

Scenario analysis *in LEAP*

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Contents

- Basics
- Add Scenarios
- Insert scenario assumptions
 - Use of expressions
- Show Results
 - Eight (8) steps to view/edit/export



Basics

Scenario analysis: a method for decision-making

Scenarios

- are self-consistent story-lines of how an energy system might evolve over time in a particular socio-economic and policy setting.
- encompass any factor that can change over time, because of particular policy interventions and different socio-economic conditions.
- share a common set of *Current Accounts* data.
- run from the First Scenario Year to the End Year of the study.



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Add scenarios (1/2)

The screenshot shows the LEAP: Freedonia software interface. The 'Scenarios' menu is highlighted in the top toolbar. The 'Activity Level' tab is selected, showing a table with the following data:

Branch	Expression	Scale	Units
Household	8	Million	Household

Below the table, there is a chart titled 'Household: Activity Level (Thousand Household)' showing a single bar for the year 2010 with a value of 8,000. The chart is labeled 'Household' on the x-axis and 'Thousand Household' on the y-axis.

The bottom status bar indicates: 2014.0.1.20 Area: Freedonia Analysis Registered to promitheas@kepa.uoa.gr until Οκτώβριος 21, 2016

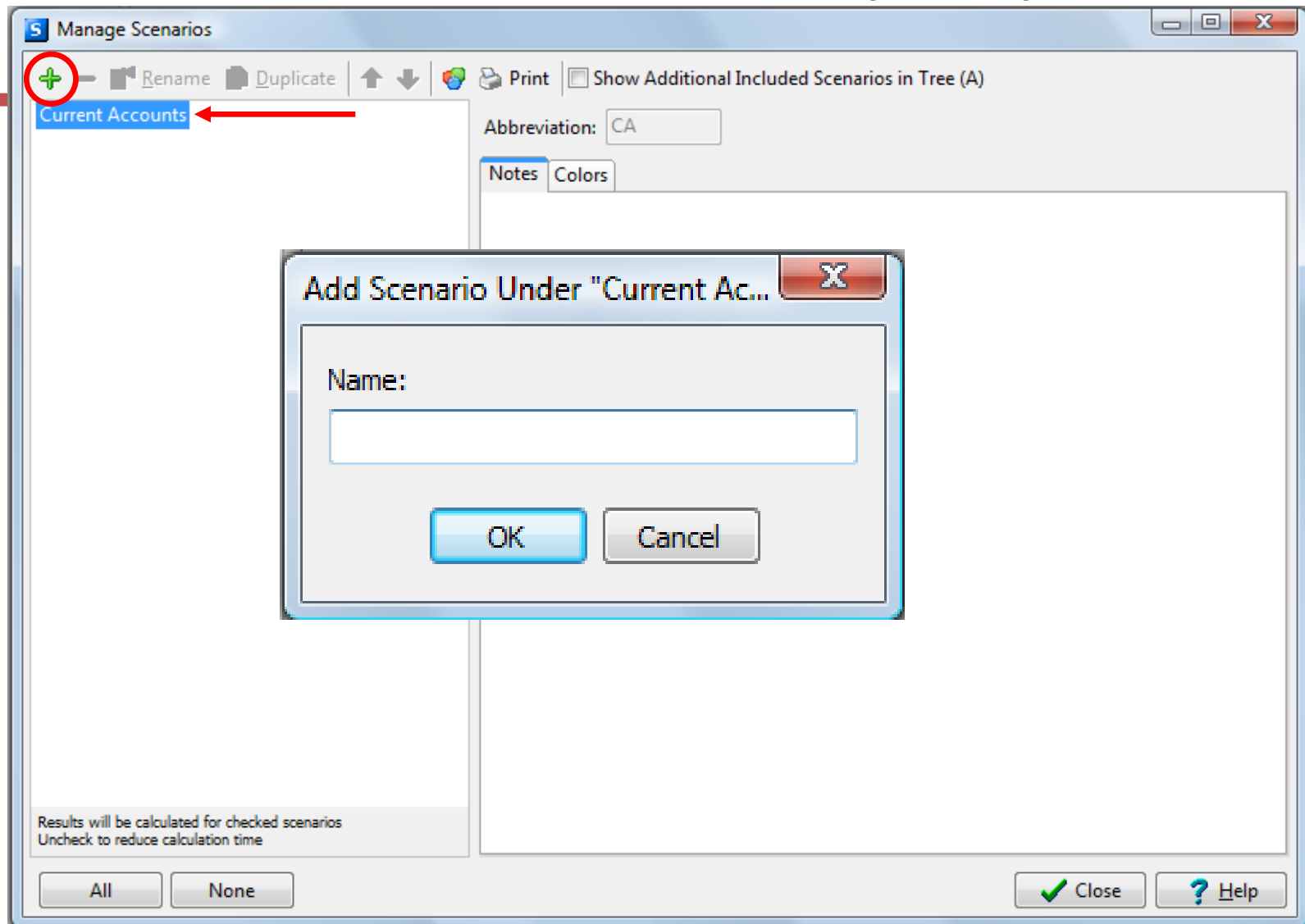


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Add scenarios (2/2)

