

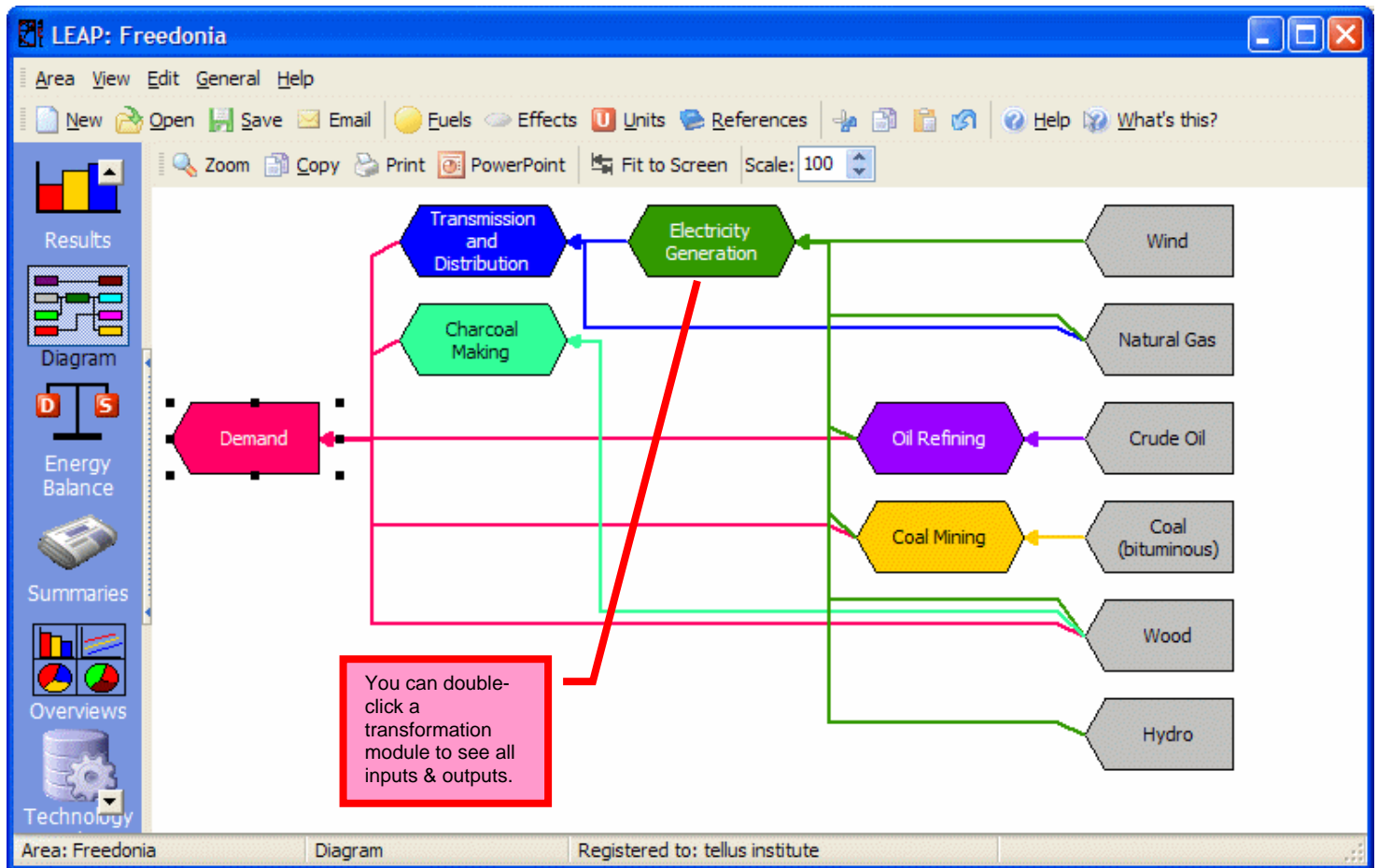
Examination of a completed LEAP Area

It is recommended that the review process outlined herein be completed in a single session since comprehension of a thoroughly constructed model requires you to mentally synthesize several levels of detail. The examination of the model proceeds from the broadest views to the most detailed, in order to lead the reviewer to focus on the most crucial aspects of each scenario.

