APEC
ENERGY STATISTICAL ANALYSIS TOOL 2012

APEC
Asia-Pacific
Economic Cooperation

ENERGY STATISTICAL ANALYSIS TOOL
2012

COORDINATING AGENCY:
THE ENERGY DATA AND MODELLING CENTER
THE INSTITUTE OF ENERGY ECONOMICS, JAPAN

INTRODUCTION

This CD-ROM provides the subset of the "APEC Energy Statistics" by the Energy Working Group, Asia-Pacific Economic Cooperation (APEC) and the data retrieving system.
It contains the energy balance tables and their variations as well as major economic indicators --- GDP, population, etc. from 1980 to 2010.

The data series can be updated easily by connecting to the APEC Energy Database web site through the Internet with this system. You are recommended strongly to use the latest data series.
The "APEC Energy Statistics" online database is available at the web site: http://www.ieej.or.jp/egeda/ while the publication is released by the APEC secretariat (http://www.apec.org/).

SYSTEM REQUIREMENTS

1   Pentium 200MHz class personal computer (Pentium II 400MHz or faster recommended)
2   Microsoft Windows XP, Windows 2000 operating systems or later
3   128 MB of memory (256 MB recommended)
4   Minimum of 50 MB of available hard disk storage space (depending on what is already installed on your PC)
5   Modem or devices for connecting to the internet (for updating the data through the internet)
6   Windows-compatible mouse and printer
7   VGA monitor or better with maximum of 640 x 480, 16 colours

INSTALLATION

1   Insert the CD-ROM into your CD-ROM drive.
2   Open the CD-ROM drive in Windows Explorer
3   Double click SETUP.EXE.
4   Follow the instruction.

LIMITED WARRANTY

IEEJ warrants that for a period of one year from the date of acquisition, the Software, if operated as directed, will substantially achieve the functionality described in the Documentation. IEEJ does not warrant, however, that your use of the Software will be uninterrupted or that the operation of the Software will be error-free or secure. In addition, the security mechanisms incorporated in the Software have inherent limitations, and you must determine whether the Software sufficiently meets your requirements.

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· to advise you how to achieve substantially the same functionality with the Software as described in the Documentation through a procedure different from that set forth in the Documentation

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APEC

APEC Energy Statistical Analysis Tool 2012

User Manual

PREFACE

In addition to the *APEC Energy Statistics 2012* publication, the Coordinating Agency for the Expert Group on Energy Data Analysis (EGEDA) released a CD-ROM version of the *APEC Energy Analytical Tool 2012*. This tool has the following advantages:

> Historical Data from 1980-2010
>
> A retrieve Function
>
> An analysis Function

The tool supports retrieval and analysis of data and provides various viewing options that have been prepared in consultation with member economies in the APEC region.

Aside from energy data, the tool includes socio-economic data, such as population and GDP, through a license from the World Bank.

The tool is developed to work on the Windows 2000, XP or Later. There can be problems due to different versions of common DLL programs which are stored during the installation of application software.

> Questions should be addressed to:
>
> > The Energy Data and Modelling Center
> >
> > The Institute of Energy Economics, Japan
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> > Inui Bldg., Kachidoki 13-1, Kachidoki 1-Chome, Chuo-ku,
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> > >
> > > Website: http://www.ieej.or.jp/egeda/

> To purchase the tool, please contact:
>
> > The APEC Secretariat
> >
> > 35 Heng Mui Keng Terrace,
> >
> > Singapore 119616
> >
> > > Telephone: (65)-6891-9600
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> > > Facsimile: (65)-6891-9690
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> > > E-mail: info@apec.org
> > >
> > > Website: http://www.apec.org

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1. Installation

1.1 Before installation

Before installing this system on your computer, please take note of the following:

    a. Close any applications with a working Internet connection;

    b. Undertake the backup procedure for applications that use the old version of OLECTRA CHART 2D OCX and SPREAD OCX, and close those applications.

