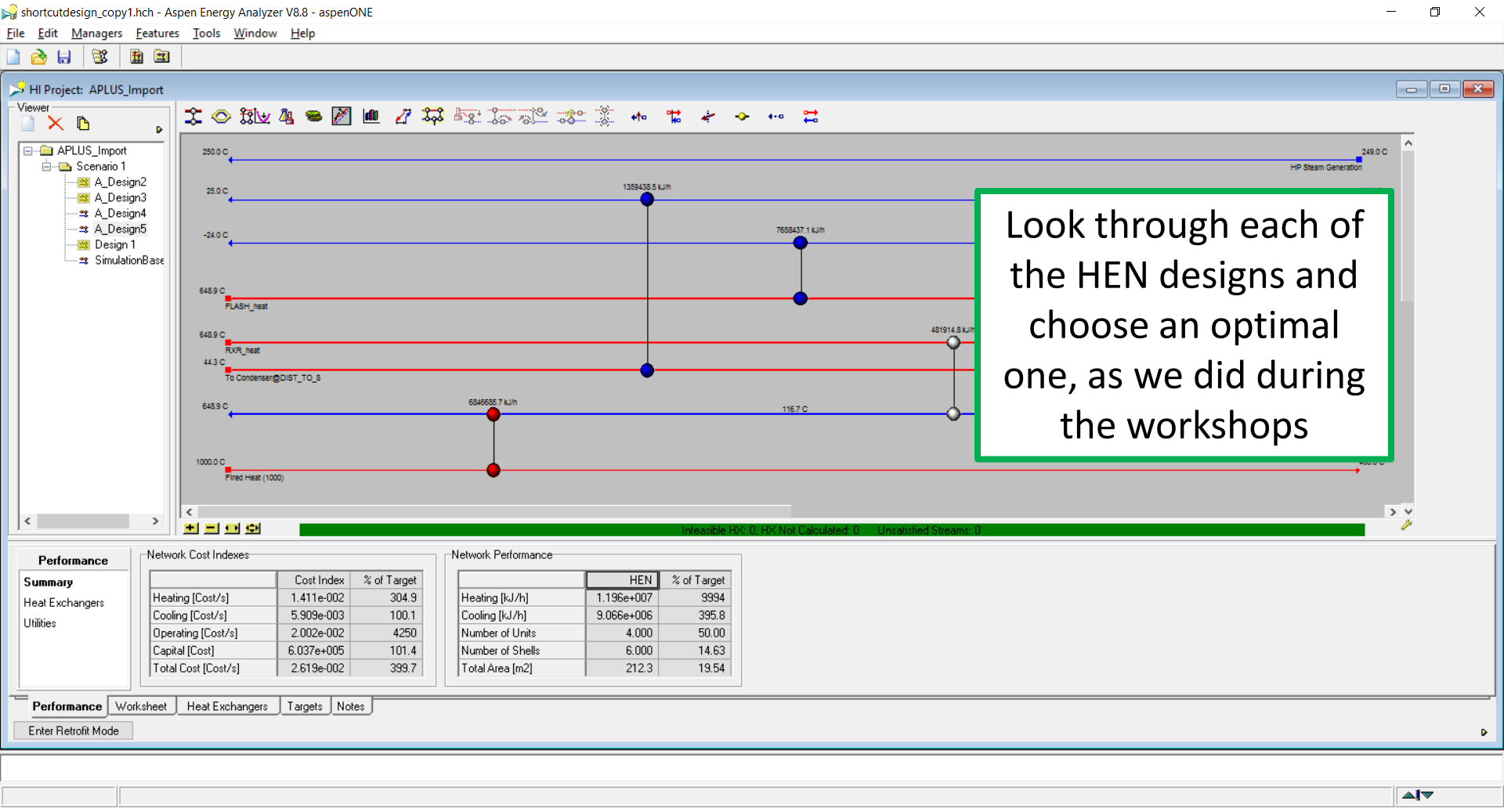

shortcutdesign_copy1.hch - Aspen Energy Analyzer V8.8 - aspenONE
File Edit Managers Features Tools Window Help
HI Project: APLUS_Import
Viewer
APLUS_Import
Scenario 1
Design 1
SimulationBase
Composite Curve
Composite Curves
Temperature (C)
700.0
200.0
100.0
0.0000
0.0000
1.000e+006
2.000e+006
3.000e+006
4.000e+006
5.000e+006
6.000e+006
7.000e+006
8.000e+006
9.000e+006
1.000e+007
Enthalpy (kJ/h)
We see the composite curves of our Q-T diagram
Choose Recommend Designs to create multiple network designs
Data
Process Streams
Utility Streams
Economics
Name
Inlet T [C]
Outlet T [C]
MCp [kJ/C-h]
Enthalpy [kJ/h]
Segm.
3_To_4
74.3
648.9
7.329e+006
To Condenser@DIST_TO_E
44.3
43.8
2.719e+00E
1.359e+006
FLASH_heat
648.9
15.6
1.209e+004
7.658e+006
RXR_heat
648.9
648.4
9.638e+00E
4.819e+00E
New
Data
Targets
Range Targets
Designs
Options
Notes
DTmin
10.00 C
Enter Retrofit Mode
Recommend Designs
Forbidden Matches


shortcutdesign_copy1.hch - Aspen Energy Analyzer V8.8 - aspenONE
File Edit Managers Features Tools Window Help
HI Project: APLUS_Import
Viewer
APLUS_Import
Scenario 1
Design 1
SimulationBase
Composite Curve
Composite Curves
Temperature (C)
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0000
0.0000
6.000e+006
7.000e+006
8.000e+006
9.000e+006
1.000e+007
Recommend Near-optimal Designs
Stream Split Options
Process Stream
Max Split Branches
3_To_4 10
To Condenser@DIST_ 10
FLASH_heat 10
RXR_heat 10
New
Solver Options
Maximum Designs 10
Preview Input
Solve
Find Designs
Data
Process Streams
Utility Streams
Economics
Name