Diagram View



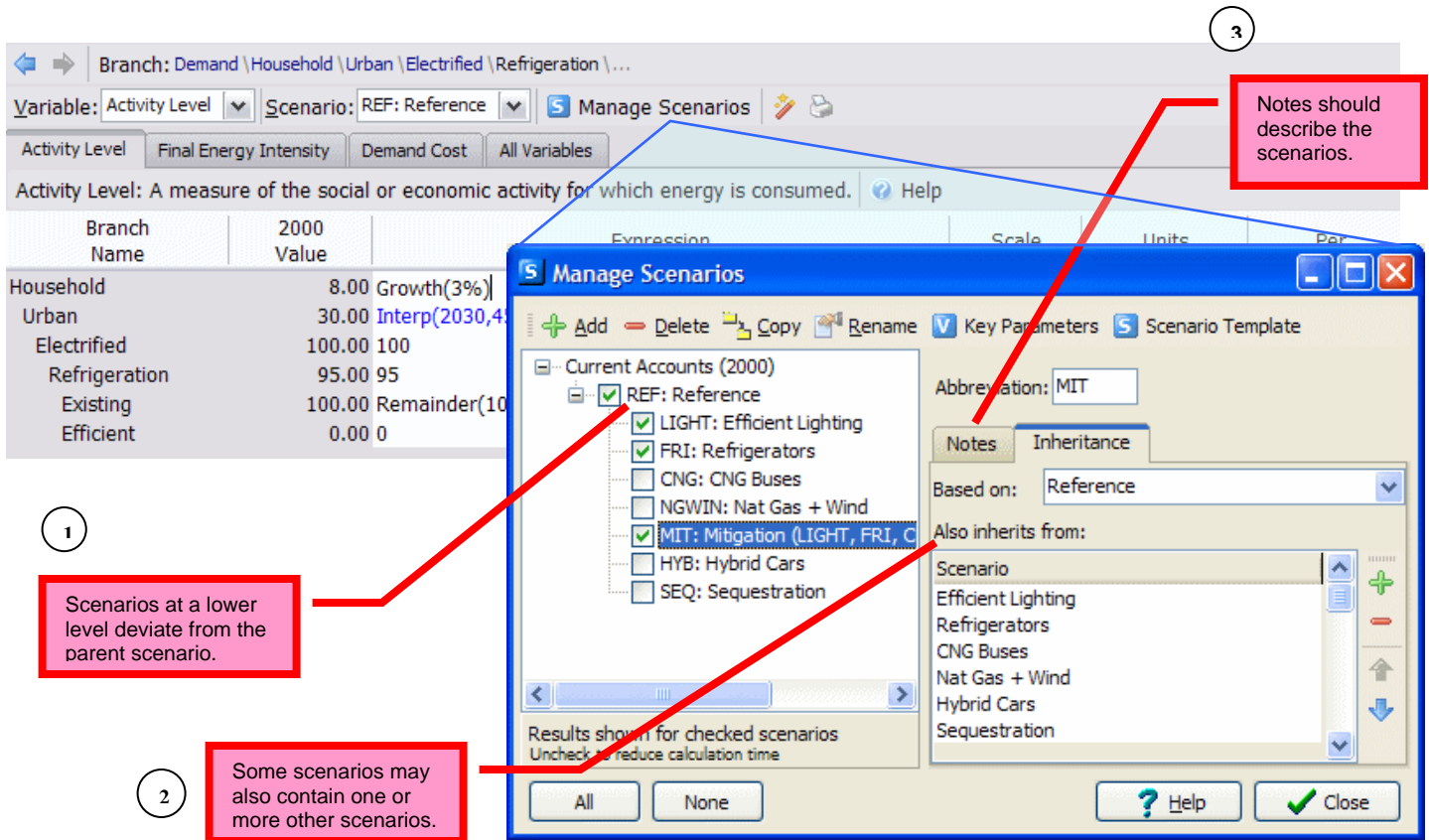
Begin your review of the model of a particular area with a look at the diagram showing the resources and transformation processes.



Are all significant energy-consuming activities included and sequenced correctly?

Scenarios

Return to the Analysis View. You will want to know which scenarios are included and what they entail.