1.2 Installing the tool

(1) Place the "APEC Energy Statistics Analysis Tool 2012" in your CD-ROM drive. The dialog box will open automatically. If not, open the folder in the CD-ROM, select the "Setup.exe" file and then click the [OK] button.
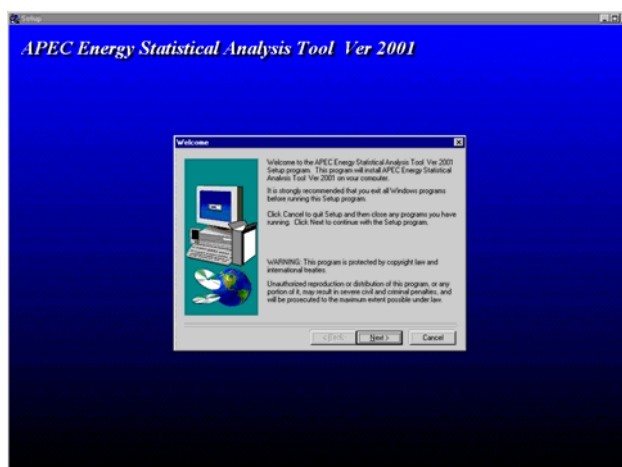
(2) Click the [Next] button and you will brought to the license agreement box. Click on [Yes] to continue installation. The "Readme Information" will appear. Click on [Next] to continue. Please enter your user information and click on [Next]. A dialog box that allows the designation of the installation folder will appear.
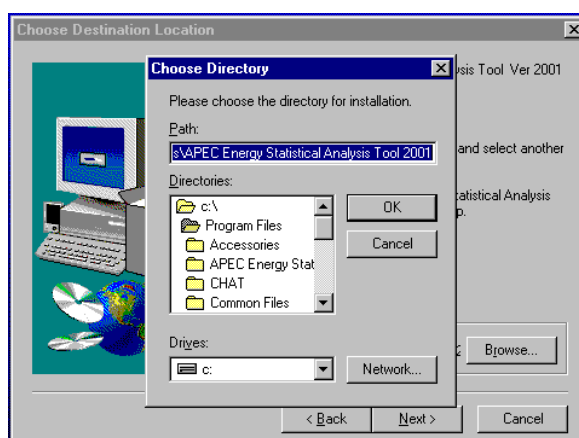
(3) Using the [Browse] button, designate the installation folder. After having assigned the installation folder, the program folder will be shown as below.
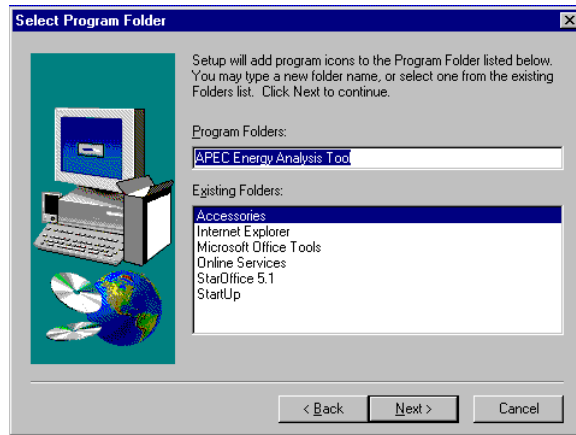
(4) After clicking the [Next] button, a confirmation screen will be displayed. Click the [Next] button to start copying files.
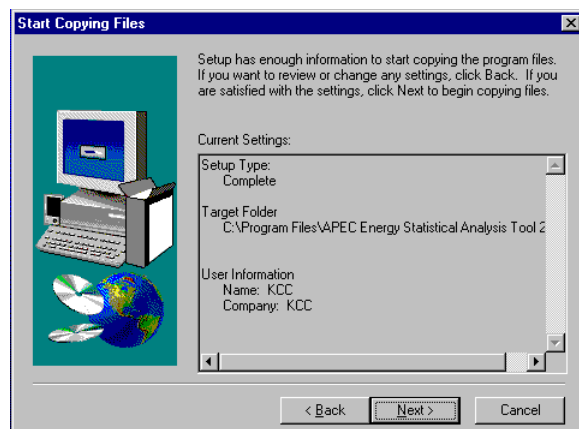
(5) While the files are being copied, installation progress will be displayed.
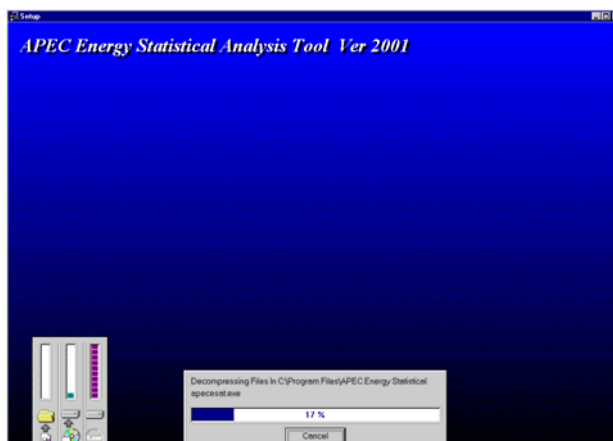
(6) Before click on [Finish], you have two options: One is to restart your computer right away or restart your computer later. You have to restart your computer before you can use the Tool. Clicking on [Finish] will complete installation.
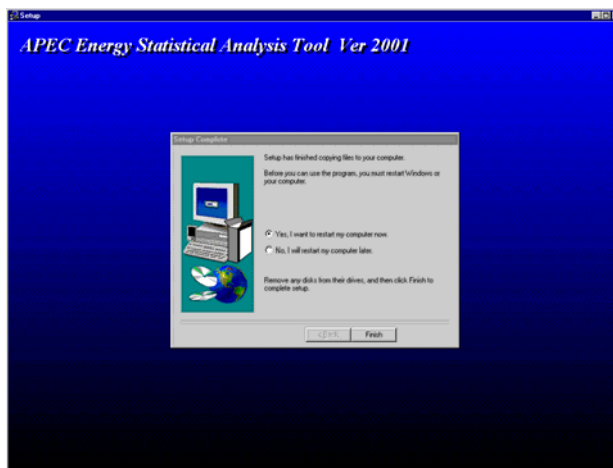
(7) If you select [I will restart my computer later], you can not use the Tool right away. You can begin using it after you have rebooted your computer.