Inlet T [C]
Outlet T [C]
MCp [kJ/C-h]
3_To_4 74.3 648.9 ---
To Condenser@DIST_TO_E 44.3 43.8 2.719e+00E
FLASH_heat 648.9 15.6 1.209e+004
RXR_heat 648.9 648.4 9.638e+00E
New
Data Targets Range Targets Designs Options Notes
DTmin 10.00 C
Enter Retrofit Mode
Recommend Designs
Forbidden Match
After choosing Max Split Branches and Maximum Designs, click Solve



You may receive an error indicating that only a few optimal designs could be found.

Select “OK”


shortcutdesign_copy1.hch - Aspen Energy Analyzer V8.8 - aspenONE
File Edit Managers Features Tools Window Help
HI Project: APLUS_Import
Viewer
APLUS_Import
Scenario 1
A_Design2
A_Design3
A_Design4
A_Design5
Design 1
SimulationBase
250.0 C
249.0 C
HP Steam Generation
25.0 C
1359438.5 kJ/h
-24.0 C
7658437.1 kJ/h
648.9 C
FLASH_heat
648.9 C
RXR_heat
481914.8 kJ/h
44.3 C
To Condenser@DIST_TO_8
648.9 C
6846685.7 kJ/h
116.7 C
1000.0 C
Fired Heat (1000)
Look through each of the HEN designs and choose an optimal one, as we did during the workshops
Infeasible HX: 0, HX Not Calculated: 0 Unsatisfied Streams: 0
Performance
Summary
Heat Exchangers
Utilities
Network Cost Indexes
Cost Index % of Target
Heating [Cost/s] 1.411e-002 304.9
Cooling [Cost/s] 5.909e-003 100.1
Operating [Cost/s] 2.002e-002 4250
Capital [Cost] 6.037e+005 101.4
Total Cost [Cost/s] 2.619e-002 399.7
Network Performance
HEN % of Target
Heating [kJ/h] 1.196e+007 9994
Cooling [kJ/h] 9.066e+006 395.8
Number of Units 4.000 50.00
Number of Shells 6.000 14.63
Total Area [m2] 212.3 19.54
Performance Worksheet Heat Exchangers Targets Notes
Enter Retrofit Mode