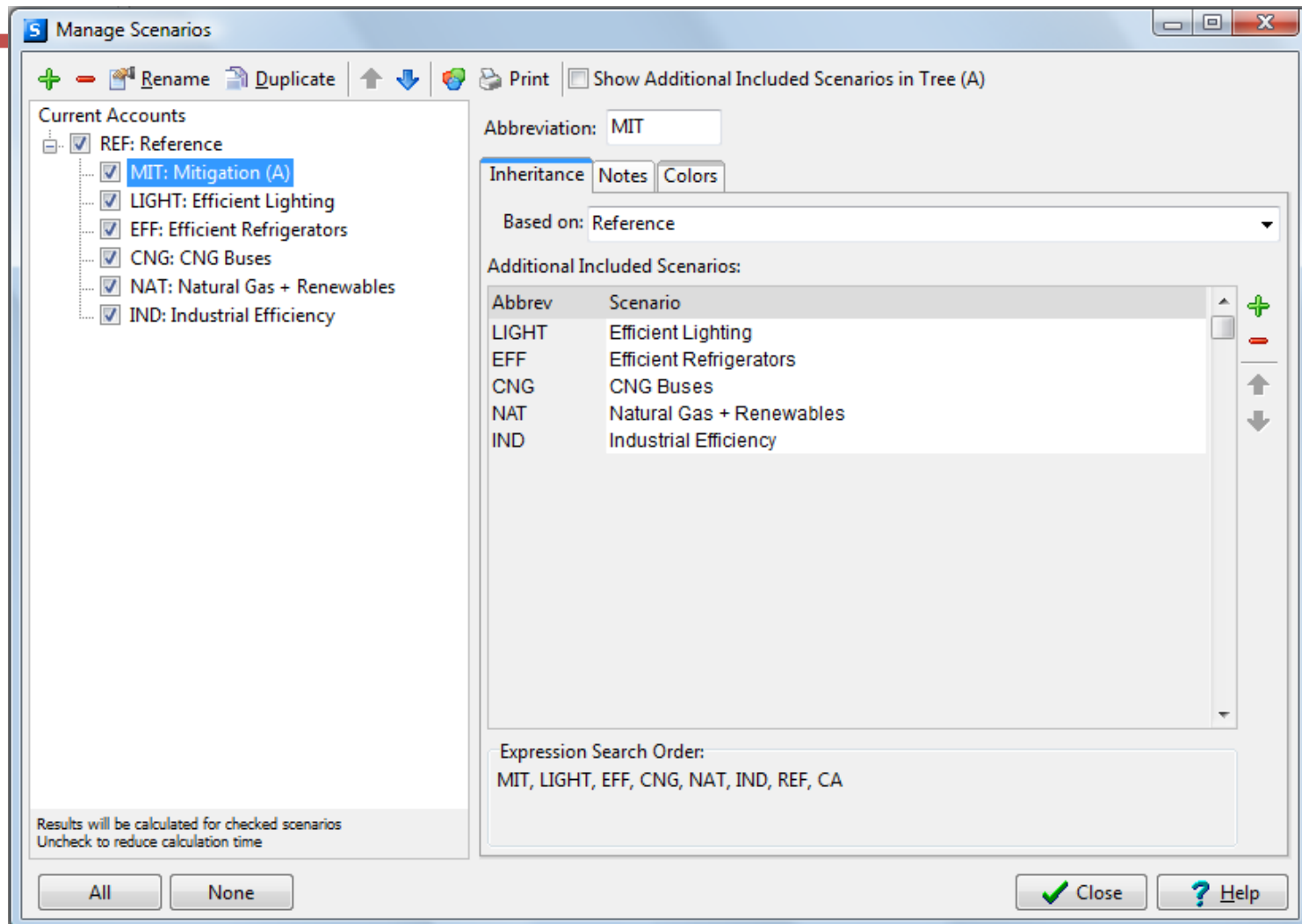


Insert assumptions



- Use of **Expressions**: mathematical formulae used to specify how the values of a variable change from year to year
 - *In Current Accounts* an expression defines the historical values for a given variable at a branch
 - *In scenarios* an expression defines how a variable changes over time from the First Scenario Year to the End Year
- Inheritance
 - Combination of individual policy scenarios



Example: scenario hierarchy with multiple inheritance



Insert/edit expressions

- Type directly into the expression field in data entry table
- Use **Expression Builder tool** (Ctrl-B or - **Branch/Variable Wizard** (

Expression Builder

LEAP: Freedonia

Area Edit View Analysis General Tree Chart Advanced Help

New Open Save Backup Email Find Basic Params Scenarios Fuels Effects Units Help What's This?

Views

Freedonia

- Key Assumptions
- Demand
 - Household
 - Urban
 - Rural
 - Transformation
 - Resources

Analysis

Results

Diagram

Energy Balance

Summaries

Overviews

Technology Database

Tags:

Branch: Demand\Household\...

Branch: All Branches Variable: Activity Level Scenario: Current Accounts

Activity Level

Activity Level: A measure of the social or economic activity for which energy is consumed. [Default="0"]

Branch	Expression	Scale	Units	Per
Household	8	Million	Household	
Urban	30	Percent	Share	of Households
Rural		Percent	Share	of Households

☒ Ditto Ctrl+D
☐ Remainder Ctrl+R
☐ Branch/Variable Ctrl+B
☐ Function Ctrl+F
☐ Time Series Ctrl+T
☒ Use Aliases

Elaboration Help

Household: Activity Level (% Share of Households)