2   Configuration

2.1 Hardware

The personal computer hardware requirements of this system are as follows:

* Computer: IBM PC/AT compatible computer

* CPU: Pentium or later CPU (Pentium-II 200MHz or faster recommended)

* Memory: At least 32 megabytes of RAM (64 MB recommended)

* Hard disk: At least 20MB of disk space (50MB or more recommended)

* Video: At least 640 x 480 display resolution, 16 colours and 15 inch monitor (1024 x 768, 256 colours and 17 inch recommended)

* Miscellaneous: printer, mouse, keyboard, modem and CD-ROM drive

2.2 Software

* OS: Microsoft Windows 2000, XP or later

* Other: Dial-up networking TCP/IP protocol (when working with modem)

3 Database

3.1 Member Economies

The database covers the 21 APEC member economies:

> Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong China, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Philippines, Peru, Russia, Singapore, Chinese Taipei, Thailand, United States of America and Viet Nam

3.2 Timeframe

The database encompasses the years 1980 to 2010 for both energy and socio-economic data, except for the following economies:

> Russia: 1990-2010 for energy data
>
> Viet Nam: 1990-2010 for energy data

3.3 Energy Data

The database contains several kinds of energy data as follows:

> Energy Balance Tables in thermal units (TOE, Joule)
>
> Energy Balance Tables in common physical units
>
>> Solid: TONNE
>>
>> Liquid: 1,000 KL
>>
>> Gas: 1,000,000 SCM
>>
>> Electricity: GWh
>
> Power Generation Table
>
> Power Capacity Table
>
> Fuel Consumption Table for Power Generation

3.4 Socio-economic Data

The following data are included:

> Population
>
> Gross Domestic Product (nominal local currency unit or LCU)
>
>> Private consumption
>>
>> Government consumption
>>
>> Fixed capital formation
>>
>> Stock change
>>
>> Exports
>>
>> Imports
>
> Gross Domestic Product (Constant price = 2000, LCU)
>
>> Private consumption
>>
>> Government consumption
>>
>> Fixed capital formation

Stock change

Exports

Imports

Sectional shares of real GDP

Agriculture, fishery and forestry

Industry

Manufacturing

Services etc

Foreign exchange rate (LCU/US$)

Purchasing Power Parity (International $ /LCU)

The following items have been estimated based on the above data:

Real GDP (2000 price, 2000 US$)

Real GDP (2000 price, 2000 PPP)

Nominal GDP (Current US$)

Real GDP per Capita (2000 price, 2000 US$)

Real GDP per Capita (2000 price, 2000 US$)

Nominal GDP per Capita (Current US$)

3.5 Source

Energy data: Submissions from national administrations, except for Papua New Guinea, which comes from the UN Energy Database for 1980-2003, and is estimated based on national data for 1994-2003

Socio-economic data: World Development Indicators by World Bank

4   System operation

4.1   Common operations

The system provides standard Windows functions for each menu item. These include abstract searches, custom searches, graphing results and printing.

