

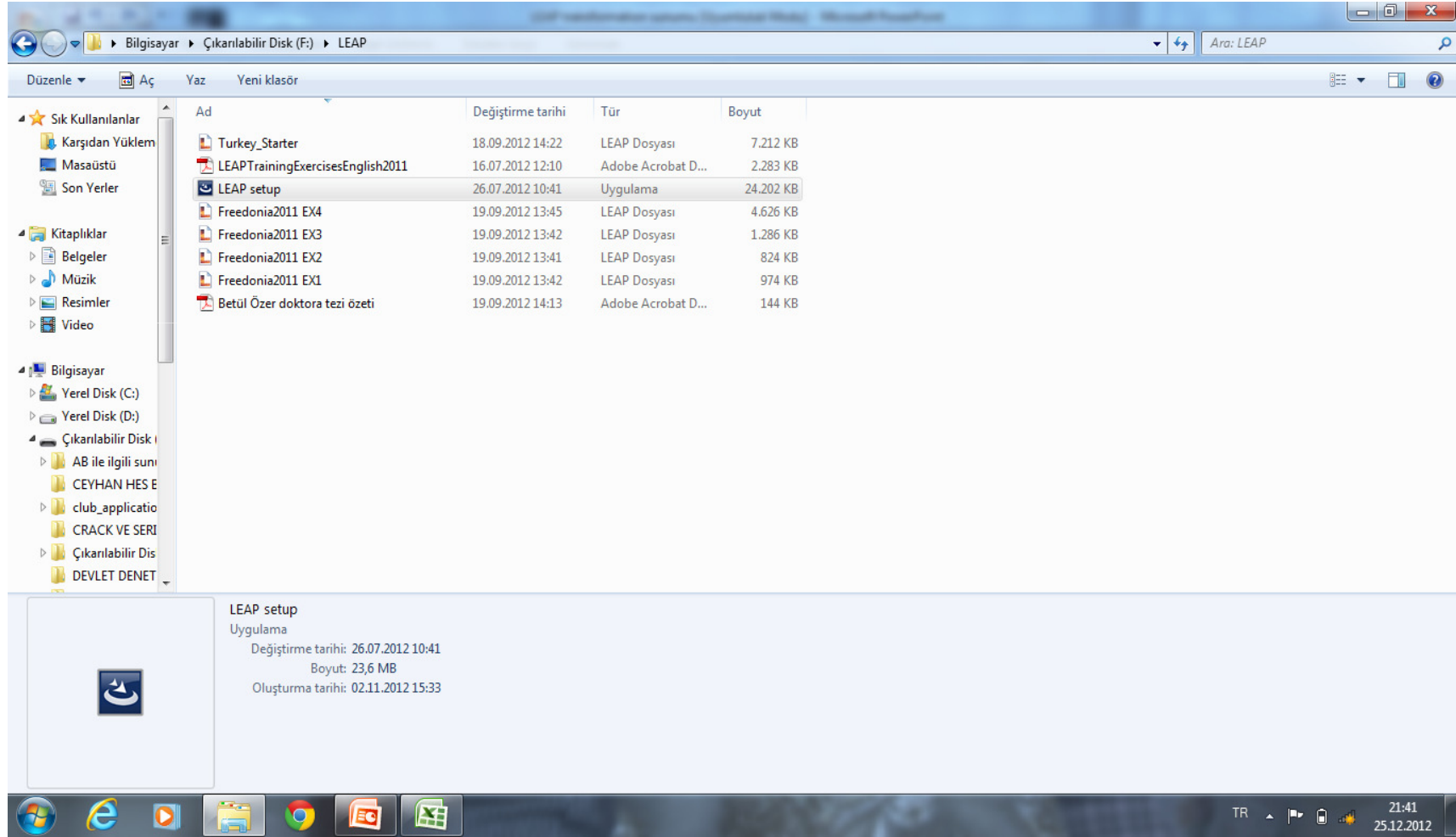
LEAP(Long-Range Energy Alternatives Planning System) Kullanımı

Enerji İşleri Genel Müdürlüğü
Sözleşmeler Daire Başkanlığı

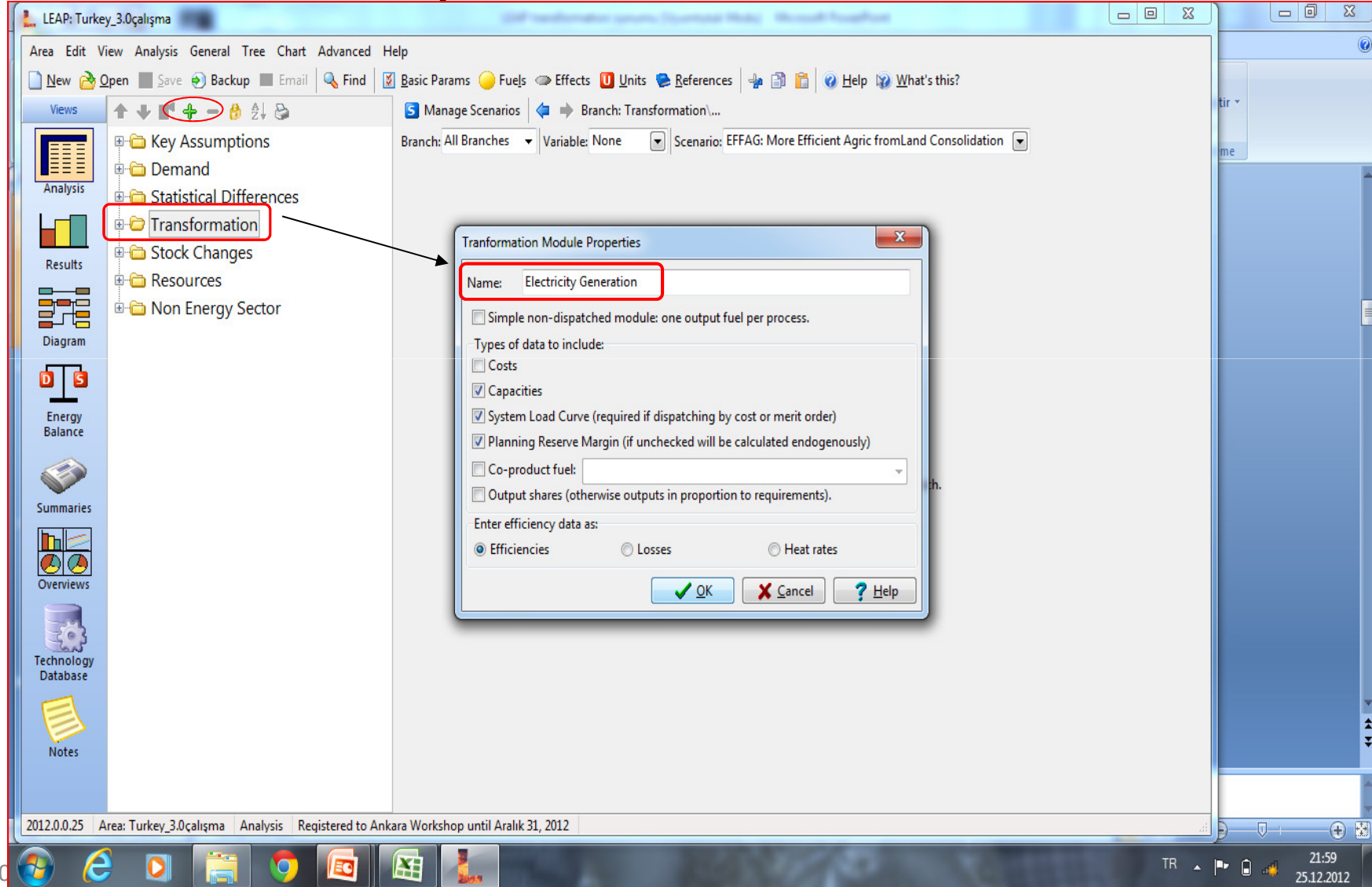
Adımlar

- Leap programını kurun,
- Programa çift tıklayarak girin,
- Help tuşundan kayıt yapın,
- Kullanım

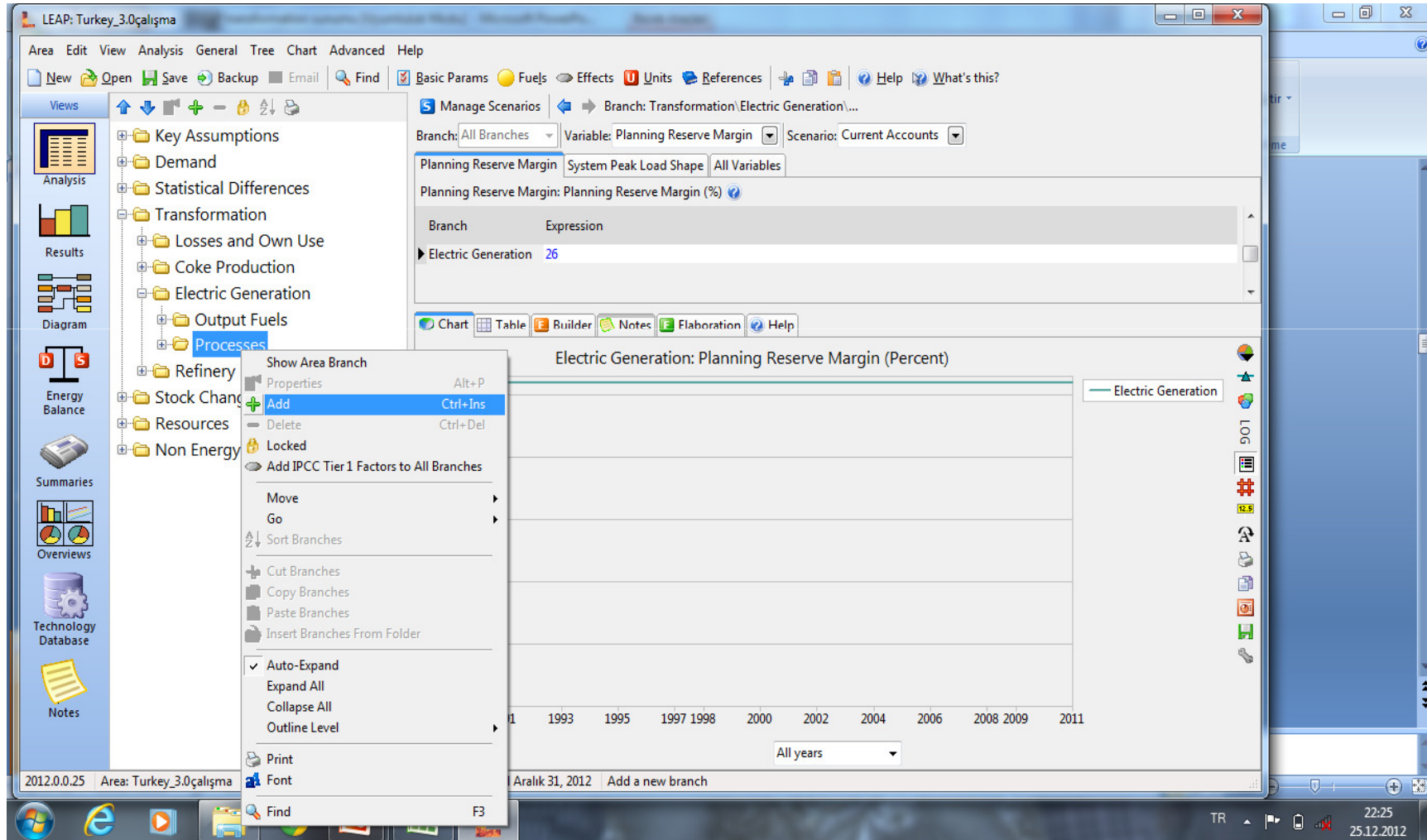
LEAP programını kurun



Transformation altına (+) ya da Add olarak Electricity Generation ilave edilir.