Branch: Demand \ Household \ Urban \ Electrified \ Refrigeration \ ...

Variable: Activity Level Scenario: REF: Reference Manage Scenarios

Activity Level: A measure of the social or economic activity for which energy is consumed.

Branch Name	2000 Value	Expression	Scale	Units	Par
Household	8.00	Growth(3%)			
Urban	30.00	Interp(2030,4)			
Electrified	100.00	100			
Refrigeration	95.00	95			
Existing	100.00	Remainder(10)			
Efficient	0.00	0			

1 Scenarios at a lower level deviate from the parent scenario.

2 Some scenarios may also contain one or more other scenarios.

3 Notes should describe the scenarios.

Manage Scenarios

Current Accounts (2000)

- REF: Reference
- LIGHT: Efficient Lighting
- FRI: Refrigerators
- CNG: CNG Buses
- NGWIN: Nat Gas + Wind
- MIT: Mitigation (LIGHT, FRI, C)
- HYB: Hybrid Cars
- SEQ: Sequestration

Abbreviation: MIT

Notes Inheritance

Based on: Reference

Also inherits from:

- Scenario
- Efficient Lighting
- Refrigerators
- CNG Buses
- Nat Gas + Wind
- Hybrid Cars
- Sequestration

Results shown for checked scenarios
Uncheck to reduce calculation time

All None Help Close

You will see more detail about the scenarios by exploring each one in subsequent views. As a general rule, the first scenario evaluated should be Current Accounts, the “as is” condition based on actual measurements from which the future scenarios stem. The second scenario to consider is the Reference or Baseline scenario which portrays how the production and use of energy will evolve if plans, policies and consumer behavior continue on the current path.

Regions

You will want to know if there are regions delineated in the model.

A button for "Regions" in the analysis view toolbar allows you to view geographic regions set up for the area. If there are no regions included, no button will be present.

The regions and any groupings allow examination of data for those regions, groupings, or the entire area in subsequent views.

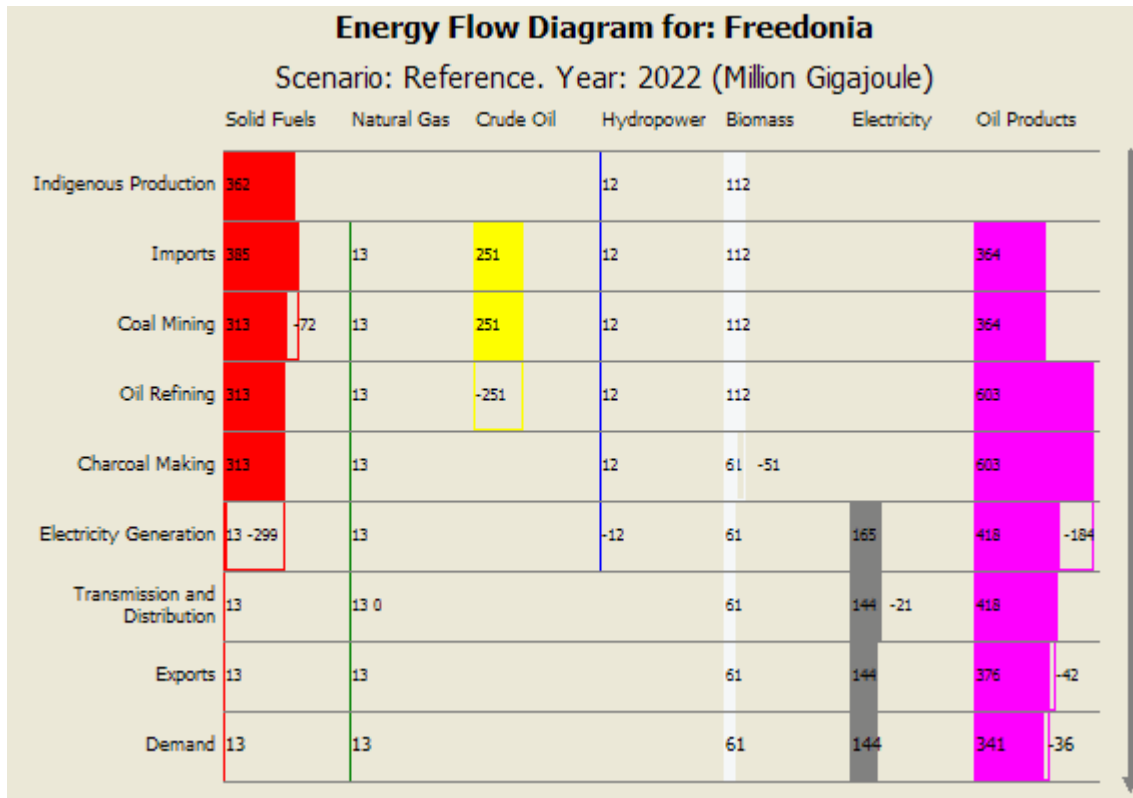
Region	Region Grouping	Inherit Expressions for this Region from:
United States	North America	United States
Canada	North America	United States
France	Western Europe	United States
Germany	Western Europe	United States
Italy	Western Europe	United States
UK	Western Europe	United States
Other Western Europe	Western Europe	United States
Japan	Pacific OECD	United States
Other Pacific OECD	Pacific OECD	United States
Russia	Former Soviet Union	United States
Other FSU	Former Soviet Union	United States
China	Centrally Planned Asia	United States
Other Centrally Planned Asia	Centrally Planned Asia	United States
India	Other Asia	United States
Other Other Asia	Other Asia	United States
Egypt	Middle East and North Africa	United States
Other Middle East	Middle East and North Africa	United States
South Africa	Sub Saharan Africa	United States
Other Southern Africa	Sub Saharan Africa	United States
Brazil	Latin America	United States
Other Latin America	Latin America	United States
Hungary	Central and Eastern Europe	United States
Other Central and Eastern Eu	Central and Eastern Europe	United States