4.1.1   Printing

After selecting [File] > [Print] a print set-up dialog box will be displayed.
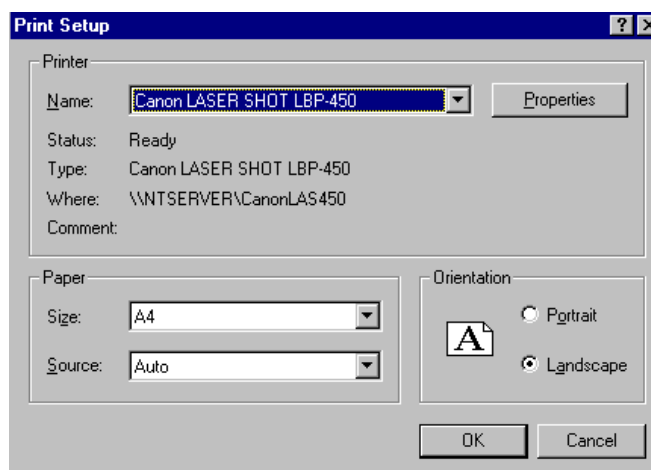
After selecting and confirming a printer is online, click the [OK] button.   The printer configuration can be changed by clicking on the [Properties] button or choosing [File] > [Print Setup].
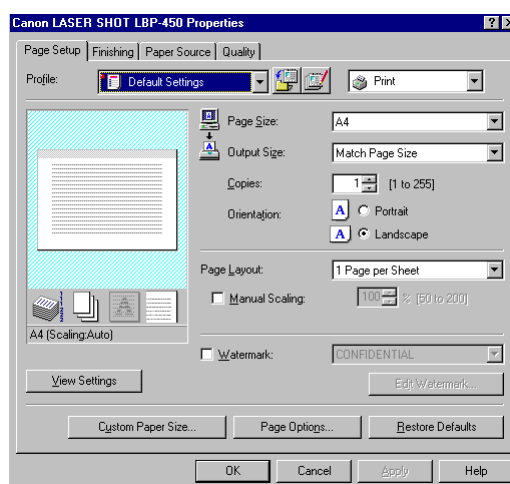
4.1.2 Print preview

The print preview function shows how the printed page will look, and is available by selecting [File] > [Print Preview].

To change the scale, use the [Zoom-In] and [Zoom-Out] buttons.   Select [File] > [Print Setup] to change the paper size.   The change will be reflected in the preview window.

4.1.3 Saving the results

Data can be saved in Microsoft Excel 95/97 format. Graphs displayed on the screen can be saved as bitmaps.

4.1.4 Transferring data to the clipboard.

Data tables, graphs, and sheets can be saved to the clipboard, which allows information to be transferred to other applications.

The diagrams below show the transfer of a graph into "Microsoft Paint".
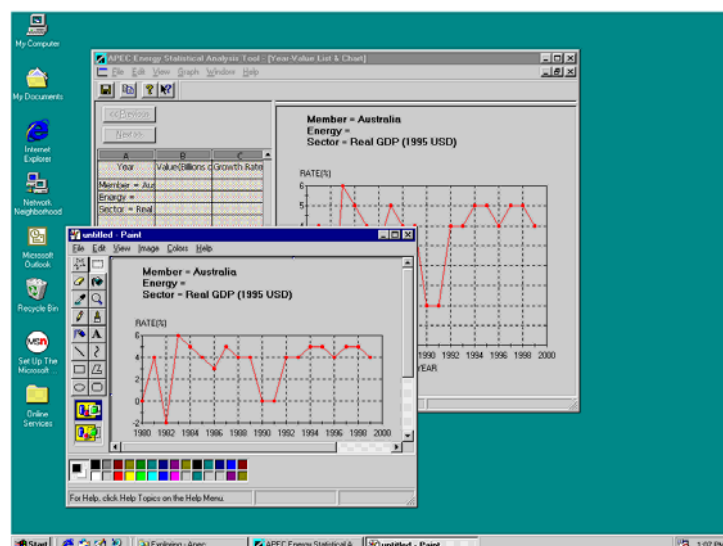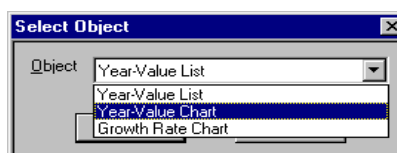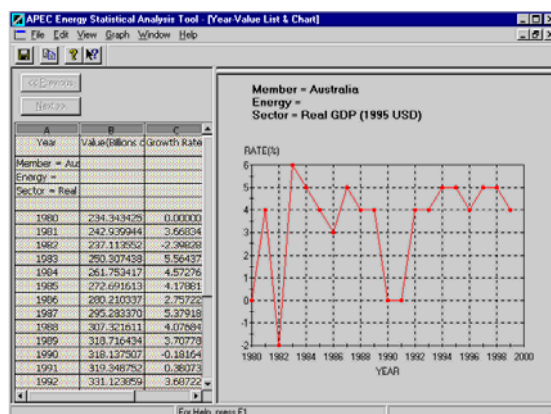
4.1.5 About Help

