New Features in 2014: Using the Scenarios Feature

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RELCOST Scenarios

• Up to 10 scenarios can be defined using RelCost’s new Scenarios Option
  - Input data on the “Scenarios” tab
  - Drop down menus on other sheets allow you to easily switch between the scenarios you have defined
Scenarios Feature

• Click on “Show Scenarios Option” on the General tab
  ▪ Opens Scenarios tab
  ▪ Shows Scenario sections on input sheets
On Scenario Tab

• First, enter scenario descriptions and assign them “numbers”
  ▪ Any code will work in place of number
Scenario Tab

- If you change the number, you will be prompted to update the menu so they reflect your new codes
Defining Scenarios

- Next, there are a number of fields for you to enter data for each scenario
  - Heading indicates what input tab the data will appear on

Data in this field will appear on the Capital Expenditures tab

...but only the values in green ...
... and the headings
Defining Scenarios

- Values in green are for the selected scenario
  - Total Installed Cost of $12M appears on CapEx sheet when scenario 1 is selected

<table>
<thead>
<tr>
<th>Scenario Description</th>
<th>Total Installed Cost</th>
<th>Replacing Older Boilers at Central Plant, 10 year intervals (2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Biomass steam generation with extraction/condensing turbine</td>
<td>$12,185,000</td>
<td>$700,000</td>
</tr>
<tr>
<td>2 Gas turbine generation with duct burners and heat recovery</td>
<td>$8,539,000</td>
<td>$700,000</td>
</tr>
</tbody>
</table>

Selected scenario

Values in green corresponds to the scenario selected on drop down menus
Scenario Sections on Input Sheets

- Here’s how the references appear on input tabs
  - Headings and selected scenario appear

If you don’t see the scenario section, click “Show Scenario”

The $12M referenced from Scenario tab in Scenario 1
Back to Fields on Scenario Tab...

• First row of field is for headings
  ▪ You define whatever headings you want
  ▪ Can be whatever data may be convenient to have on both the Scenario tab and input tabs

• Each row below the heading defines a scenario

![Capital Expenditures Table](image)
Fields on Scenario Tab

- Some fields also have a line for a base case

<table>
<thead>
<tr>
<th>Scenario Description</th>
<th>Biomass (bdt per year)</th>
<th>Natural Gas (MMBtu/year)</th>
<th>Purchased Electricity (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE CASE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomass steam generation with extraction/condensing turbine</td>
<td>21,320</td>
<td>3,325</td>
<td></td>
</tr>
<tr>
<td>Gas turbine generation with duct burners and heat recovery</td>
<td>-</td>
<td>-</td>
<td>196,619</td>
</tr>
</tbody>
</table>

Base case is 2nd row
Input Tab with a Base Case

- On these input tabs, the headings, the base case and the selected scenario all appear

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Biomass (bdt per year)</th>
<th>Natural Gas (MMBtu/year)</th>
<th>Purchased Electricity (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASE CASE</td>
<td>-</td>
<td>12,798,360</td>
</tr>
<tr>
<td></td>
<td>ALTERNATIVE</td>
<td>-</td>
<td>196,619</td>
</tr>
</tbody>
</table>
Scenario Drop-Down Menus

• Menus on WhatIf tab, input tabs, and reports tabs

• On Input sheets...
  ▪ Located in Scenario sections near top of sheet
Scenarios Drop Down Menus

- Available on WhatIf tab, input tabs, and reports tabs
- On reports and proformas...

Located at top

When open...
Scenarios Drop Down Menus

• On WhatIf tab...
  ▪ Located above LCCA results
Using the Scenario Section

- None of this works unless you reference the Scenario section in your inputs
Using the Scenario Section

• When you select another scenario on the drop down, input values change
  - Remember menus are located throughout the sheet
  - Selecting scenario on any sheet changes scenario data throughout
References to Scenarios Sections

- It’s worth emphasizing that any value you want to change, must be referenced into your inputs.

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<table>
<thead>
<tr>
<th>References to Scenarios Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>It’s worth emphasizing that any value you want to change, must be referenced into your inputs.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Biomass (btu per year)</th>
<th>Natural Gas (MMBtu/year)</th>
<th>Purchased Electricity (kWh)</th>
<th>Operating Cost of Existing Heating System, Fuel &amp; Non-Fuel</th>
<th>Ash Disposal (640 tons at $20 per ton)</th>
<th>Biomass Unit Cost</th>
<th>Natural Gas Unit Cost ($/MMBtu)</th>
<th>Purchased Electricity Cost</th>
<th>Electricity Wheeling Cost (2017 $ per MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASEATIVE</td>
<td>-</td>
<td>12,798,360</td>
<td>$ 674,000</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>PURCHASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Year</td>
</tr>
<tr>
<td>Units</td>
</tr>
<tr>
<td>btu</td>
</tr>
<tr>
<td>MMBtu</td>
</tr>
<tr>
<td>kWh</td>
</tr>
<tr>
<td>$/MMBtu</td>
</tr>
<tr>
<td>$/kWh</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Gas turbine generation with duct burners and heat recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomass (btu per year)</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>CASEATIVE</td>
</tr>
</tbody>
</table>
Formatting Scenario Data

- As you enter data on the scenarios field, format the numbers as always in Excel.

![Scenario Data Format Example]

- The use of the "Format Scenario" button...

![Scenario Data Comparison Table]

Use "Format Scenario" button to copy your number formats from Scenario sheet to Input sheets.
Questions?

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Download blank spreadsheet, examples, and User’s Manual at
http://www.northwestchptap.org/ResourcesSoftwareLinks/Software.aspx