Energy Balance View



You can see how much energy is resourced, transformed and consumed by looking at the energy balance in various forms (bar chart, table, or waterfall chart) and combinations of year, regions, and scenarios.

The waterfall chart offers a quick way to track the flow of energy from extraction to transformation to end-use. Reading each column from top down, a fuel is sourced where the column begins or grows, and is expended where the column shrinks or ends.



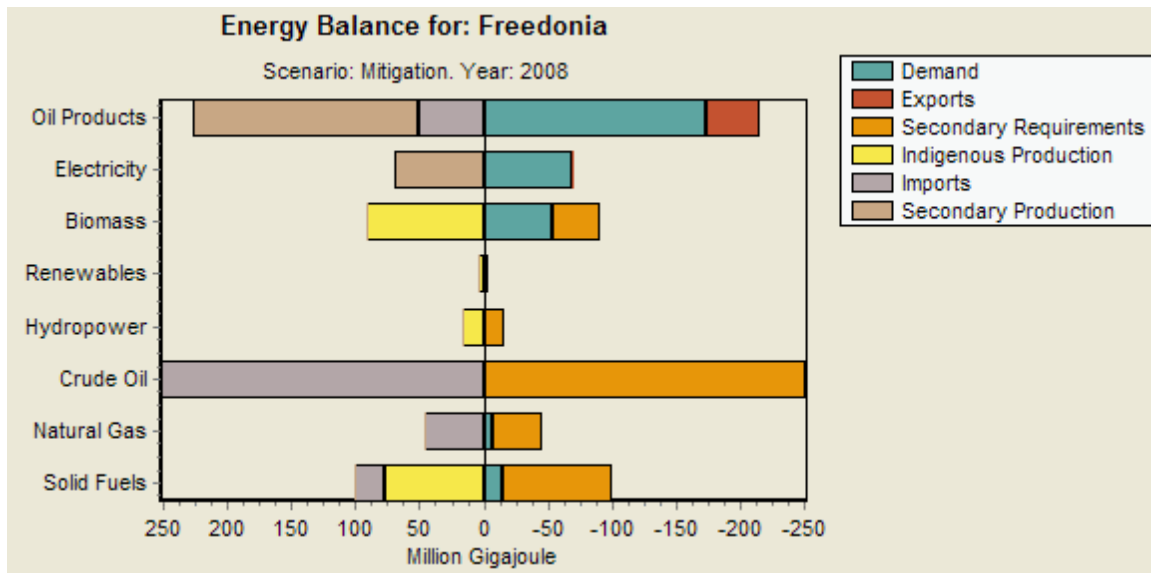
Recalling the diagram view, try to guess what is happening to each fuel at each stage of its life cycle by looking at the waterfall chart. For each scenario, go forward year-by-year to see how the scenario affects this energy flow. For an even more general picture, you can also use the flow diagram to display total energy flows for each region or year (summed across all fuels).