The system provides a help system through the F1 function key, which includes instructions on operations, and explanations of terminology and error messages. There is also a user manual in Word format.
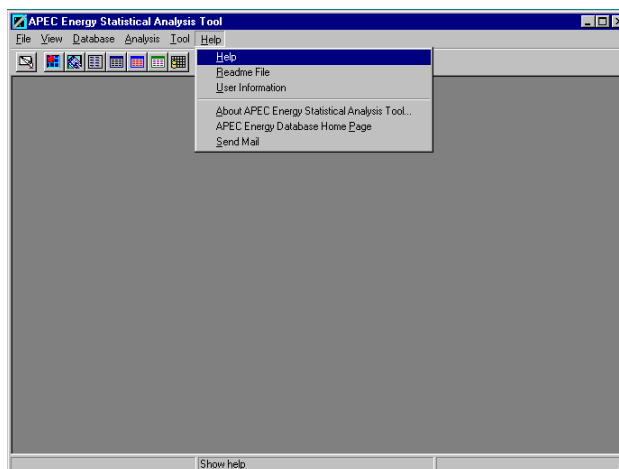
To see version information, select [Help]>[About].
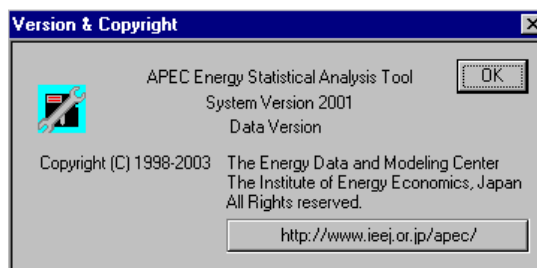
4.1.6 Editing spreadsheets

(1) Making a copy

   a. Designate a block to be copied and select [Edit]>[Copy].

   c. The data in the block will be transferred to the clipboard.

(2) Pasting

    a. Find or create an empty block of cells of the same dimensions as the copied block, and select [Edit]>[Paste].

(3) Cutting and Deleting

    a. Designate a block and select [Edit] > [Cut]. This operation will cut the data and place it on the clipboard.

    b. Designate a block and select [Edit] > [Delete] > ([Row] or [Column]). This operation will delete the data entirely.

(4) Undo

The undo command recovers data that has been deleted by the previous paste, cut, or delete operation.   Only the most recent operation can be undone with this command.

4.2 Displaying an energy-balance-table

Select [Database] > [Energy-balance] > [Typical] to generate an energy balance table.   This window can also be accessed by selecting [Options] from the [View] menu.

Options that are available in this window:

Member: Select member economy.

Data Set: Select level of detail required.

Year: Designate the year.

Unit: Select units.

[OK] button: Confirm operation.   Display the energy balance table.

An energy-balance-table by member and by year will be displayed as follows.

Operations that can be undertaken in this window:

A table image can be copied as a bitmap to the clipboard.

A table can be printed.

The data can be saved to a disk.

The Windows screen can be split for more convenient analysis.

Splitting the window.

Select [Window] > [Split].

Choose an appropriate partition line to divide the window into two.

The window can also be split horizontally to produce a four pane window.

Removing the split

Set the mouse cursor on the split line.

Drag the line to the far left.

4.3 Carrying out a search.

After selecting [Database] > [Energy-balance-table] > [Custom], a dialog box with search options will be displayed.

Select item: An item is selected when highlighted.

Cancel selection: An active item can be inactivated with the left mouse button clicked as the item is highlighted.

Multiple choices are also available.

Select All button: With this function, all the items on the list will be selected.

Unselect All button: All the highlighted items on the list will be cancelled (inactivated) with this command.

A search on selected items (year, energy, sector and unit) is shown below.

Operations

Changing the [Row /Column] and [Year/Member] positions alternately.

Editing the data (copy, paste, cut, delete, undo, select all)

Printing the list.

Saving the data list.

Transferring data to the clipboard.

Re-displaying the window when the zoom rate and search conditions have been set.

Drawing of a graph based on a selected cellblock.