2010 = 0,0

Urban 30%

Rural 70%

2014.0.1.20 Area: Freedonia Analysis Registered to promitheas@kepa.uoa.gr until Οκτώβριος 21, 2016



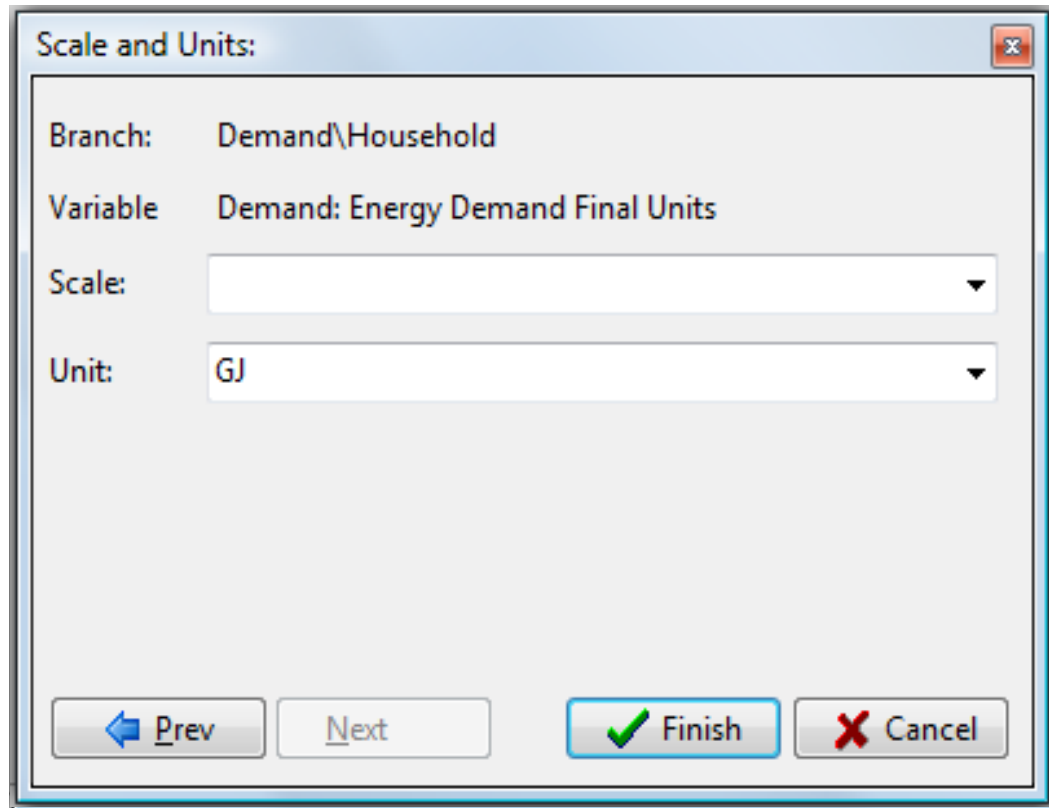
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Branch/Variable Wizard

Pop-up window used to select a specific variable at particular branch



Scale and Units:

Branch: Demand\Household

Variable: Demand: Energy Demand Final Units

Scale:

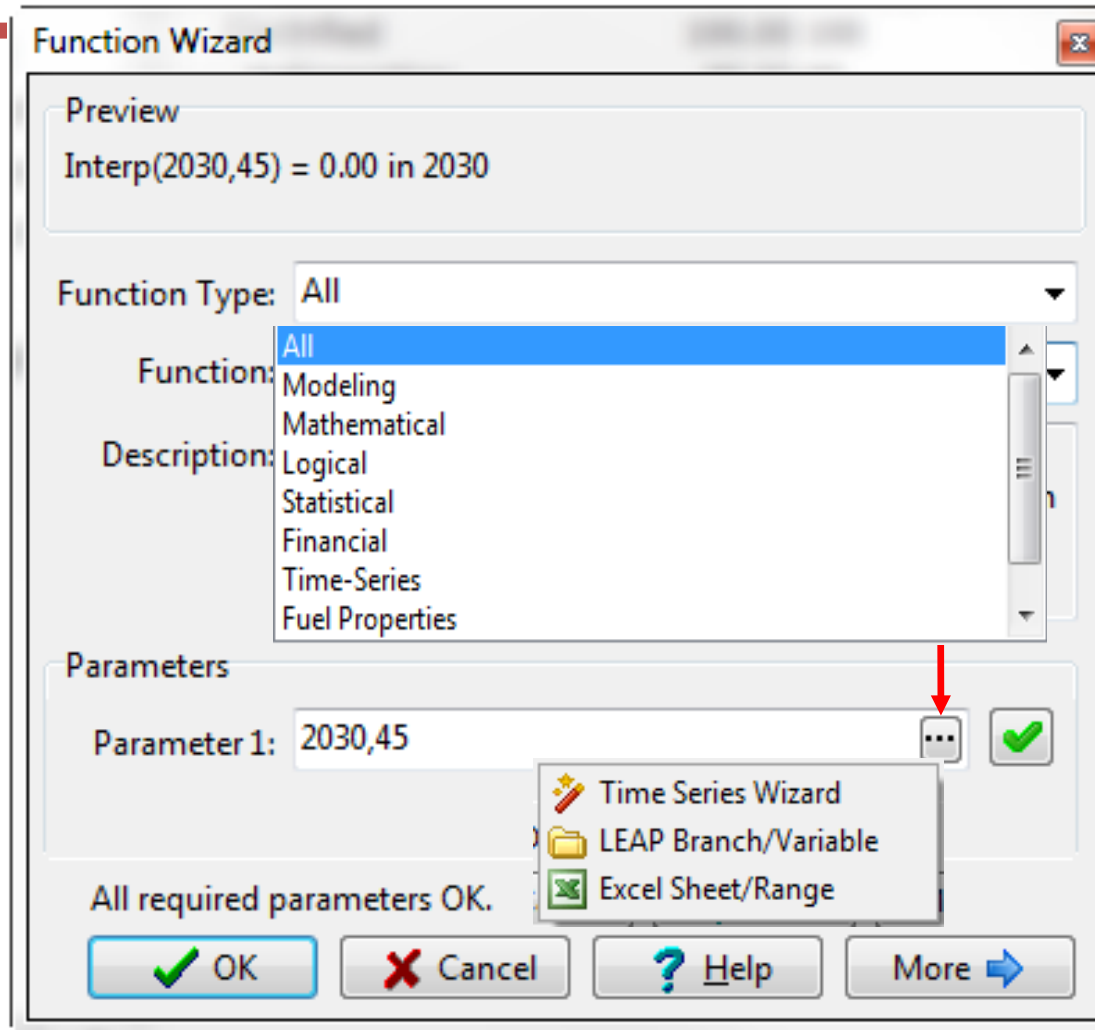
Unit: GJ



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Function Wizard



Time-series Wizard

[illegible]

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Show Results

Step 1: Press *Results View*

Step 2: Press Yes in *Confirm* pop-up window

Step 3: Go to *Result selection box* to pick category of results

Step 4: Go to *Tree* to pick branches for which you wish to see results

Step 5: Click on *Selection boxes* attached to the chart's *X Axis* and *Legend* to pick the dimensions you want to see in the chart or table.