Aynı şekilde Electricity Generation altına Processes girilir.

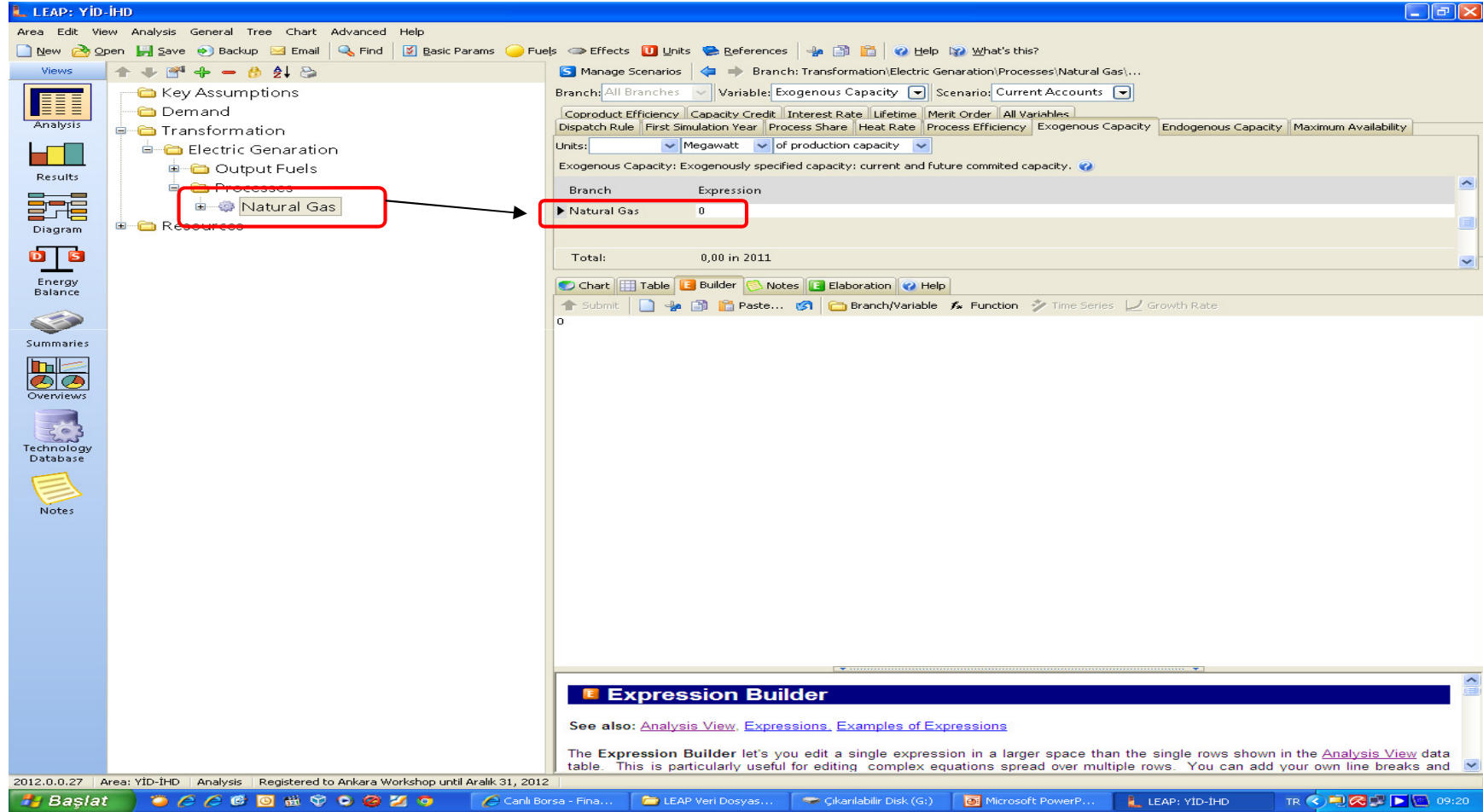


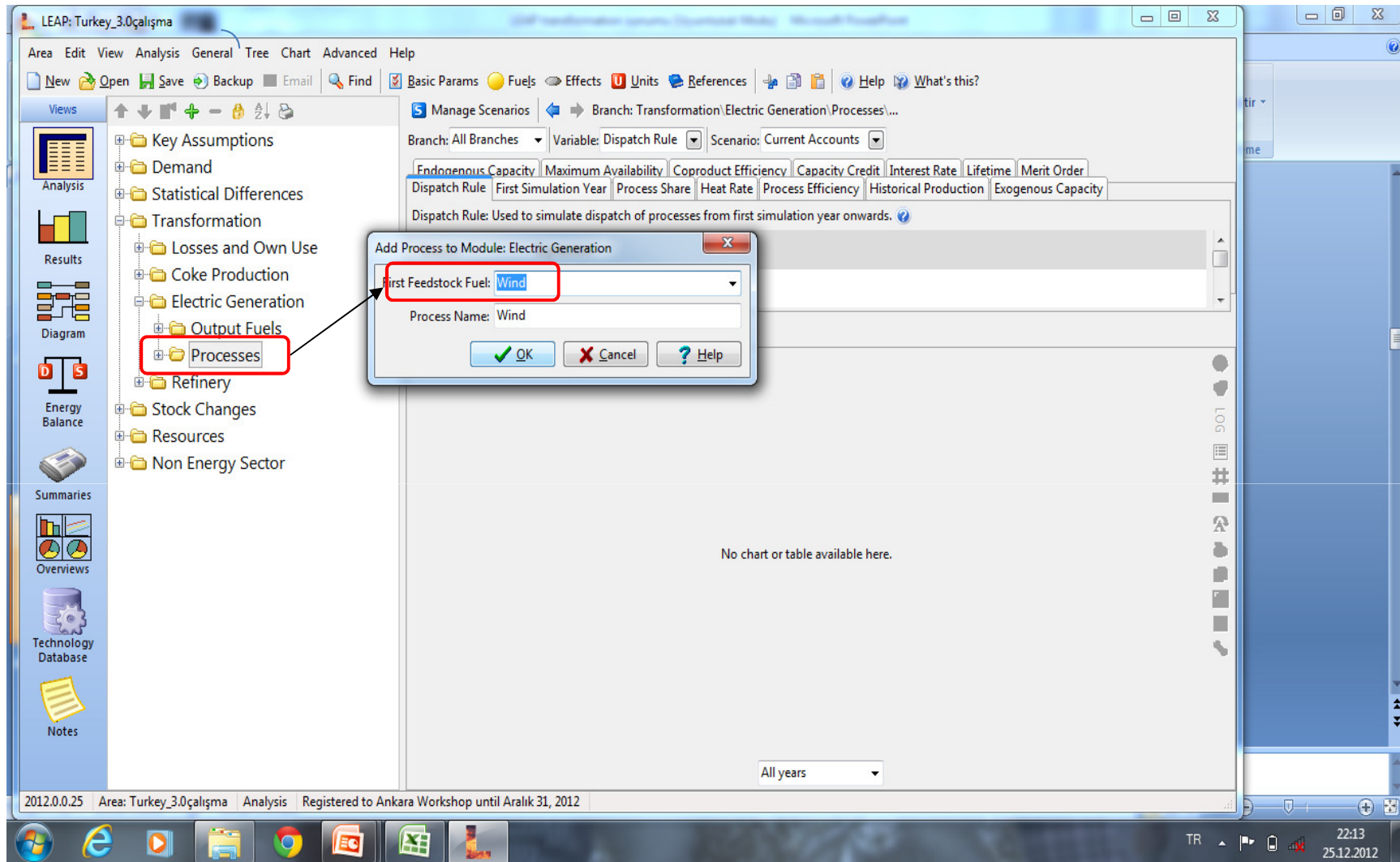
Aynı şekilde Processes altına Natural Gas, Coal, Wind ve Hydro girilir.