The table view resembles a balance sheet, with Supply, Transformation, and Demand summing to zero (or a remainder that represents Unmet Demand). It resembles the waterfall chart, but includes subtotals and no graphics.

	Solid Fuels	Natural Gas	Crude Oil	Hydropower	Biomass	Electricity	Oil Products	Total
Production	125	0	0	20	81	0	0	226
Imports	0	4	183	0	0	0	0	187
Exports	0	0	0	0	0	0	0	0
Total Primary Supply	125	4	183	20	81	0	0	413
Coal Mining	-25	0	0	0	0	0	0	-25
Oil Refining	0	0	-183	0	0	0	174	-9
Charcoal Making	0	0	0	0	-32	0	0	-32
Transmission & Distribution	0	0	0	0	0	-9	0	-9
Electricity Generation	-86	0	0	-20	0	58	-51	-98
Total Transformation	-110	0	-183	-20	-32	50	123	-174
Household	0	3	0	0	33	18	13	68
Industry	14	0	0	0	16	20	22	72
Transport	0	0	0	0	0	1	78	79
Commercial	0	0	0	0	0	10	10	20
Total Demand	14	3	0	0	49	50	123	239
Unmet Demand	0	0	0	0	0	0	0	0

You can check the table to follow the horizontal and vertical integration of energy in the total rows and columns. Go through the same variety of settings used when examining the waterfall chart.

The bar chart shows energy consumption categorized by fuel, region, year, or fuel group and the corresponding supply (primary, secondary, or imported fuel).



This chart is the easiest of the three energy balance portrayals to comprehend. If there are large amounts of imports or unmet demand, the bar chart will quickly reveal them. For each scenario, go forward year-by-year to see how the scenario affects the magnitude, proportion, and balance for each selectable parameter.

Summaries View

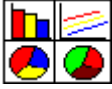


The summaries view will show comparisons of costs and benefits of the various scenarios. If the box for a scenario is checked in the Manage Scenarios screen it will be included in the comparison. If cost and/or emissions fields are populated, the differences of the selected scenarios vs. the one chosen for comparison will be summarized as single quantities (net present value).