Step 6: Choose *format* in chart, table or both

Step 7: Click on *More* button

Step 8: Export to *PowerPoint/Word/JPEG* and *Excel*



Step 1: Press Results View

LEAP: Freedonia

Area View Analysis Edit General Tree Chart Advanced Help

New Open Save Email Find Basic Params Fuels Effects Units References Help

Views

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Freedonia

- Key Assumptions
- Demand
 - Household
 - Urban
 - Rural
 - Industry
 - Transport
 - Commercial
- Transformation
- Transmission
- Electricity Generation
- Charcoal Manufacturing
- Oil Refining
- Coal Mining
- Resources
- Non Energy Sectors

Branch: Demand\Household\...

Variable: Activity Level Scenario: REF: Reference Manage Scenarios

Activity Level Demand Cost All Variables

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

Name	2000 Value	Expression	Scale	Units	Per
Household	8.00	Growth(3%)	Million	Household	
Urban	30.00	Interp(2030,4)	Percent	Share	of Household
Rural	70.00	Remainder(100)	Percent	Share	of Household

Chart Table Notes Elaboration Help

Show: Activity Level One Branch

Household: Activity Level (% Share of Households)

100
80
60
40
20
0

2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 2024 2026 2028 2030

Urban Rural

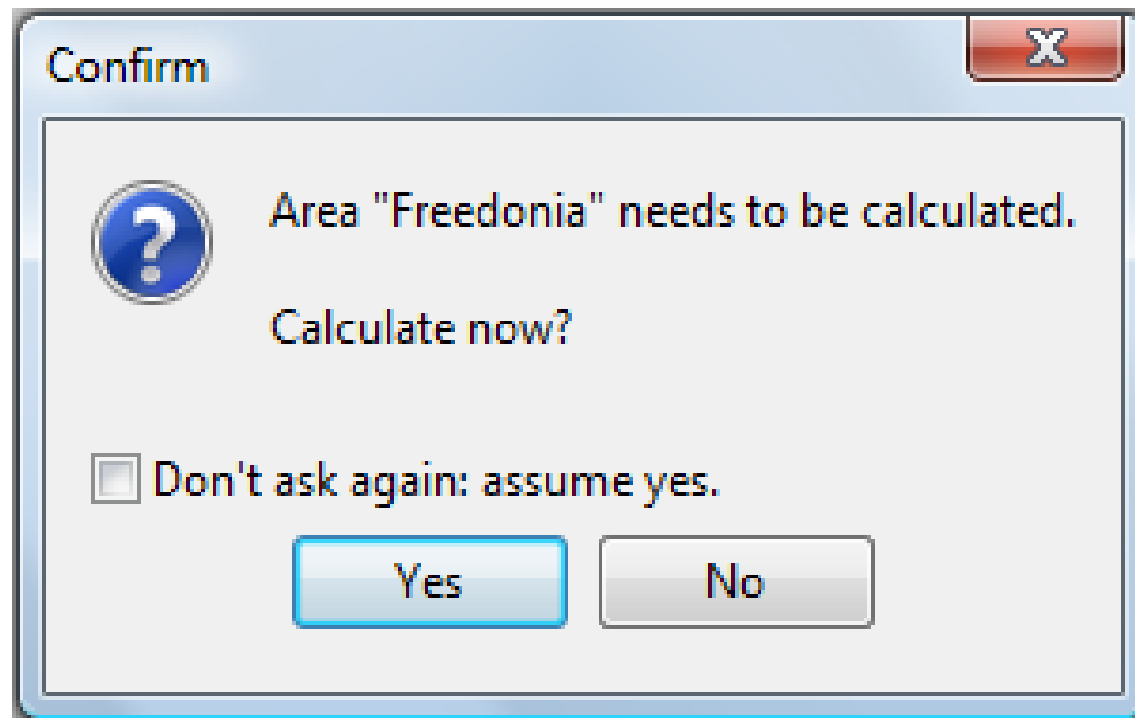
3D LOG

12.5

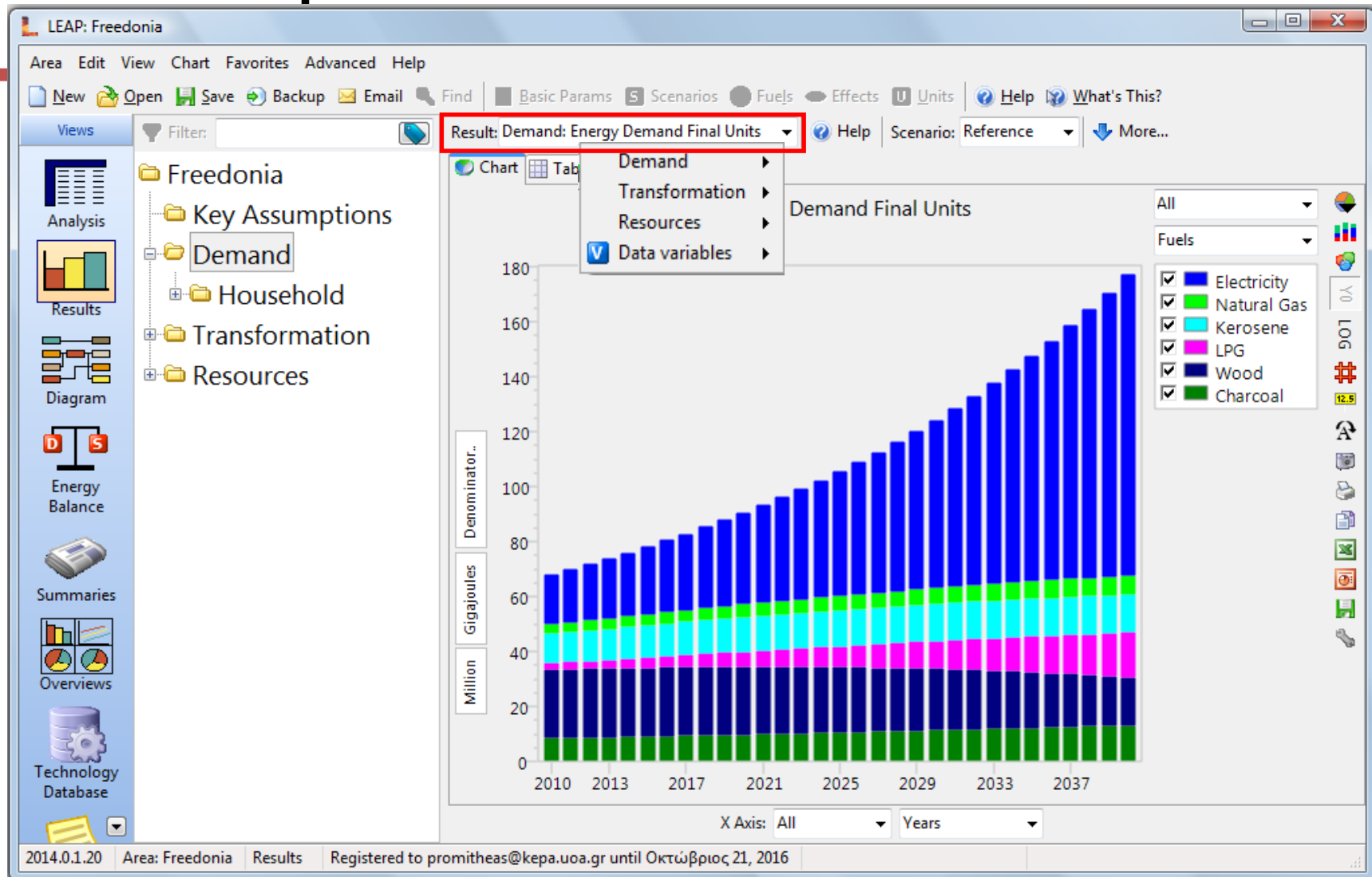
2011.0.0.10 Area: Freedonia Analysis Registered to: charlie.heaps@sei-us.org until: 09/08/2012 Save the current area