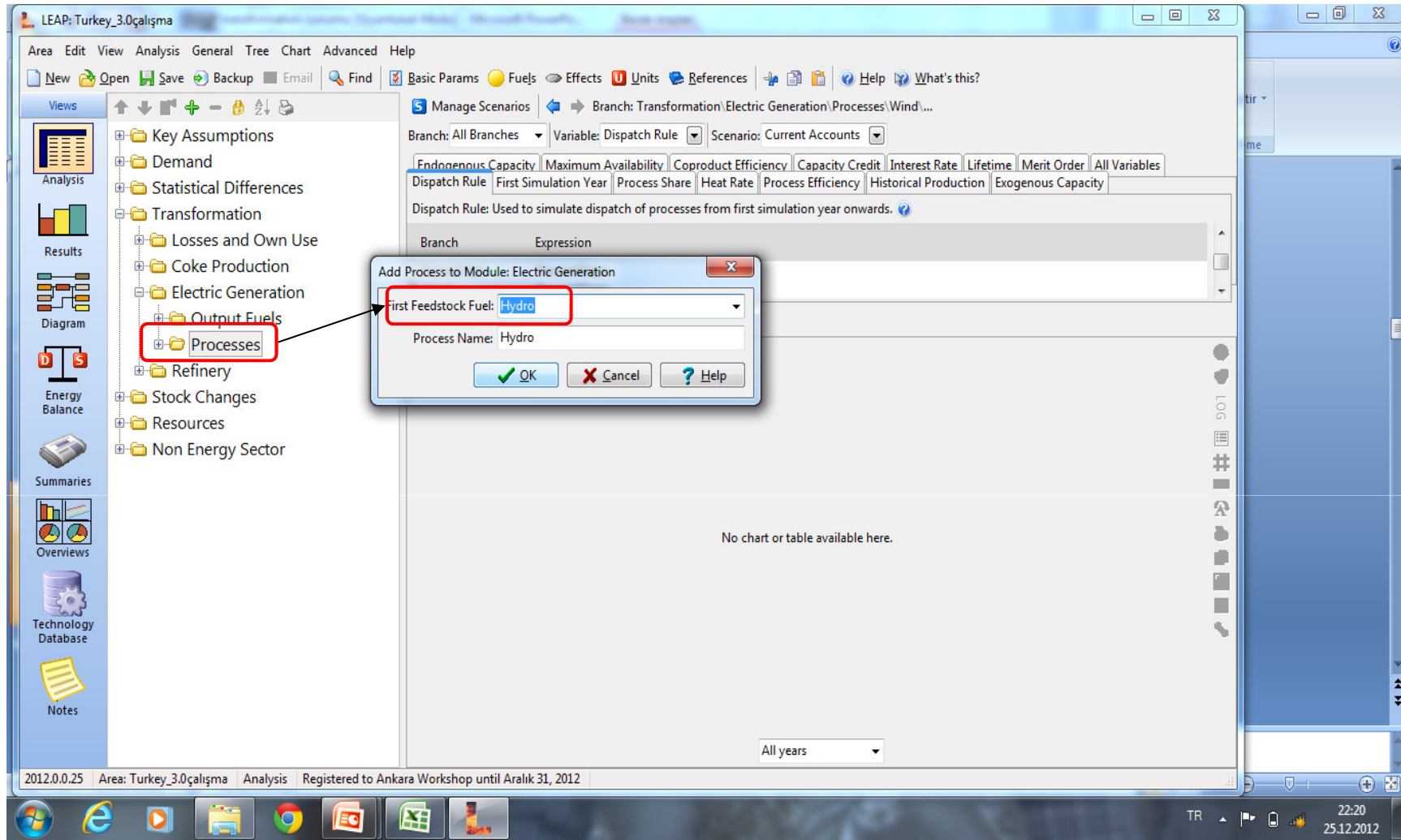
The screenshot displays the LEAP software interface for 'Turkey_3.0çalışma'. The left sidebar shows a tree view with folders like 'Key Assumptions', 'Demand', 'Statistical Differences', 'Transformation', 'Losses and Own Use', 'Coke Production', 'Electric Generation', 'Output Fuels', 'Processes', 'Refinery', 'Stock Changes', 'Resources', and 'Non Energy Sector'. The 'Processes' folder under 'Electric Generation' is highlighted with a red box. A dialog box titled 'Add Process to Module: Electric Generation' is open, showing 'First Feedstock Fuel' as 'Natural Gas' and 'Process Name' as 'Natural Gas'. The main window shows a table of 'Maximum Availability' for various fuels, including 'Natural Gas' with a value of 77.4. The bottom of the interface shows a chart titled 'Fuel Oil: Maximum Availability (Percent)' with a legend for years 1990, 2000, and 2010.

Branch	01-11 Max Avail (%)	Expression
Fuel Oil	62,6	75
Diesel Oil	149,0	75
Naphtha	291,5	75
LPG	77,4	75
Natural Gas	77,4	75
Hydro		
Coal		
Lignite		
Biogas and Waste		
Wind		
Solar		
Geothermal		
Nuclear	0,0	90

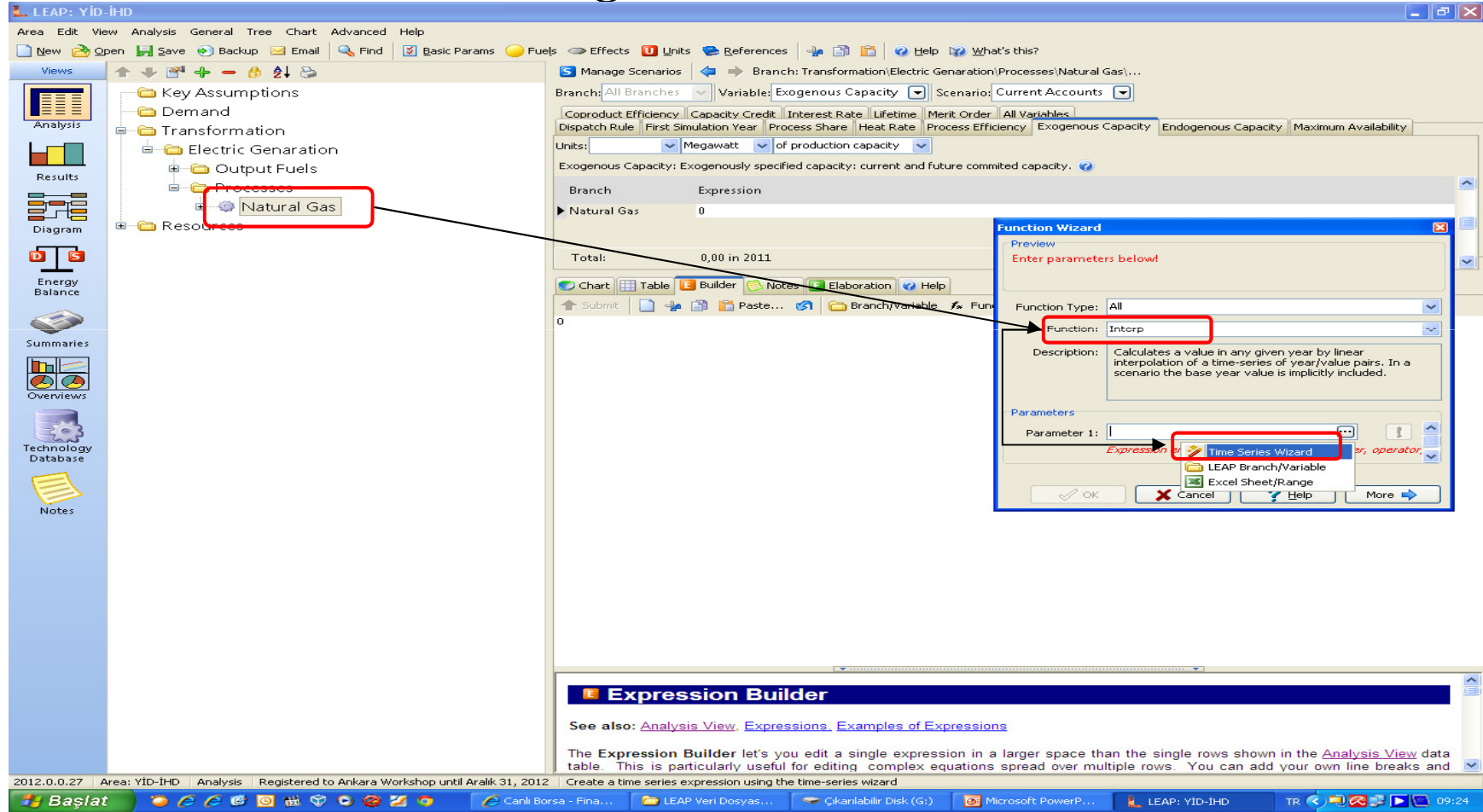
Yakıt tipleri ve kullanılacak birimler belirlenir.