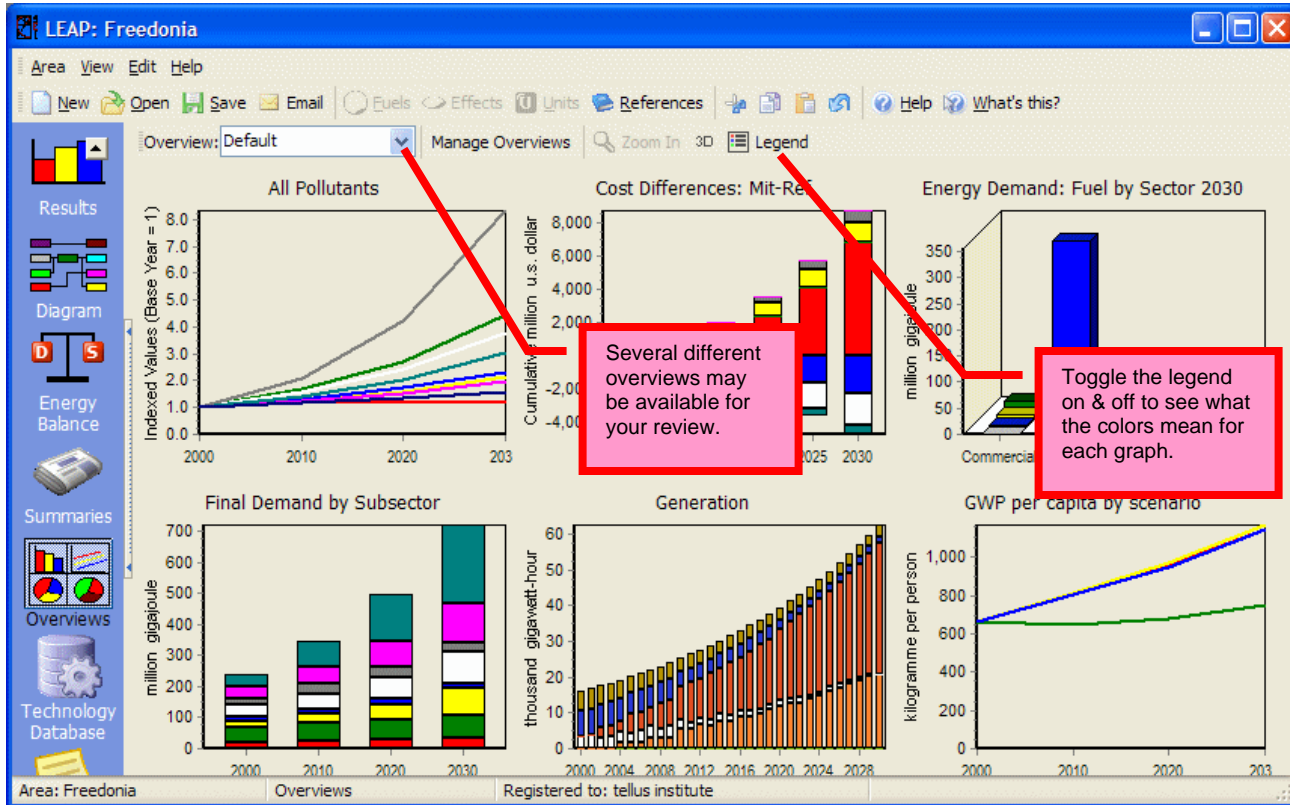
Cumulative Costs and Benefits. Compared to: Scenar	
(Billion 1990 U.S. Dolla	
	Mitigation
Demand	
Household	0.9
Industry	1.7
Transport	2.3
Commercial	0.0
Transformation	
Transmission and Distribution	0.0
Electricity Generation	-3.5
Charcoal Making	0.0
Oil Refining	0.0
Coal Mining	0.0
Resources	
Production	-2.1
Imports	0.2
Exports	0.0
Environmental Externalities	0.0
Net Costs	-0.4

Keeping in mind the implications of each scenario for all sectors and sources of energy, confirm that adjustments in the costs of these effects are included in the appropriate categories. Derivation of any questionable figures can be examined in the analysis view.