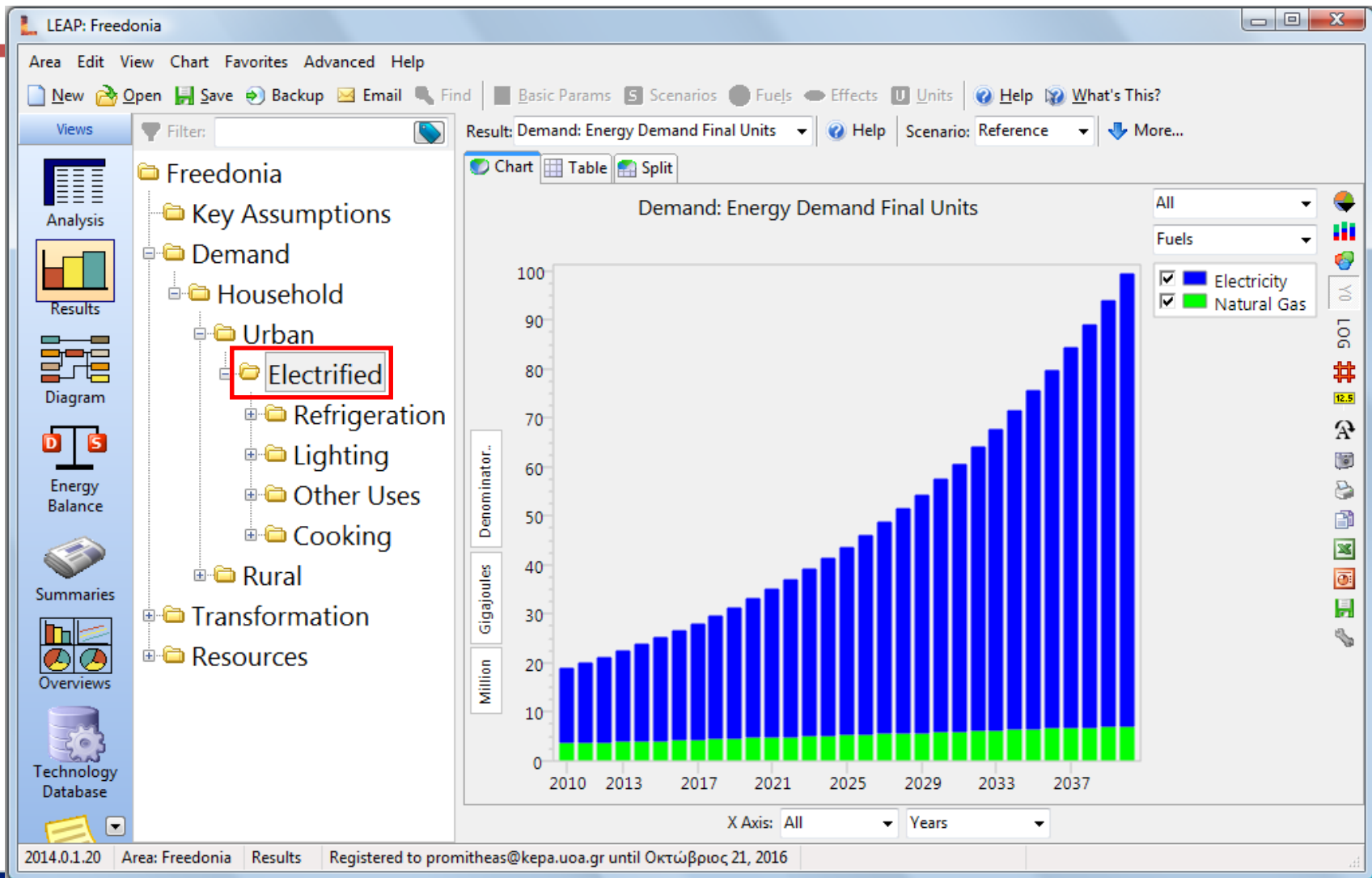
Step 2: Confirm



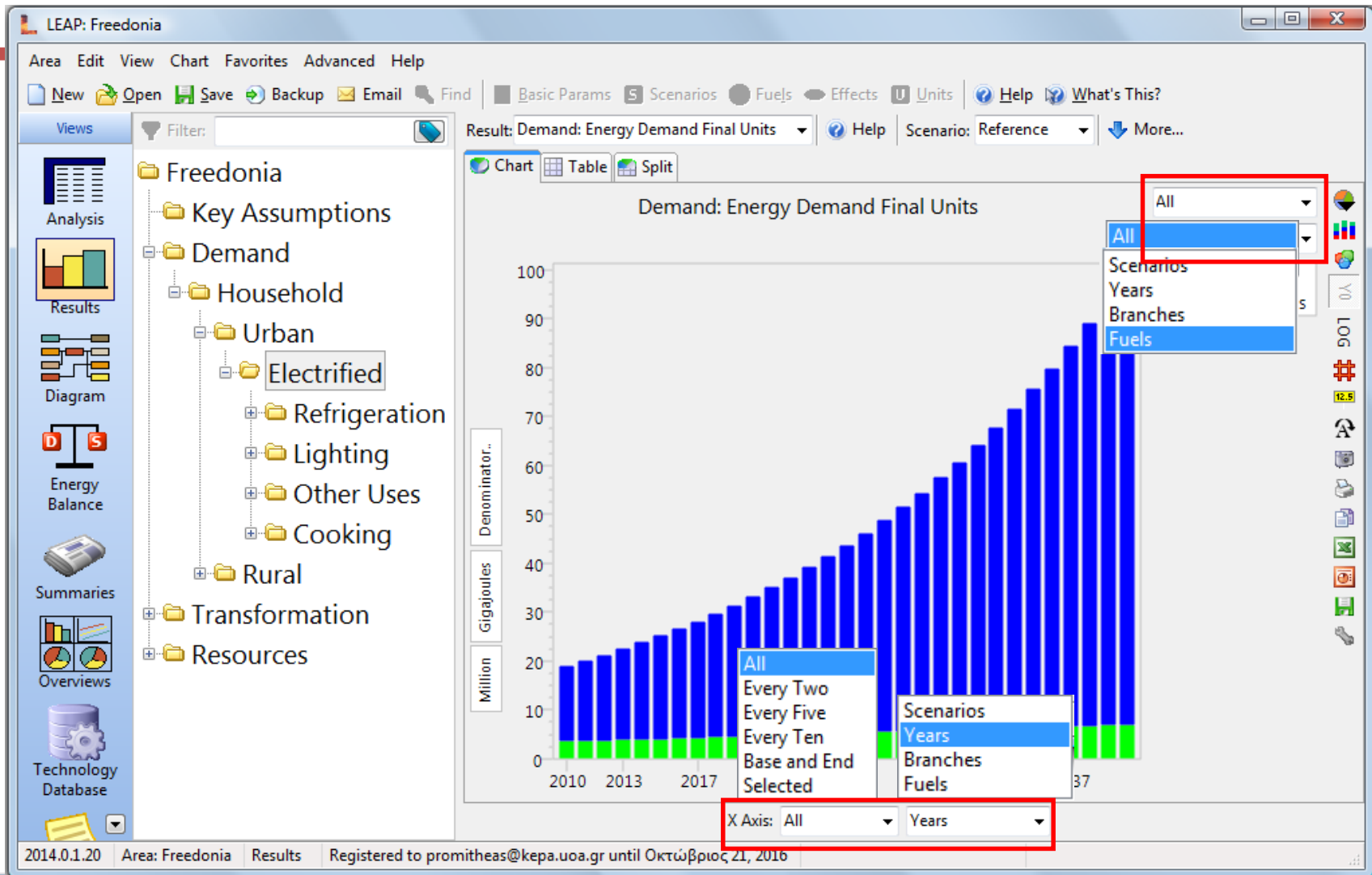
Step 3: Result selection box



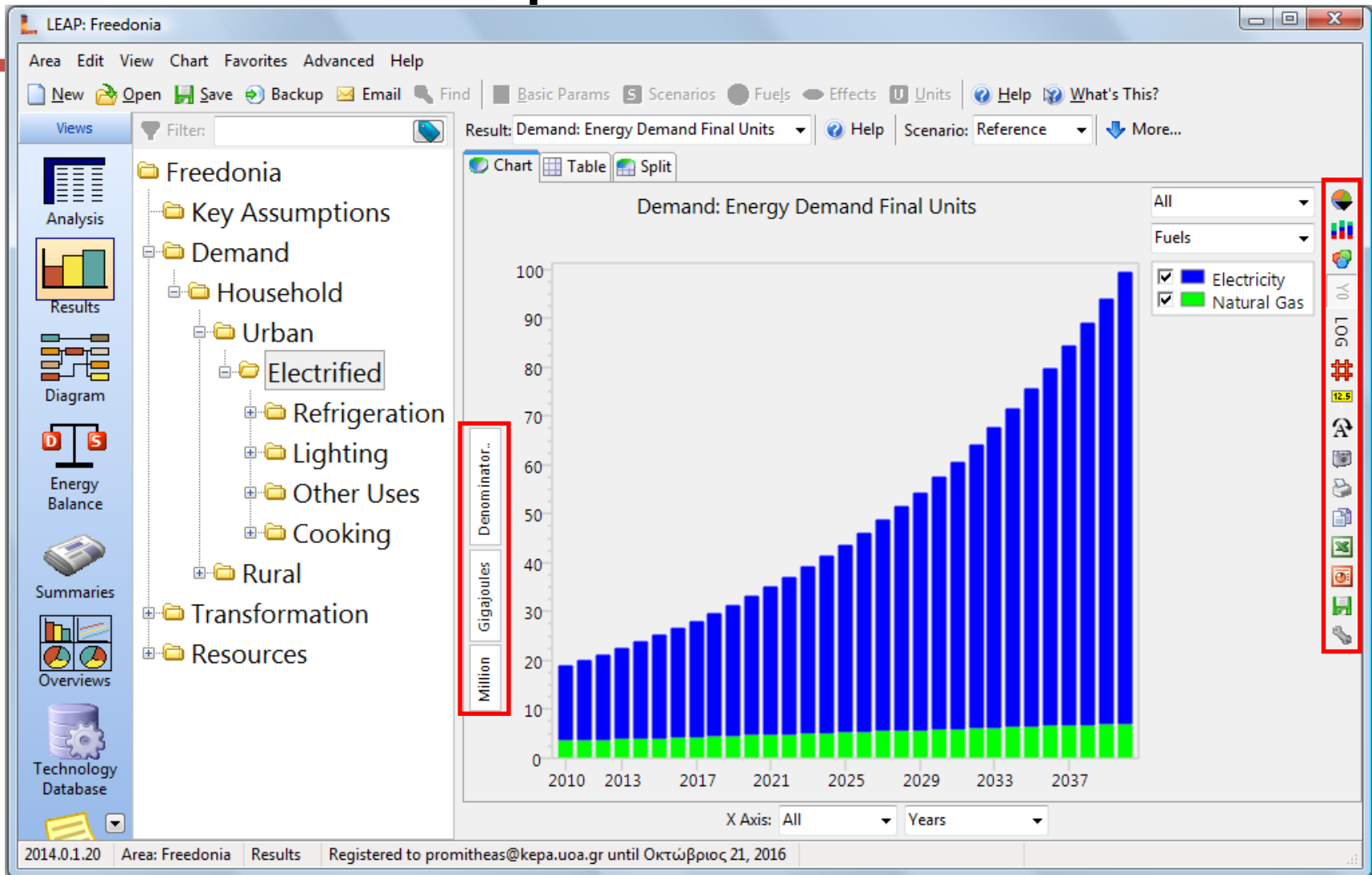
Step 4: Pick Tree branch



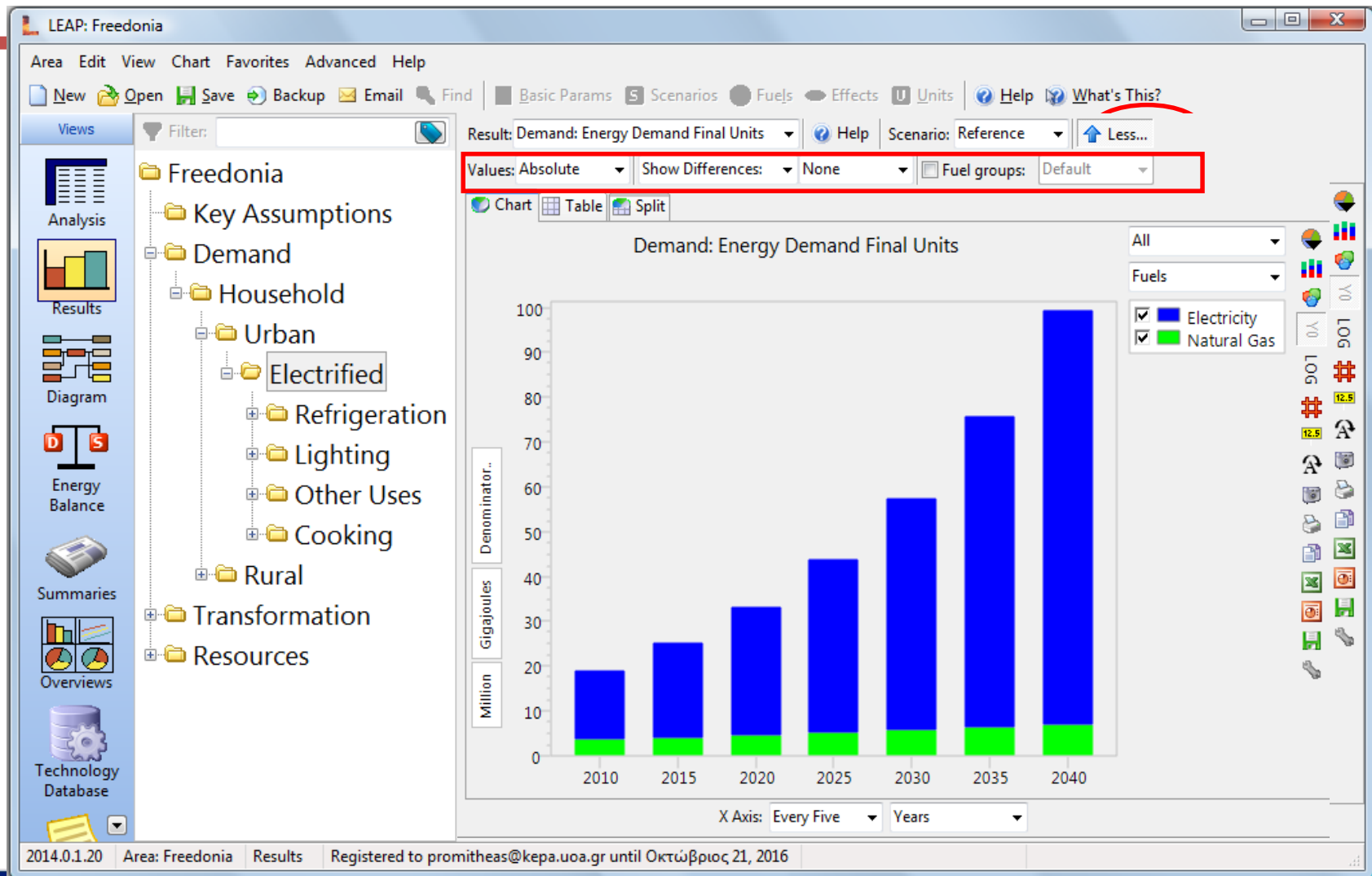
Step 5: Selection boxes



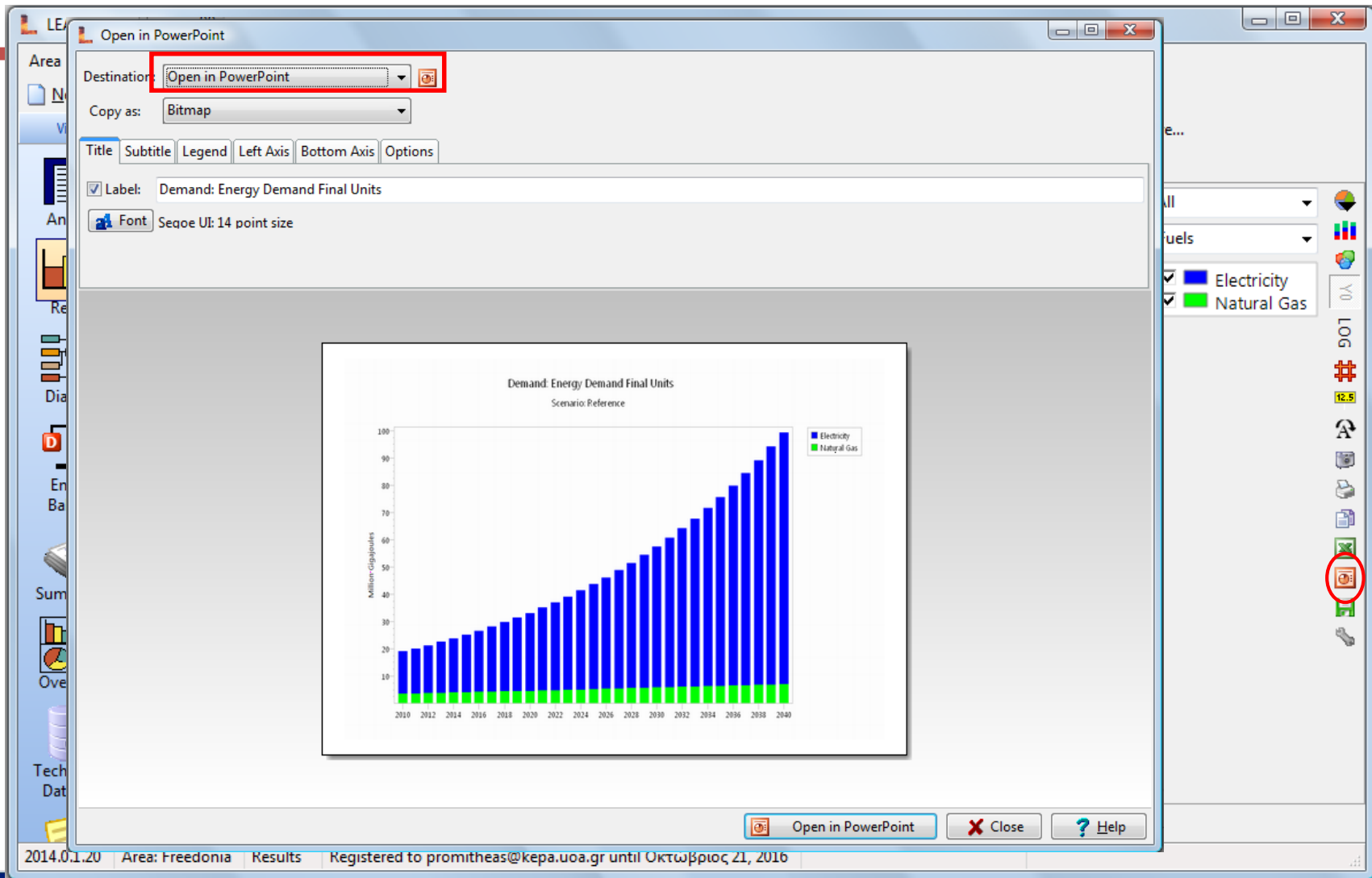
Step 6: Format