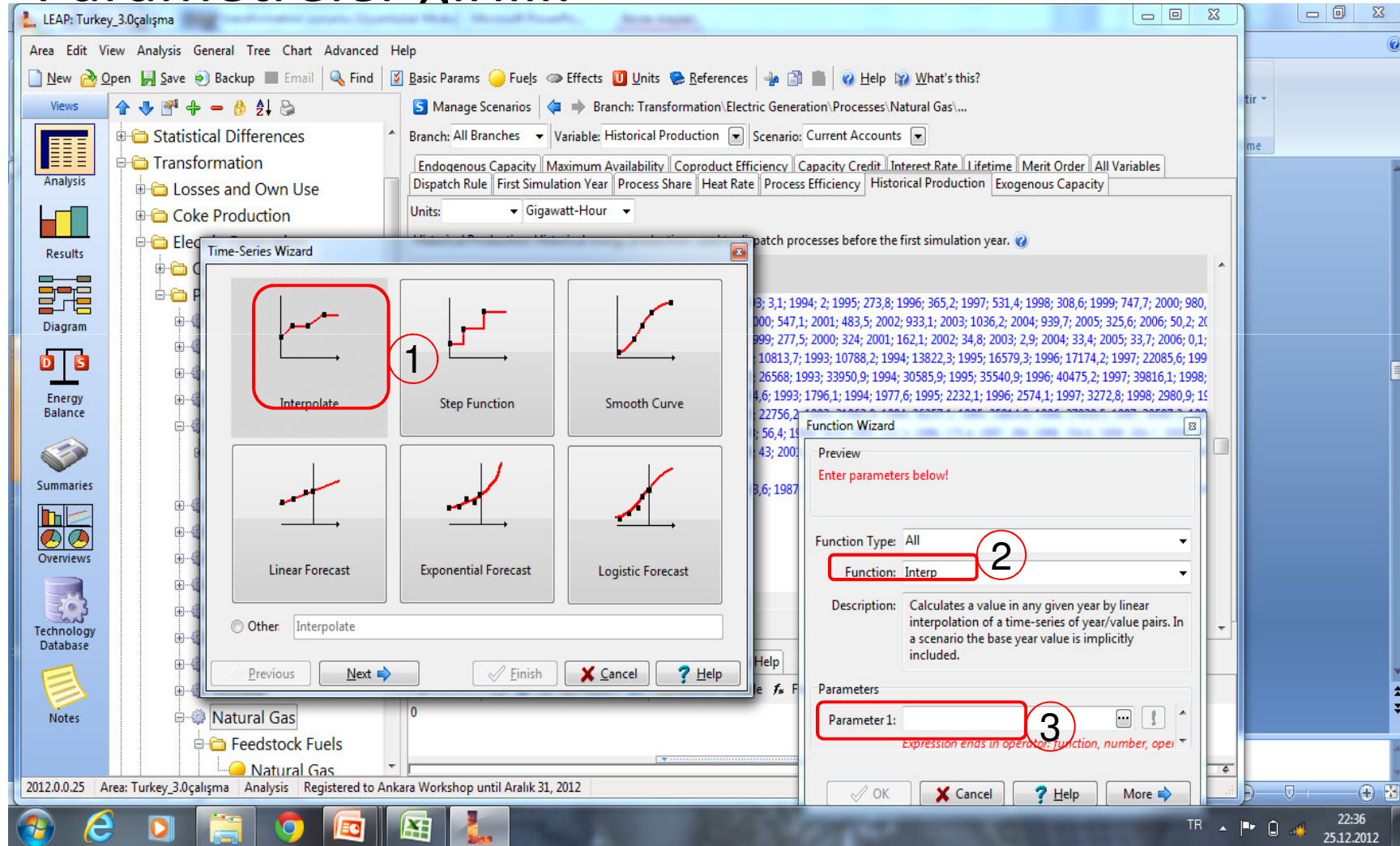


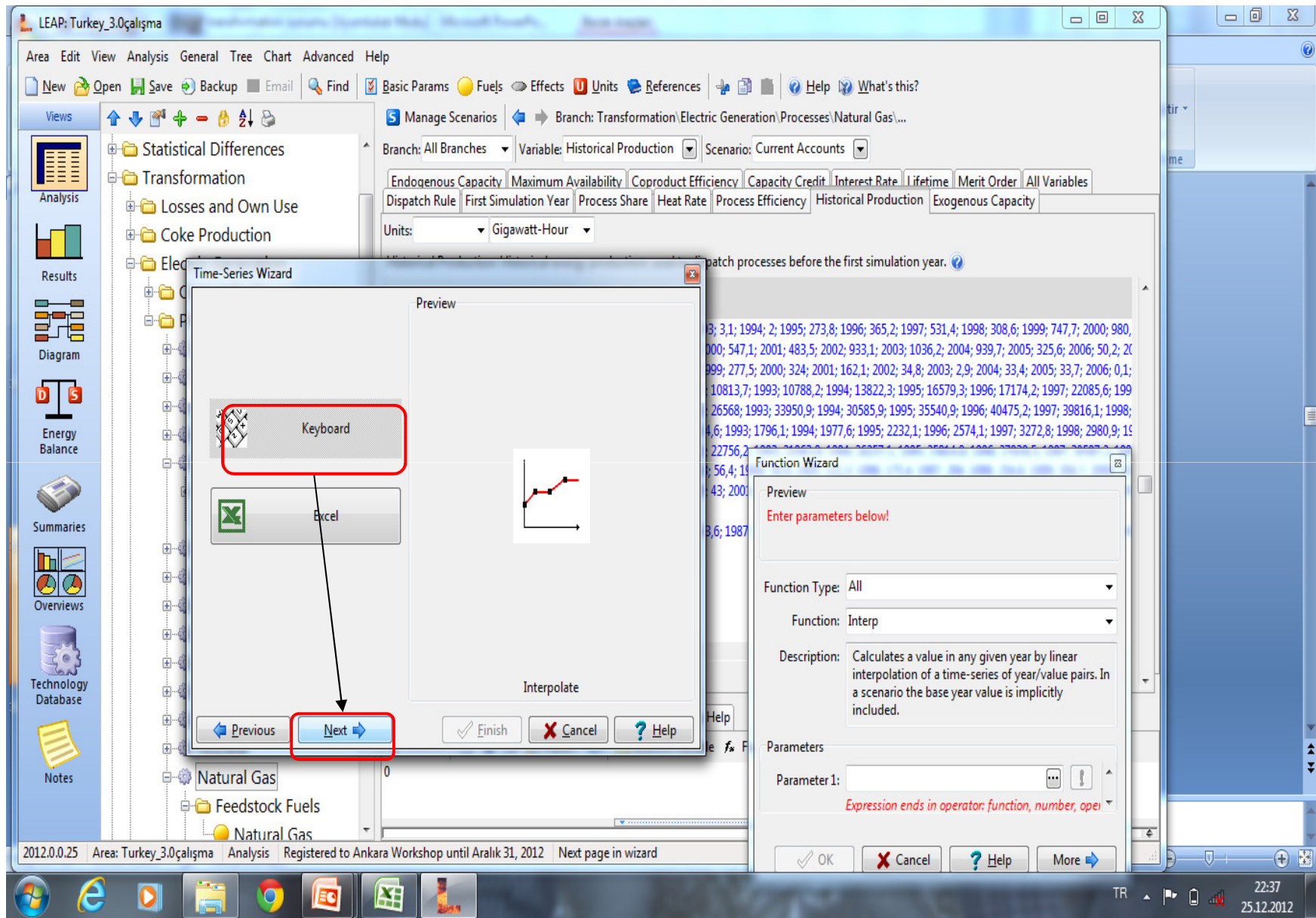


fx function tuşu ile Interp girilir. Time Series Wizard seçilerek yıllara bağlı kapasiteler elle girilebilir.



Ya da Time Series Wizard seçilerek buradan Interpolate seçilir.Next ile işleme devam edilir. Parametreler girilir.





Tarih ve o tarihteki kapasiteler karşlarına girilir.

The screenshot displays the LEAP: YID-IHD software interface. The main window shows a tree view on the left with categories like Key Assumptions, Demand, Transformation, Electric Generation, Output Fuels, Processes, Natural Gas, and Resources. The central pane shows the 'Exogenous Capacity' variable for 'Natural Gas' with a value of 0.00 in 2011. The 'Function Wizard' dialog box is open, showing the 'Interp' function type. The 'Time-Series Wizard' dialog box is also open, showing a table with columns 'Year' and 'Value'. The 'Year' column has a value of 1989, and the 'Value' column has a value of 0.00. The 'Time-Series Wizard' dialog box is highlighted with a red circle. The 'Expression' pane at the bottom shows the function 'Interp(2011; 0)'.

LEAP: YID-IHD

Area Edit View Analysis General Tree Chart Advanced Help

New Open Save Backup Email Find Basic Params FUELS Effects Units References Help What's this?

Views

- Analysis
- Results
- Diagram
- Energy Balance
- Summaries
- Overviews
- Technology Database
- Notes

Key Assumptions

- Demand
- Transformation
 - Electric Generation
 - Output Fuels
 - Processes
 - Natural Gas
- Resources

Branch: Transformation\Electric Generation\Processes\Natural Gas\...

Branch: All Branches Variable: Exogenous Capacity Scenario: Current Accounts

Coproduct Efficiency Capacity Credit Interest Rate Lifetime Merit Order All Variables

Dispatch Rule First Simulation Year Process Share Heat Rate Process Efficiency Exogenous Capacity Endogenous Capacity Maximum Availability

Units: Megawatt of production capacity

Exogenous Capacity: Exogenously specified capacity: current and future committed capacity.

Branch Expression

► Natural Gas 0

Total: 0,00 in 2011

Chart Table Builder Notes Elaboration Help

Submit Paste... Branch/Variable Function

Function Wizard

Preview

Enter parameters below!

Function Type: All

Function: Interp

Description: Calculates a value in any given year by linear interpolation of a time-series of year/value pairs. In a scenario the base year value is implicitly included.

Parameters

Parameter 1:

Time-Series Wizard

Add Delete +0.00 -0.00

Year	Value
1989	0,00

Preview

Allow dragging of values

Values

0

2010 2015 2020 2025 2030 2035 2040

Years

Function

Interp(2011; 0)

Growth after last year: 0,0 %

Previous Next Finish Cancel Help

Expression

See also: Analysis View.

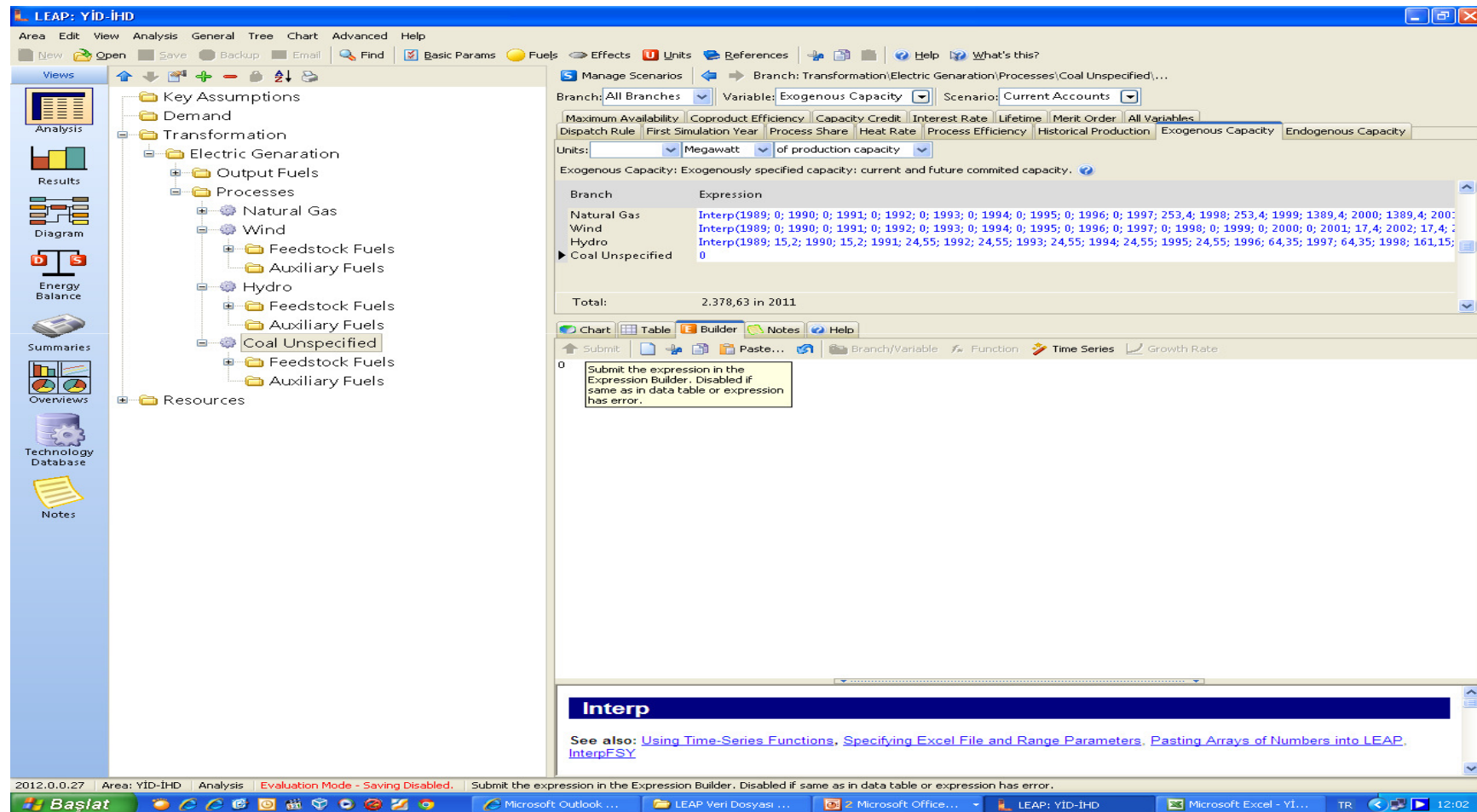
The Expression Builder

2012.0.0.27 Area: YID-IHD Analysis Registered to Ankara Workshop until Aralık 31, 2012

Başlat

Canlı Borsa - Fina... LEAP Veri Dosyas... Çıkarılabilir Disk (G:) Microsoft PowerP... LEAP: YID-IHD TR 09:25

Ya da Excel'de hazırladığımız tablodan Leap'e aktarma yapabiliriz.