Changing row and column designations

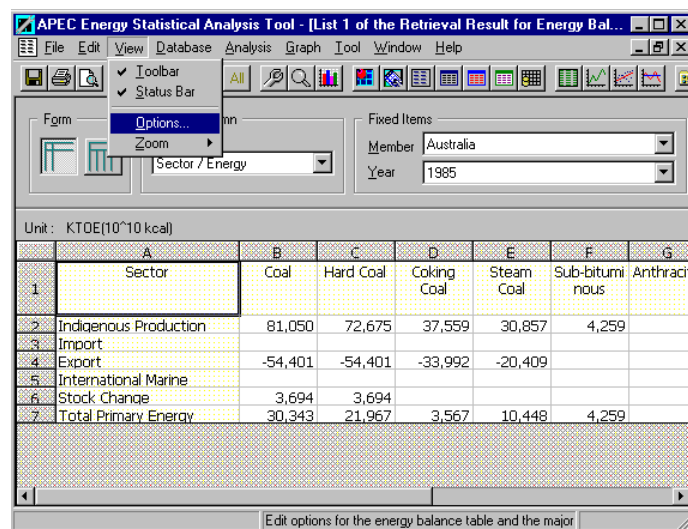It is possible to change the designation for both rows and columns using the [Row/Column] feature shown below.

When the contents of the Row/Column setting are updated, the items on the list will be set to the Fixed items [Member economy and Sector].
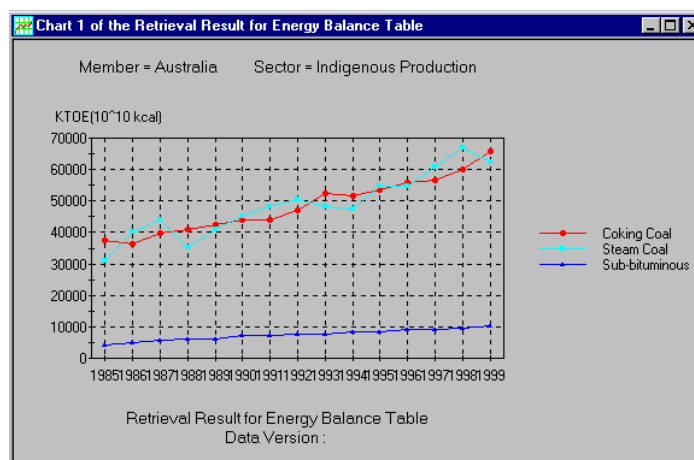
To change search conditions, select [Options] from the [View] menu.   The list of conditions will be updated when the revision is complete and the [OK] button is pressed.

After selecting a block of data from the table, select [Show Chart] from the [Graph] menu, the corresponding graph will be shown.

4.4 Displaying electricity generation

After selecting [Electricity Power Generation] from the [Database] menu, the dialog box below will be displayed.

Possible operations:

    Member: Designate economy

    Year: Designate year.

    Sector: Choose sector.

    Select All: All data is selected.

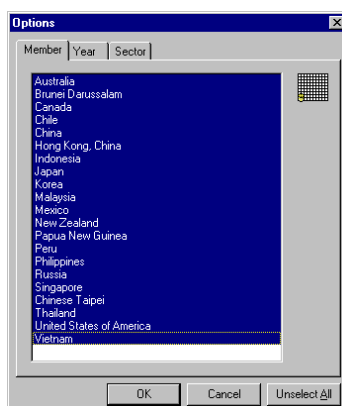A table of electricity consumption by economy or year will be displayed.

On this screen, the display can be changed:

Row/Column: Change row and column designations.

Sector: Select the sector to be displayed.

4.5 Displaying electricity generation capacity

After selecting [Electricity Generating Capacity] from the [Database] menu, an options dialog box is displayed.

Possible operations:

Member: Designate member economy

Year: Designate year.

Sector: Choose sector.

Select All: All the data will be selected.

A table of the electricity generation capacity by economy by year will be displayed.

On this screen, the display can be changed:

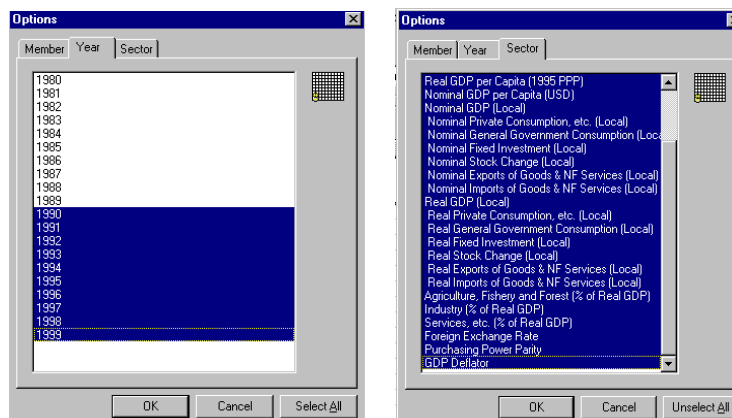Row/Column: Change row and column designations.