Overview



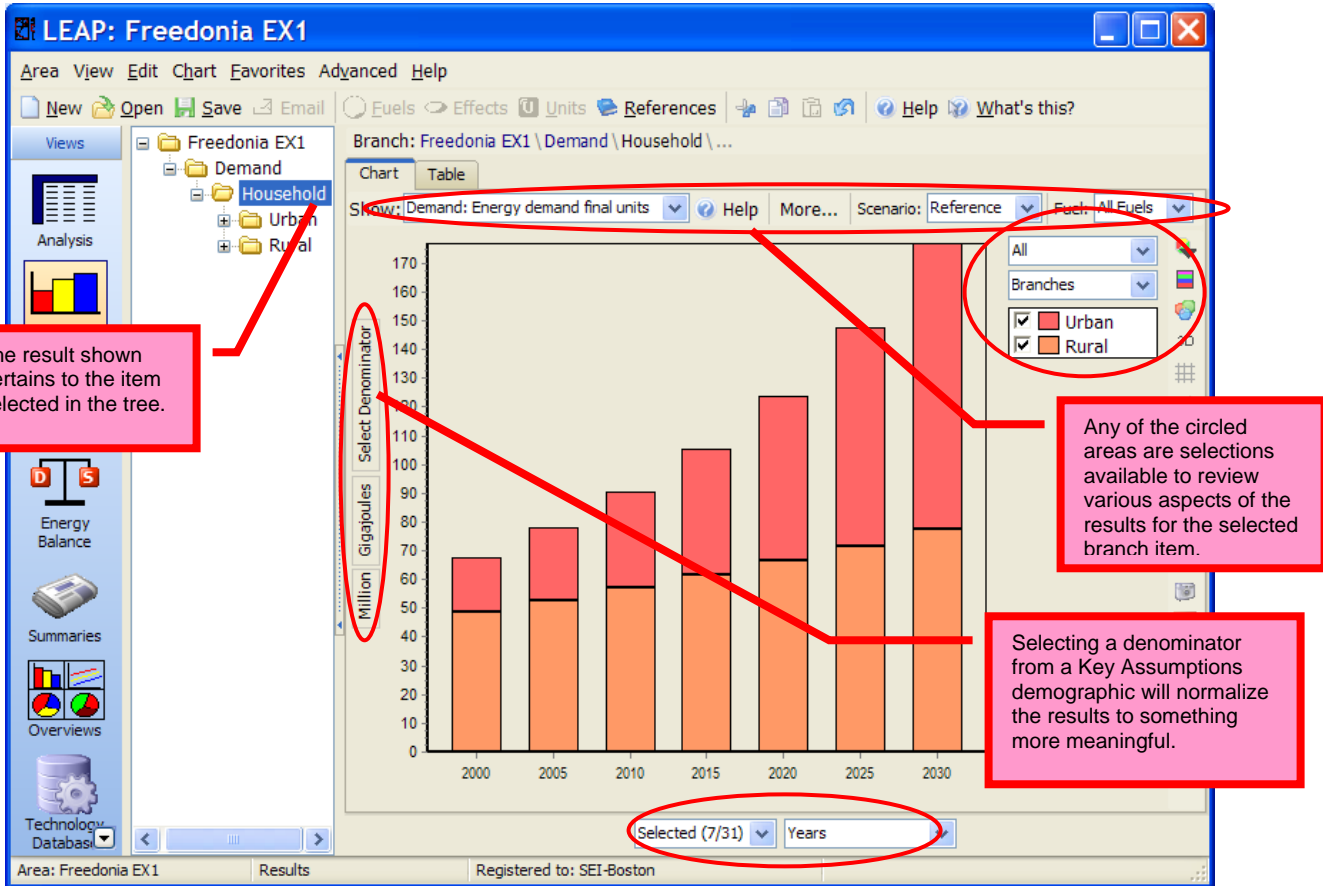
Check for any overviews that have been built. If any favorites have been saved, there will be at least one overview. Viewing these may offer quick insight to the key results of the scenarios under consideration.




Having examined the important results with the overviews, you may go directly to the results view by double-clicking any of the graphs in the overview screen.

Results View

In the results view, you can examine not only the graphs from the overviews, but any graph or table showing the long-term results of any aspect of any scenario.