Tablodan yıllara ait kapasiteler kopyala tuşu ile Leap'te aktarmak istediğimiz yere aşağıdaki şekilde taşınır

Microsoft Excel - YİD İHD Yİ veri tablosu.xls

Yardımlar için soru yazın

Office Live'a git | Aç | Kaydet

F37 Kömür

	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
3	Birim																
4	milyon kWh																
5		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
6	GWh													620,00	620,00	620,00	620,00
7																	
8																	
9	GWh											478	478	478	478	478	478
10	GWh											478	478	478	478	478	478
11	GWh											180	180	180	180	180	180
12	GWh									253,4	253,4	253,4	253,4	253,4	253,4	253,4	253,4
13																	
14	GWh								19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8	19,8
15	GWh								10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00
16	GWh											2,1	2,1	2,1	2,1	2,1	2,1
17	GWh											2,5	2,5	2,5	2,5	2,5	2,5
18	GWh	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20	15,20
19	GWh										10	10	10	10	10	10	10
20	GWh													2,2	2,2	2,2	2,2
21	GWh													3	3	3	3
22	GWh											16,5	16,5	16,5	16,5	16,5	16,5
23	GWh													11,58	11,58	11,58	11,58
24	GWh										10,60	10,60	10,60	10,60	10,60	10,60	10,60
25	GWh			9,35	9,35	9,35	9,35				9,35	9,35	9,35	9,35	9,35	9,35	9,35
26	GWh											7	7	7	7	7	7
27	GWh										2,2	2,2	2,2	2,2	2,2	2,2	2,2
28	GWh											12,5	12,5	12,5	12,5	12,5	12,5
29	GWh													0,00	11,1	11,1	11,1
30	GWh										84	84	84	84	84	84	84
31	GWh																
32	GWh													672	672	672	672
33																	
34	GWh													7,2	7,2	7,2	7,2
35	GWh													10,2	10,2	10,2	10,2
36																	
37	Kömür	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
38		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	620,00	620,00	620,00	620,00
39																	
40	Doğalgaz	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
41		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	253,40	253,40	1.389,40	1.389,40	1.389,40	1.389,40	1.389,40	1.389,40
42																	1.
43	Hidrolik	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
44		15,20	15,20	24,55	24,55	24,55	24,55	24,55	64,35	64,35	161,15	178,25	201,75	890,53	901,63	901,63	901,63
45																	1.
46	RES	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
47		0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	17,40	17,40	17,40	17,40
48																	
49																	

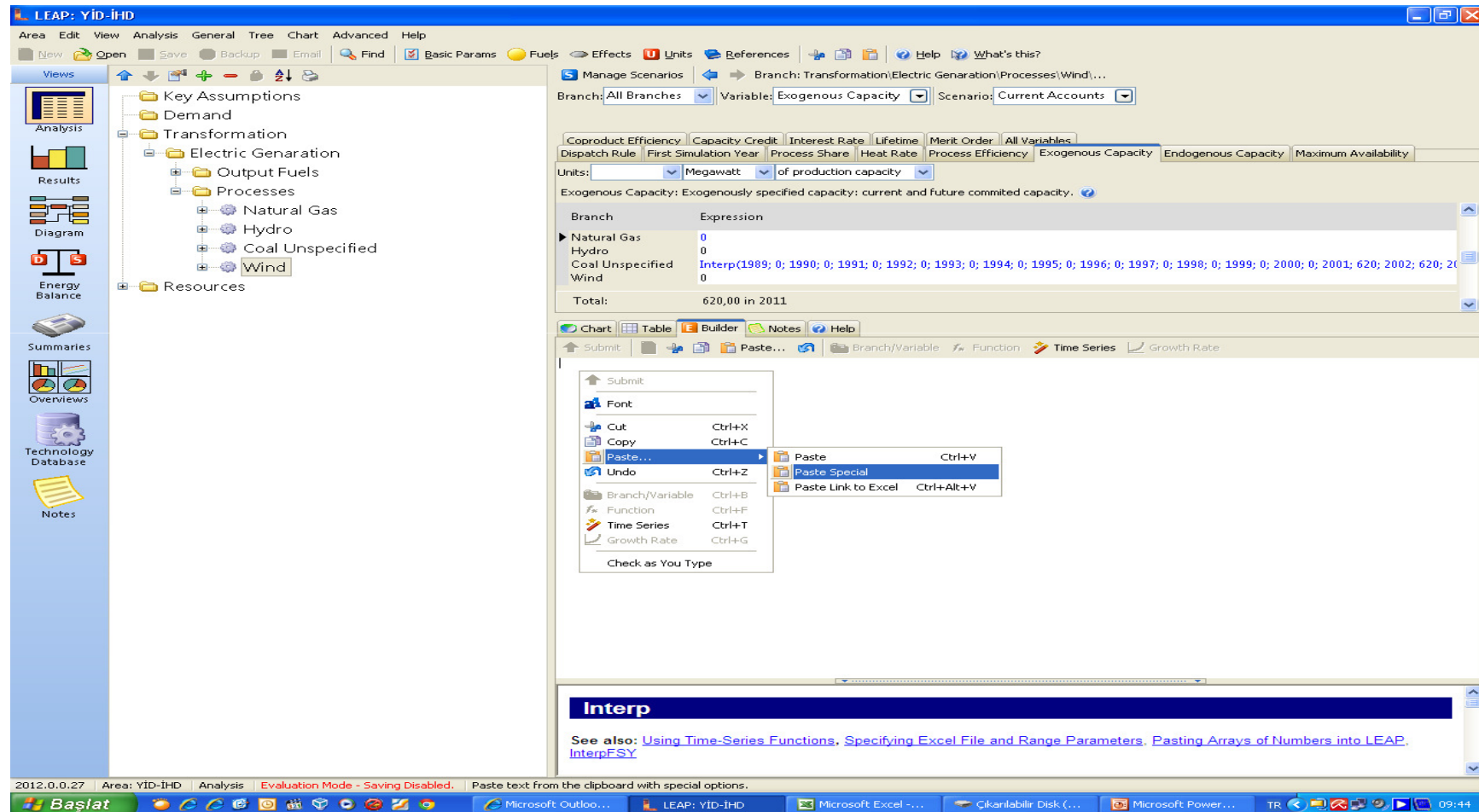
Hazır

Toplam=26555 SAYI

Başlat

Microsoft Outlook ... LEAP Veri Dosyası ... 2 Microsoft Office ... LEAP: YİD-İHD Microsoft Excel - Yİ... TR 12:03

Paste Special seçilerek yapıştırılır.





Submit tuşu ile aktarılır.

The screenshot displays the LEAP: YİD-İHD software interface. The left sidebar contains various icons for Analysis, Results, Diagram, Energy Balance, Summaries, Overviews, Technology Database, and Notes. The main window is divided into several sections. The top section shows a tree view of the model structure, including Key Assumptions, Demand, Transformation, Electric Generation, Output Fuels, Processes, Natural Gas, Hydro, Coal Unspecified, Wind, and Resources. The right section contains a table of variables and their expressions. The 'Builder' tab is active, showing a 'Submit' button and a list of variables. The 'Submit' button is highlighted with a red box. The 'Builder' tab also shows a list of variables and their expressions, including 'Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 0; 1998; 0; 1999; 0; 2000; 0; 2001; 620; 2002; 620; 2003; 620; 2004; 620; 2005; 620; 2006; 620; 2007; 620; 2008; 620; 2009; 620; 2010; 620; 2011; 620)'. The bottom status bar shows the date 2012.0.0.27, the area YİD-İHD, and the mode Evaluation Mode - Saving Disabled.

LEAP: YİD-İHD

Area Edit View Analysis General Tree Chart Advanced Help

New Open Save Backup Email Find Basic Params Fuele Effects Units References Help What's this?

Views

Analysis

Results

Diagram

Energy Balance

Summaries

Overviews

Technology Database

Notes

Key Assumptions

Demand

Transformation

Electric Generation

Output Fuels

Processes

Natural Gas

Hydro

Coal Unspecified

Wind

Resources

Branch: All Branches Variable: Exogenous Capacity Scenario: Current Accounts

Coproduct Efficiency Capacity Credit Interest Rate Lifetime Merit Order All Variables

Dispatch Rule First Simulation Year Process Share Heat Rate Process Efficiency Exogenous Capacity Endogenous Capacity Maximum Availability

Units: Megawatt of production capacity

Exogenous Capacity: Exogenously specified capacity: current and future committed capacity.