Sector: Select the sector to be displayed.

4.6 Searching the major economic indicators

Select [Major Economic Indicator Table] from the [Database] menu and a search screen will be displayed.

Select the year and sectors

A list of results will be displayed.

Operations

Changing the [Row /Column] and [Year/Member] positions alternately.

Editing the data (copy, paste, cut, delete, undo, select all)

Printing the list.

Saving the data list.

Transferring data to the clipboard.

Re-displaying the window when the zoom rate and search conditions have been set.

Drawing of a graph based on a selected cellblock.

The contents of the list will be updated when [Row/Column] and the [Fixed Item] are changed.   The next screen shows the list in the case where the Year/Sector is selected for the Row/Column setting.

When the contents of a selection of Row/Column settings are updated, the first items on the list will be set to the Fixed items.

To change the search conditions, select [Options] from the [View] menu.   The list of the conditions will be updated when the revision is done and the [OK] button is clicked.

After selecting a block of data from the table, choose [Show Chart] from the [Graph] menu, and the corresponding graph will be shown.

The result is shown with a graph.
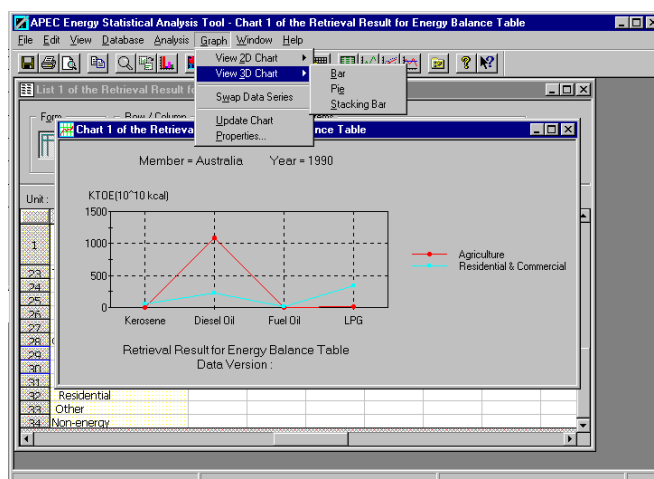
When [Show Chart] from the [Graph] menu is selected with a block of the cell-data already specified in a custom search, a graph window for the data block will be displayed as shown below.

Operation

Printing a graph image.

Saving an image to a file.

Transferring a graph to the clipboard

Re-sizing graph

Changing the chart type

Changing the graph properties

Selecting [Graph] > [View 2D Chart] > [Graph name] will change the graph display.

The following six graphs are examples of 2D charts.