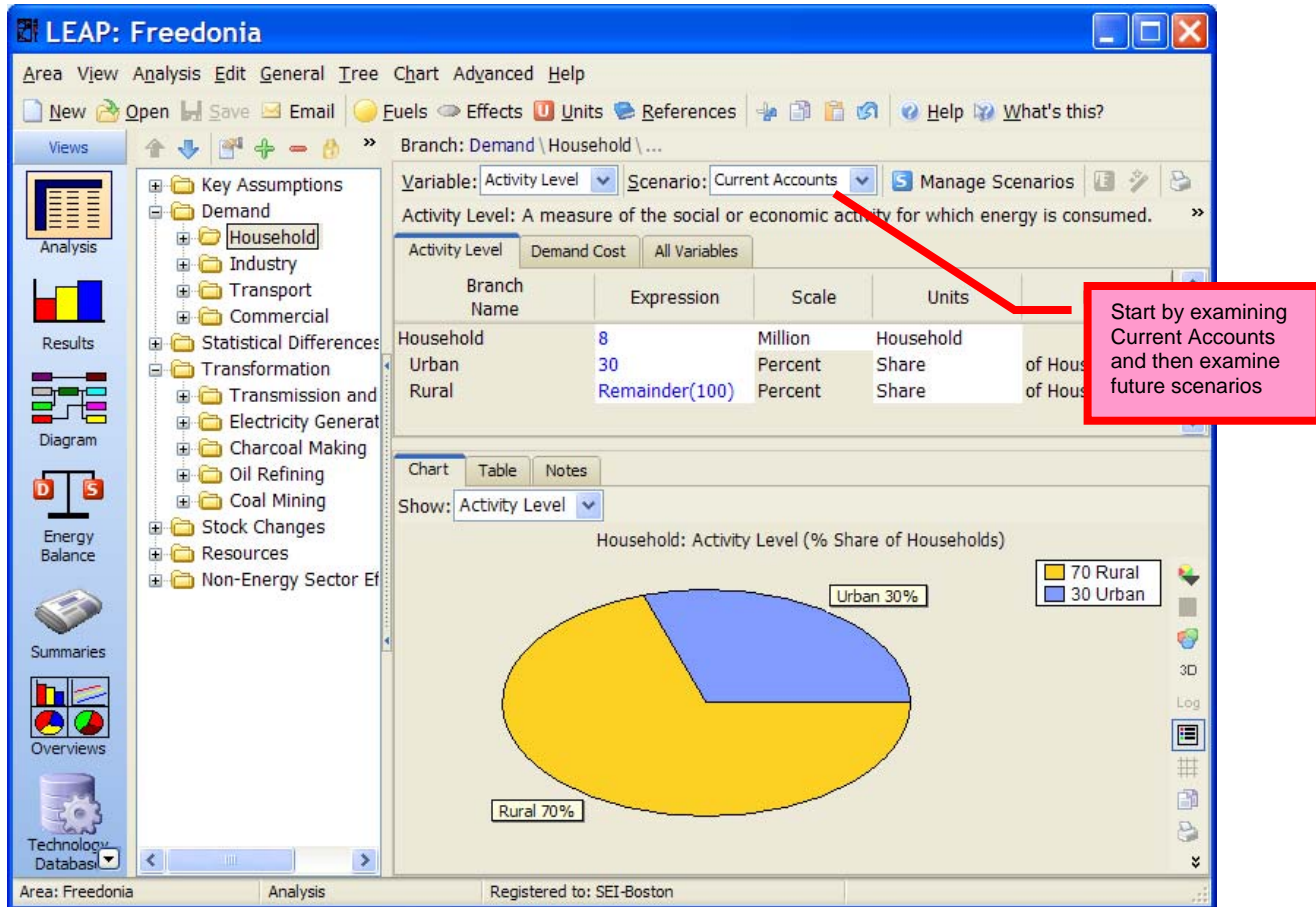
While here, also examine the Key Assumptions . These are macroeconomic and demographic variables that should not be scenario-dependent (otherwise, cost-benefit comparisons would be invalid).

By this stage, you should be able to direct your review to the salient aspects of the various scenarios and understand what drives these results. When you find results that seem questionable, you can switch to the analysis view and look at the notes tab for explanation of any assumptions made in developing the pertinent variables.

Analysis View



You can examine the intricacies of the model in the Analysis view.



Data sources should be given in notes tab. Current accounts contains the "as is" condition. Look at future scenarios (reference scenario and its subordinate scenarios) for completeness in the following areas:

- Technical Content
 - Does it reflect the evolution of technologies and efficiencies relevant to that scenario?
- Economic Content
 - How are costs estimated? Analogic, parametric, or actual cost approaches are some of the methods available. Cost estimates are often too low because of overlooked factors. Differences in cost estimating methods between scenarios can cause misleading cost-benefit comparisons.
- Market Potential
 - Is the inclusion of a technology or policy solution reflected in all potential sectors of production and/or demand? For example, if a scenario were to assume a technological breakthrough in battery technology, this could result in improvements to intermittent renewable power sources as well as transportation and grid stability and voltage control. If a breakthrough were assumed for hydrogen production, this could result in widespread use of fuel cells for both transportation and electricity generation, as well as more complete processing of oil residuals. Likewise, some decisions include potential downside secondary effects that should at least be included in the notes of the affected sectors and processes.

d. Market Acceptance

- Though some improvements may appear logical, the market may be slow to adopt the change for economic or sociological reasons. In some cases, assumptions of the growth of a new development are too conservative, as with the surprisingly rapid growth of gas turbine power plants in the 1990's. Only a thorough market analysis will enable the accurate forecast of these effects.

The reference scenario requires the most complete evaluation since all of its components affect the results and are carried over to the other scenarios. Thoroughly composed current accounts and reference scenarios set the stage for a useful plan and cost-benefit analysis.