Branch	Expression
Natural Gas	0
Hydro	0
Coal Unspecified	0
Wind	0
Total:	0,00 in 2011

Chart Table Builder Notes Help

Submit Paste... Branch/Variable Function Time Series Growth Rate

Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 0; 1998; 0; 1999; 0; 2000; 0; 2001; 620; 2002; 620; 2003; 620; 2004; 620; 2005; 620; 2006; 620; 2007; 620; 2008; 620; 2009; 620; 2010; 620; 2011; 620)

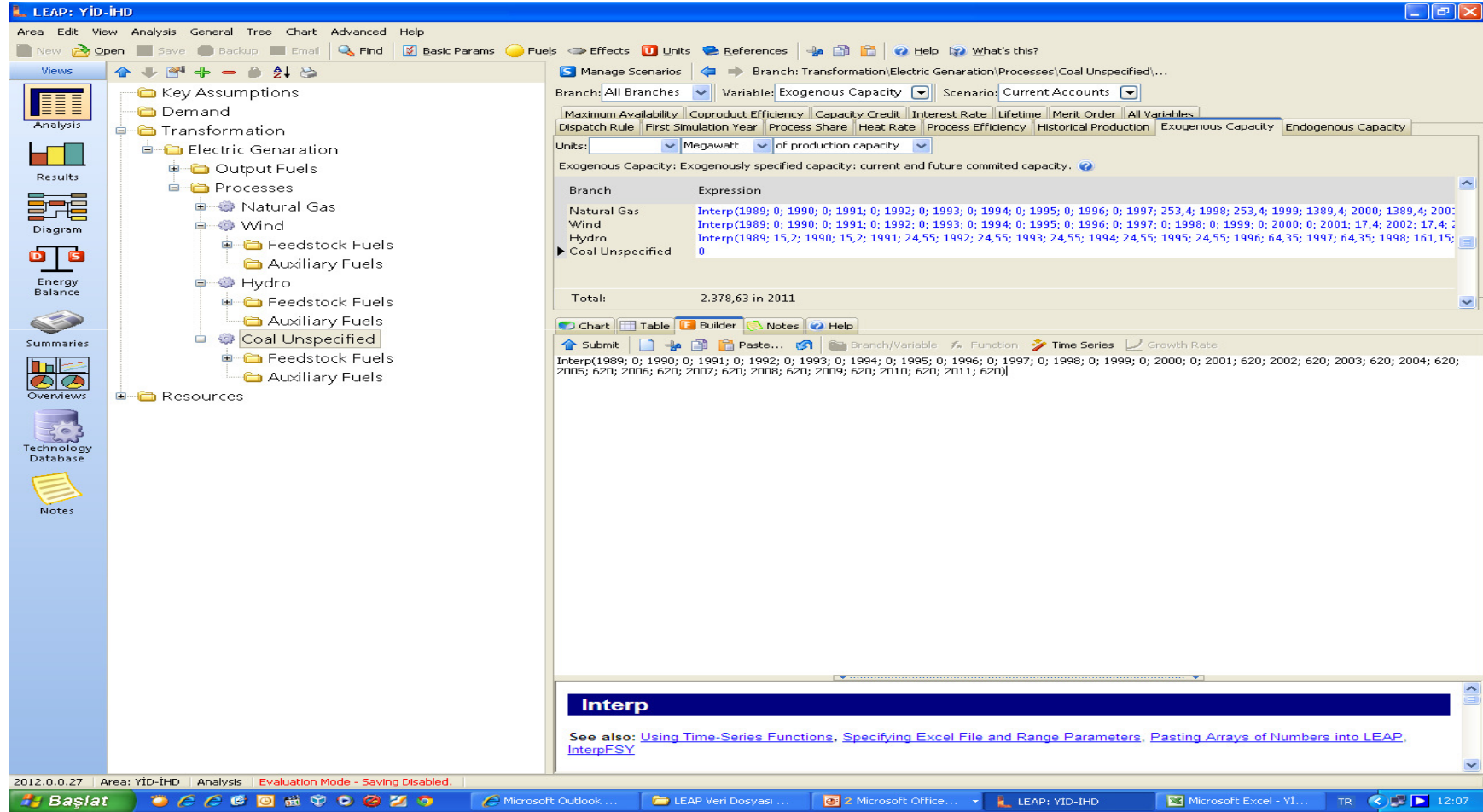
Interp

See also: [Using Time-Series Functions](#), [Specifying Excel File and Range Parameters](#), [Pasting Arrays of Numbers into LEAP](#), [InterpFSY](#)

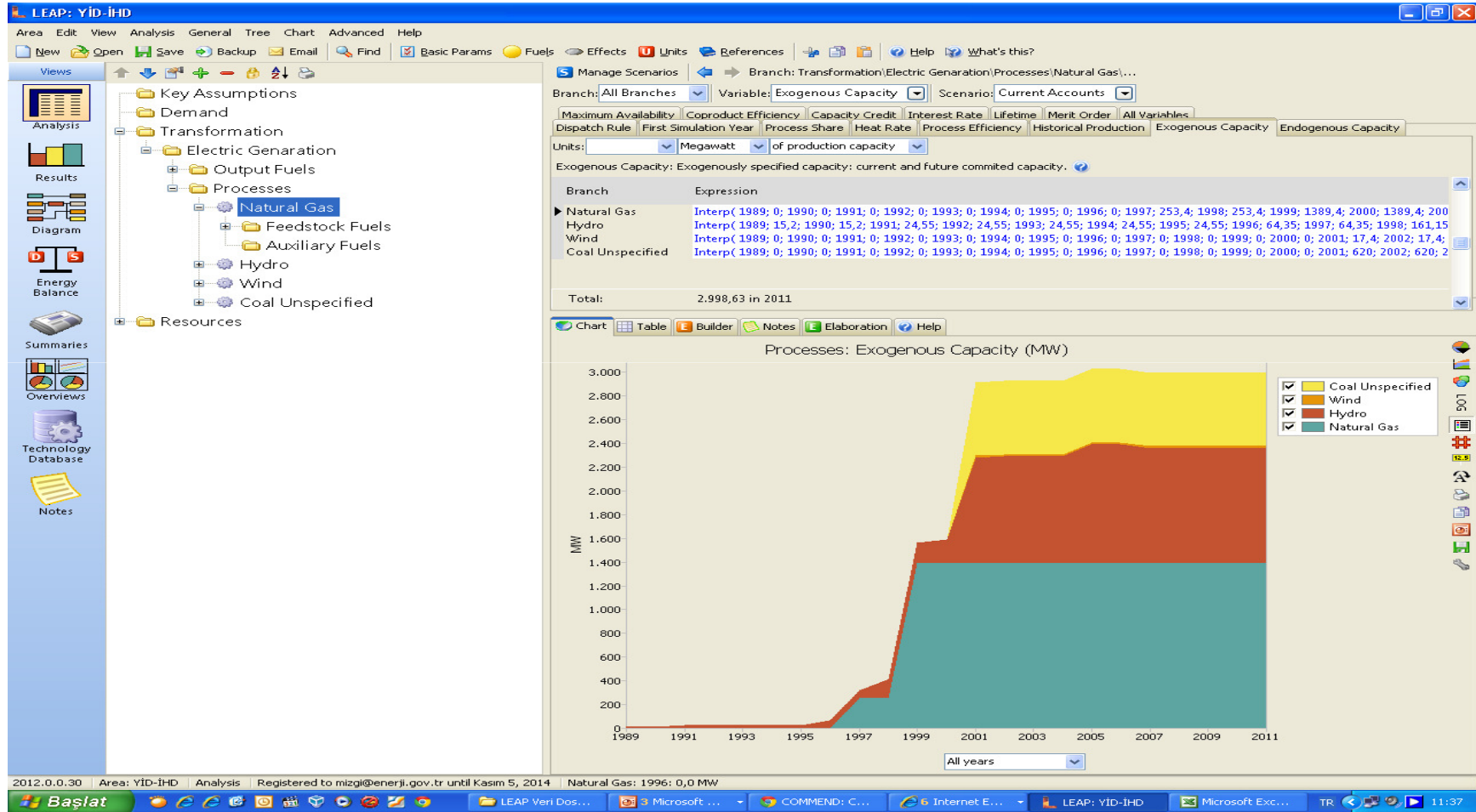
2012.0.0.27 Area: YİD-İHD Analysis Evaluation Mode - Saving Disabled.

Başlat Microsoft Outloo... LEAP: YİD-İHD Microsoft Excel ... Çıkarılabilir Disk (... Microsoft Power... TR 09:40

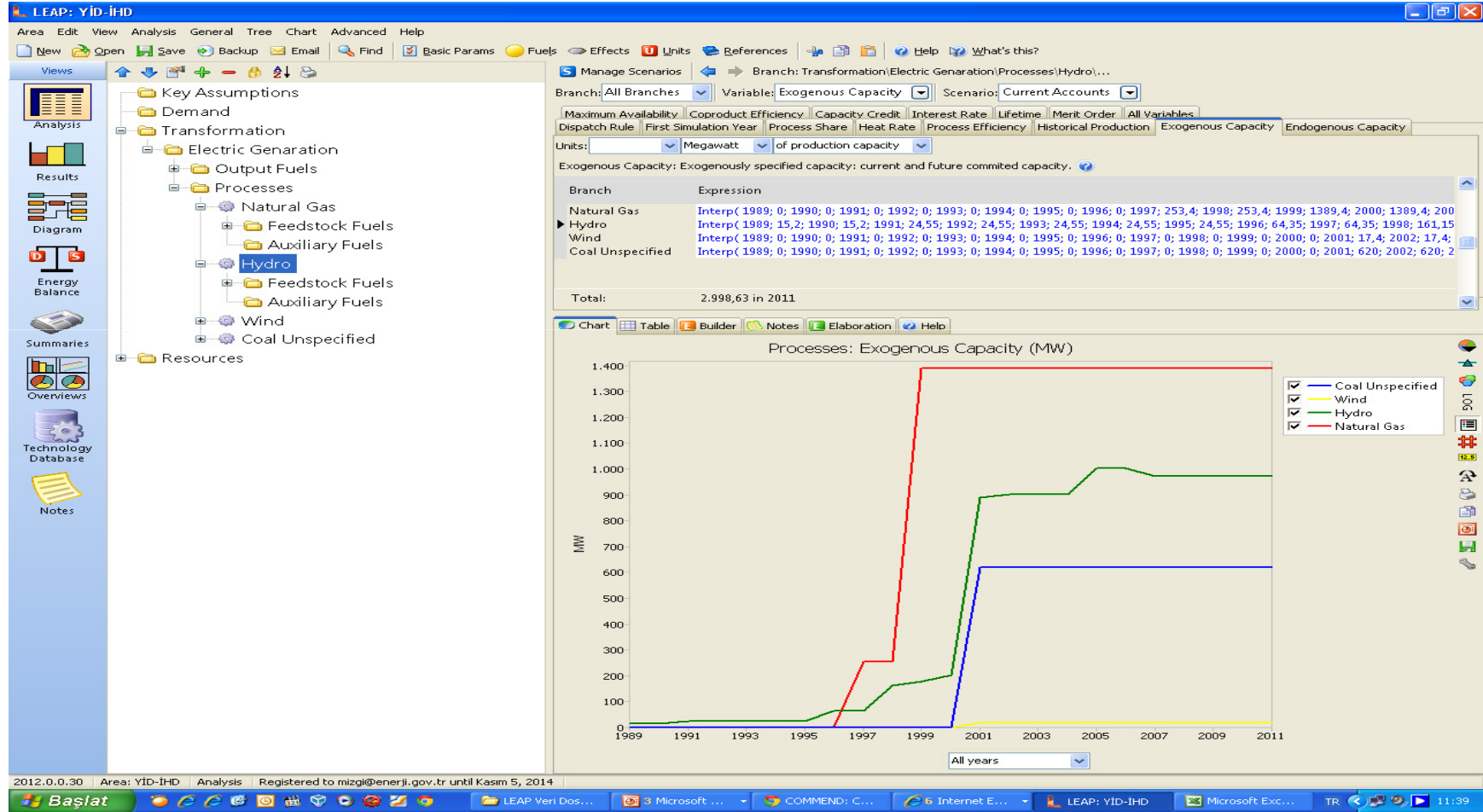
Tüm deęerler girildikten sonra ařaęıdaki gibi grafik deęerleri Chart ile grebiliriz.