Step 7: “More” button



Step 8: Export Charts



Step 8: Export Tables

LEAP: Freedonia

Microsoft Excel - Φύλλο1

Area Edit View C

New Open

Views

Analysis

Results

Diagram

Energy Balance

Summaries

Overviews

Technology Database

2014.0.1.20 Area: Fr

Ετοιμο

Δαχίεο Επεξεργασία Προβολή Εισαγωγή Μορφή Εργαλεία Δεδομένα Παράθυρο Βοήθεια

Arial Greek 10 B I U

B7 15,5088

	A	B	C	D	E	F	G	H	I
1	Demand: Energy Demand Final Units								
2	Scenario: Reference								
3	Branch: Demand\Household\Urban\Electrified								
4	Units: Million Gigajoules								
5									
6	Fuels	2010	2015	2020	2025	2030	2035	2040	
7	Electricity	15,5	21,1	28,6	38,5	51,7	69,2	92,4	
8	Natural Gas	3,4	4,0	4,5	5,1	5,7	6,3	6,9	
9	Total	19,0	25,1	33,1	43,6	57,4	75,5	99,3	
10									
11									
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27									
28									

What's This?

More...

All

Fuels

2035 2040

69,2 92,4

6,3 6,9

75,5 99,3

Export



Let's practice!

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