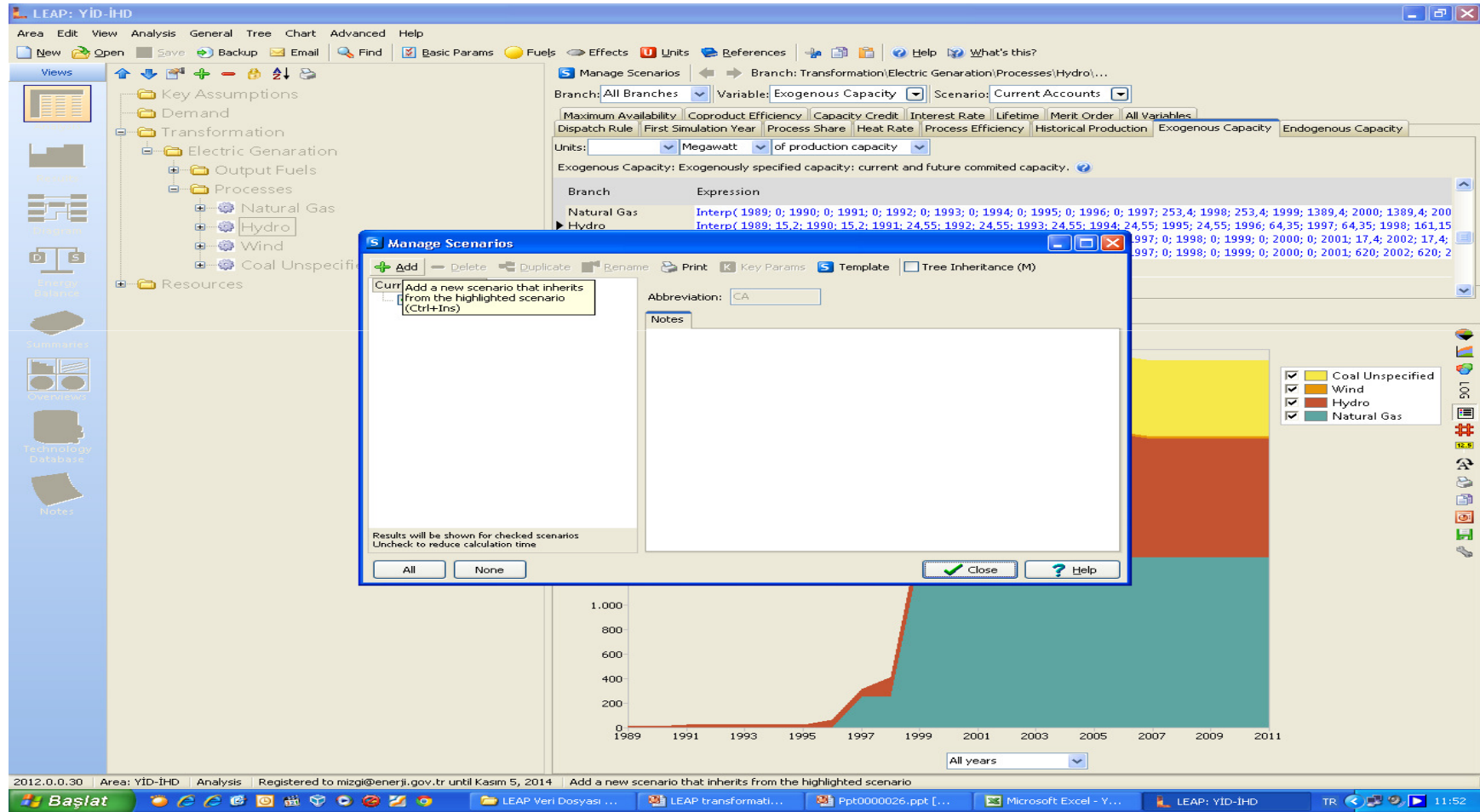
1999 ve 2000 yıllarda YİD –İHD modeli ile yatırımın arttığını görebiliriz.



Bunu çizgisel grafik olarak ta alabiliriz.



YİD ve İHD 2012 yılı sonrasında nasıl bir eğilimde bulunacaktır?



Current Accounts altında yeni bir senaryo ilave edebiliriz.

The screenshot displays the LEAP software interface. The 'Manage Scenarios' dialog box is open, showing a list of scenarios under the 'Current Accounts' category. A new scenario, 'YİD ve İHD', is being added, as indicated by the red circle around the 'Name' field in the 'Add Scenario Under "Current..."' sub-dialog. The main window shows a tree view of the model structure, including 'Key Assumptions', 'Demand', 'Transformation', 'Electric Generation', 'Output Fuels', 'Processes', 'Natural Gas', 'Hydro', 'Wind', 'Coal Unspecified', and 'Resources'. A chart at the bottom shows the capacity of these resources over time from 1989 to 2011. The chart includes a legend for 'Coal Unspecified', 'Wind', 'Hydro', and 'Natural Gas'. The 'Hydro' resource shows a significant increase in capacity starting around 1995, reaching over 1000 units by 2011. The 'Natural Gas' resource also shows a sharp increase starting around 1995, reaching over 800 units by 2011. The 'Coal Unspecified' and 'Wind' resources show much lower capacity levels.

LEAP: YİD-İHD

Area Edit View Analysis General Tree Chart Advanced Help

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

Views

Key Assumptions

Demand

Transformation

Electric Generation

Output Fuels

Processes

Natural Gas

Hydro

Wind

Coal Unspecified

Resources

Manage Scenarios

Branch: Transformation\Electric Generation\Processes\Hydro\...

Branch: All Branches Variable: Exogenous Capacity Scenario: Current Accounts

Maximum Availability Coproduct Efficiency Capacity Credit Interest Rate Lifetime Merit Order All Variables

Dispatch Rule First Simulation Year Process Share Heat Rate Process Efficiency Historical Production Exogenous Capacity Endogenous Capacity

Units: Megawatt of production capacity

Exogenous Capacity: Exogenously specified capacity: current and future committed capacity.

Branch Expression

Natural Gas Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 253,4; 1998; 253,4; 1999; 1389,4; 2000; 1389,4; 2001; 1389,4; 2002; 1389,4; 2003; 1389,4; 2004; 1389,4; 2005; 1389,4; 2006; 1389,4; 2007; 1389,4; 2008; 1389,4; 2009; 1389,4; 2010; 1389,4; 2011; 1389,4)

Hydro Interp(1989; 15,2; 1990; 15,2; 1991; 24,55; 1992; 24,55; 1993; 24,55; 1994; 24,55; 1995; 24,55; 1996; 24,55; 1997; 24,55; 1998; 24,55; 1999; 24,55; 2000; 24,55; 2001; 24,55; 2002; 24,55; 2003; 24,55; 2004; 24,55; 2005; 24,55; 2006; 24,55; 2007; 24,55; 2008; 24,55; 2009; 24,55; 2010; 24,55; 2011; 24,55)

Manage Scenarios

Add Delete Duplicate Rename Print Key Params Template Tree Inheritance (M)

Current Accounts

EFF: Efficiency

Abbreviation: CA

Notes

Add Scenario Under "Current..."

Name: YİD ve İHD

OK Cancel

Results will be shown for checked scenarios
Uncheck to reduce calculation time

All None

Close Help

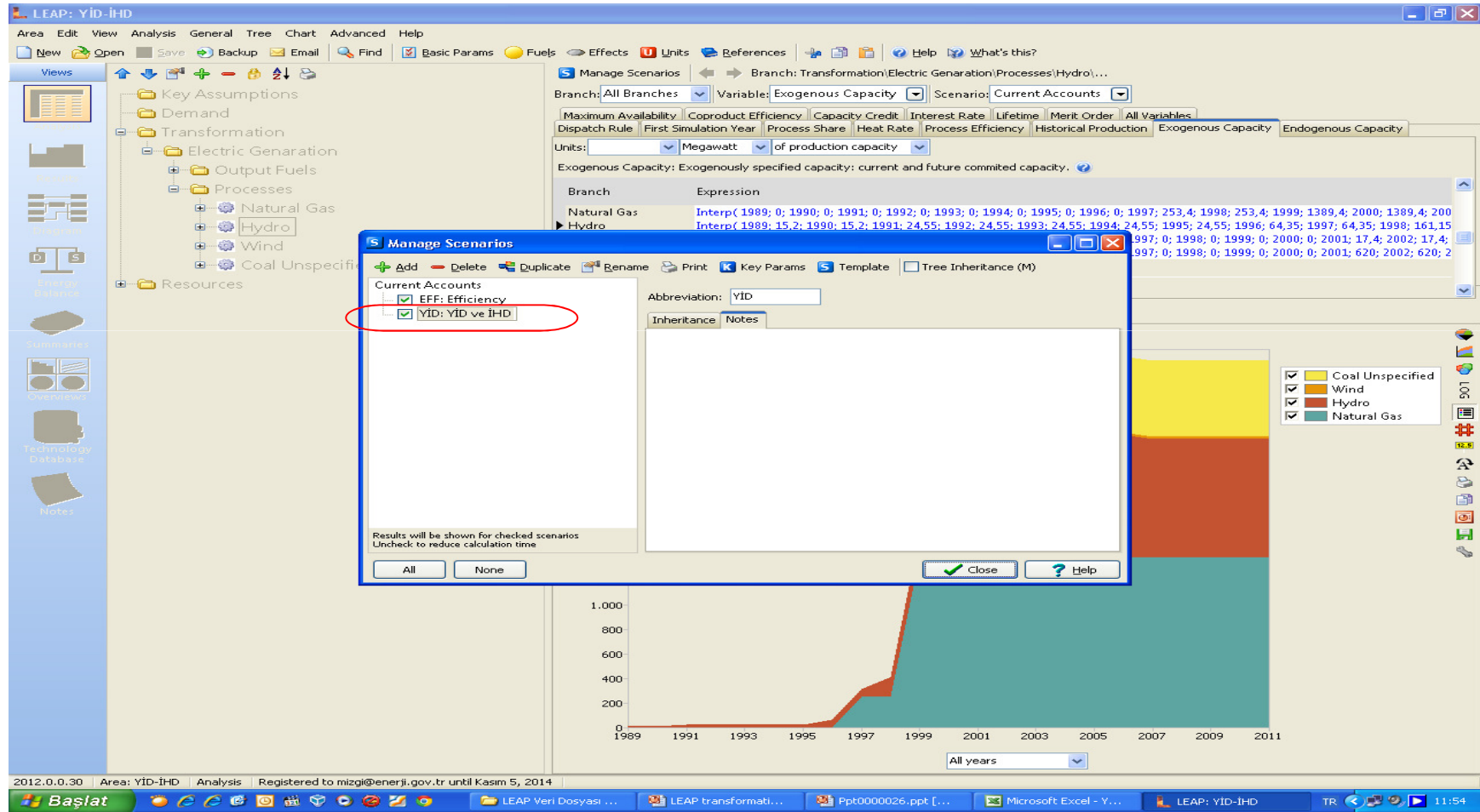
1.000
800
600
400
200
0

1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011

All years

2012.0.0.30 Area: YİD-İHD Analysis Registered to mizgi@enerji.gov.tr until Kasım 5, 2014

Başlat LEAP Veri Dosyası ... LEAP transformati... Ppt0000026.ppt ... Microsoft Excel - Y... LEAP: YİD-İHD TR 11:53



Senaryomuzu oluřturduktan sonra Expression kısmına gelecekte deęerlerimiz nasıl deęiřecek onu girebiliriz.

The screenshot displays the LEAP: YİD-IHD software interface. The left sidebar contains various icons for Analysis, Results, Diagram, Energy Balance, Summaries, Overviews, Technology Database, and Notes. The main window is divided into several panes. The top pane shows a tree view of the model structure, including Key Assumptions, Demand, Transformation, Electric Generation, Output Fuels, Processes, Natural Gas, Feedstock Fuels, Auxiliary Fuels, Hydro, Wind, Coal Unspecified, and Resources. The middle pane shows the 'Exogenous Capacity' settings for 'Natural Gas', with a table of values and expressions for different years. The bottom pane is the 'Expression Builder' window, which allows users to edit expressions for variables. The status bar at the bottom shows the date and time, and the taskbar at the very bottom displays various open applications.

LEAP: YİD-IHD

Area Edit View Analysis General Tree Chart Advanced Help

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

Views

Key Assumptions

Demand

Transformation

Electric Generation

Output Fuels

Processes

Natural Gas

Feedstock Fuels

Auxiliary Fuels

Hydro

Wind

Coal Unspecified

Resources

Manage Scenarios

Branch: Transformation\Electric Generation\Processes\Natural Gas\...

Branch: All Branches Variable: Exogenous Capacity Scenario: YİD: YİD ve İHD

Capacity Credit Merit Order All Variables

Dispatch Rule Process Share Heat Rate Process Efficiency Exogenous Capacity Endogenous Capacity Maximum Availability Coproduct Efficiency

Units: Megawatt of production capacity

Exogenous Capacity: Exogenously specified capacity: current and future committed capacity.

Branch	2011 Value	Expression
Natural Gas	1,389,40	Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 253,4; 1998; 253,4; 1999; 1389,4; 2000; 1389,4; 2001; 1389,4; 2002; 1389,4; 2003; 1389,4; 2004; 1389,4; 2005; 1389,4; 2006; 1389,4; 2007; 1389,4; 2008; 1389,4; 2009; 1389,4; 2010; 1389,4; 2011; 1389,4; 2012; 1136; 2013; 1136; 2014; 0)
Hydro	971,83	Interp(1989; 15,2; 1990; 15,2; 1991; 24,55; 1992; 24,55; 1993; 24,55; 1994; 24,55; 1995; 24,55; 1996; 64,35; 1997; 64,35; 1998; 64,35; 1999; 64,35; 2000; 64,35; 2001; 64,35; 2002; 64,35; 2003; 64,35; 2004; 64,35; 2005; 64,35; 2006; 64,35; 2007; 64,35; 2008; 64,35; 2009; 64,35; 2010; 64,35; 2011; 64,35; 2012; 64,35; 2013; 64,35; 2014; 0)
Wind	17,40	Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 0; 1998; 0; 1999; 0; 2000; 0; 2001; 0; 2002; 0; 2003; 0; 2004; 0; 2005; 0; 2006; 0; 2007; 0; 2008; 0; 2009; 0; 2010; 0; 2011; 0; 2012; 0; 2013; 0; 2014; 0)
Coal Unspecified	620,00	Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 0; 1998; 0; 1999; 0; 2000; 0; 2001; 0; 2002; 0; 2003; 0; 2004; 0; 2005; 0; 2006; 0; 2007; 0; 2008; 0; 2009; 0; 2010; 0; 2011; 0; 2012; 0; 2013; 0; 2014; 0)

Total: 2998,6 15,20 in 2030

Chart Table Builder Notes Elaboration Help

Submit Paste... Branch/Variable Function Time Series Growth Rate

Interp(1989; 0; 1990; 0; 1991; 0; 1992; 0; 1993; 0; 1994; 0; 1995; 0; 1996; 0; 1997; 253,4; 1998; 253,4; 1999; 1389,4; 2000; 1389,4; 2001; 1389,4; 2002; 1389,4; 2003; 1389,4; 2004; 1389,4; 2005; 1389,4; 2006; 1389,4; 2007; 1389,4; 2008; 1389,4; 2009; 1389,4; 2010; 1389,4; 2011; 1389,4; 2012; 1136; 2013; 1136; 2014; 0)

Expression Builder

See also: [Analysis View](#), [Expressions](#), [Examples of Expressions](#)

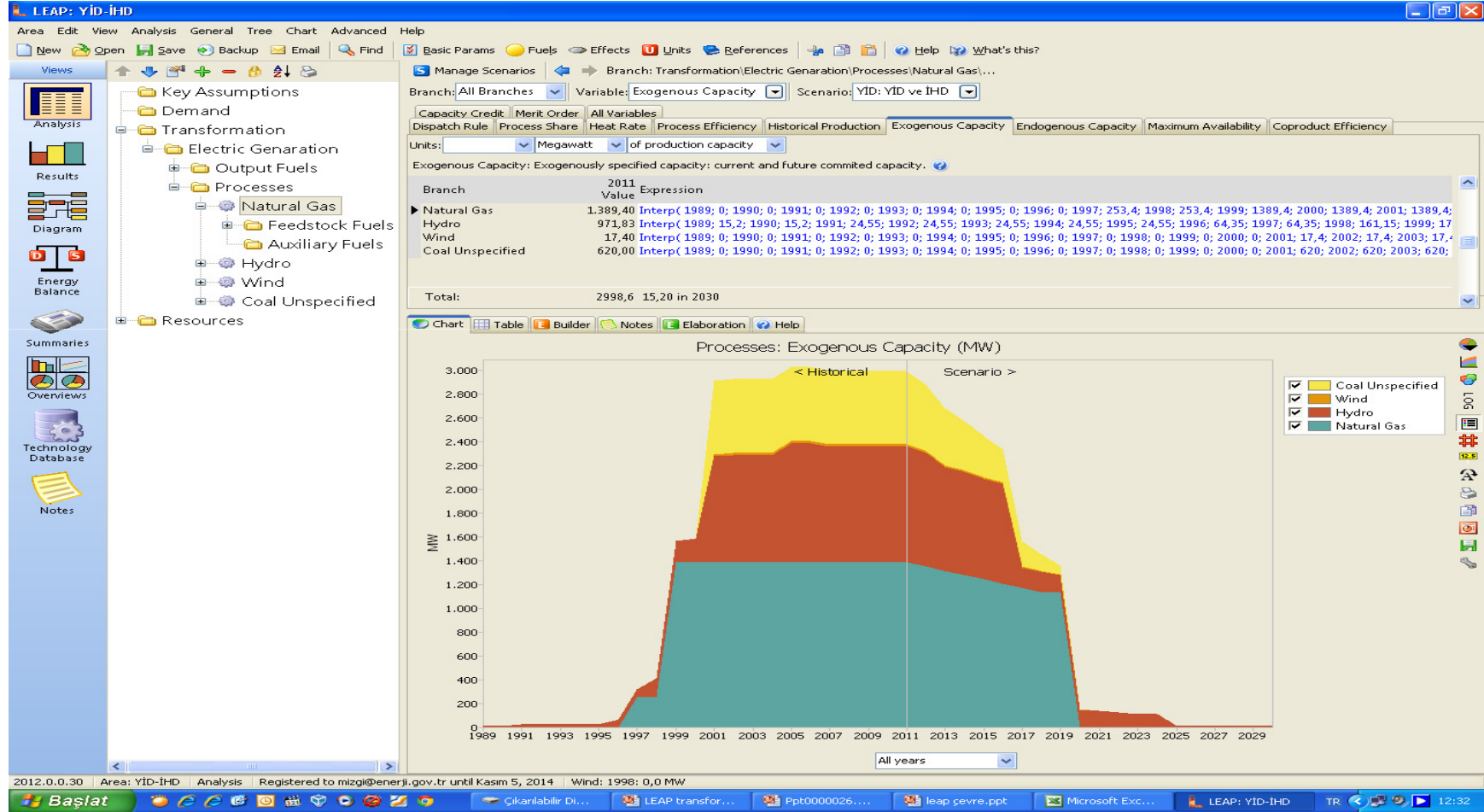
The Expression Builder let's you edit a single expression in a larger space than the single rows shown in the Analysis View data

2012.0.0.30 Area: YİD-IHD Analysis Registered to mizgi@enerji.gov.tr until Kasım 5, 2014

Başlat

Çıkarılabilir Di... LEAP transfor... Ppt0000026... leap çevre.ppt Microsoft Exc... LEAP: YİD-IHD TR 12:31

Bu deęerlerimizi yine hazırladıęımız Excel tablosundan taşıyabiliriz.



Sonuç olarak;

- 2020 yılından sonra bu modelde oluşturulan santrallerden sadece hidrolik olanlar 2039 yılına kadar devam edecek daha sonra EÜAŞ devredilecektir.Grafikte de bunu görmekteyiz.

T e ŝ e k k ü r l e r