Bar graph and pie graph
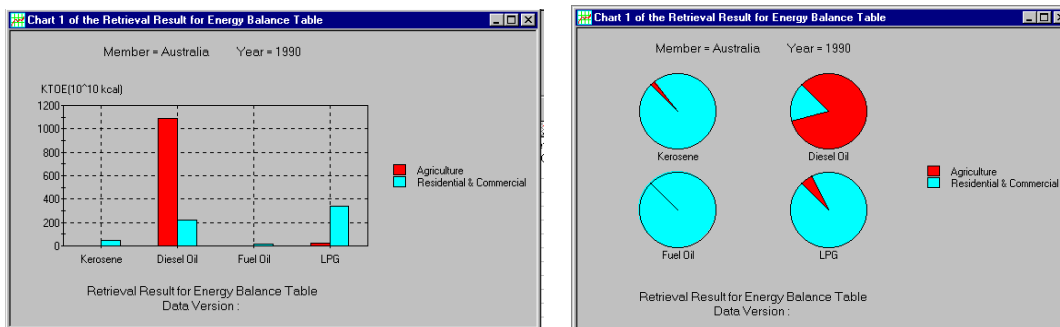
Block graph and area chart
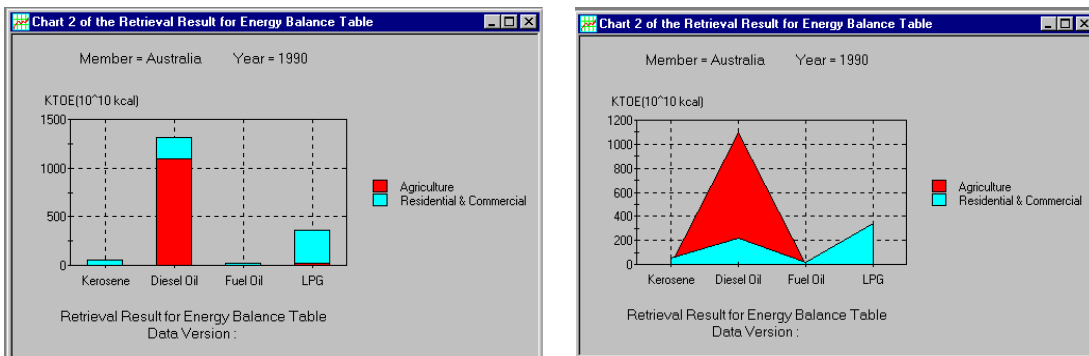
Radar charts
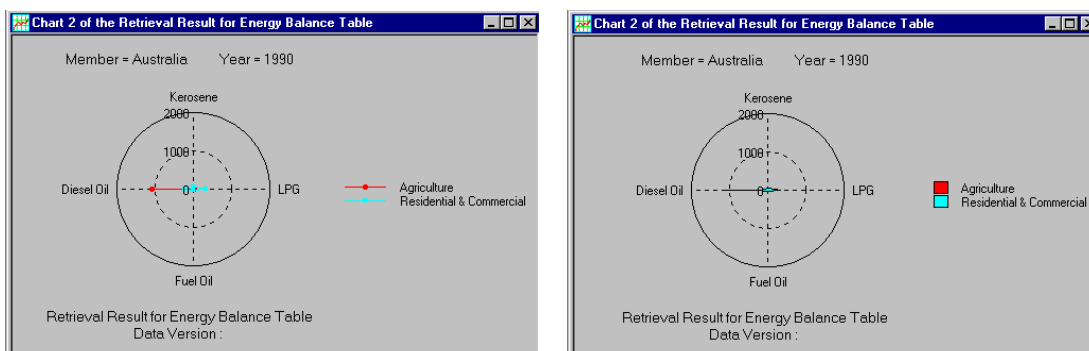
Selecting [Graph] > [View 3D Chart] > [Graph name] will allow the graph type to be changed. The following three graphs are examples of 3D graphs.

3D bar graph
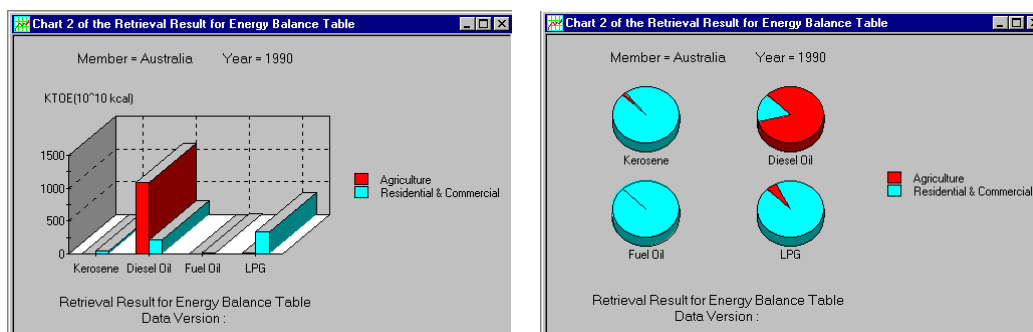
Select [Properties] by clicking the right mouse button and a window will appear that allows graph property settings to be changed.
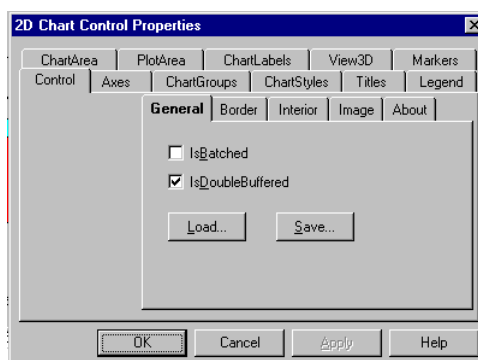
The following four menu items [HiLo, Open Close, Candle, Polar] in the Chart type menu, should not be selected because of system management limitations.

4.7 Displaying variables

After selecting [Variable Explorer] from the [Analysis] menu, the next screen will be displayed. The energy-balance-table data, data of the table of electricity, CO_2 emission data, and the data of major economic indicators will be all listed on the screen.

Operations

    Viewing the contents of the database.

    Sorting highlighted items.

    Transferring selected items to the clipboard.

    Displaying extra details for selected items.

    Generating new variables.

There are four ways to display items - large icons, small icons, bare lists, or in full lists. These are available through the [View] menu.

A bare list
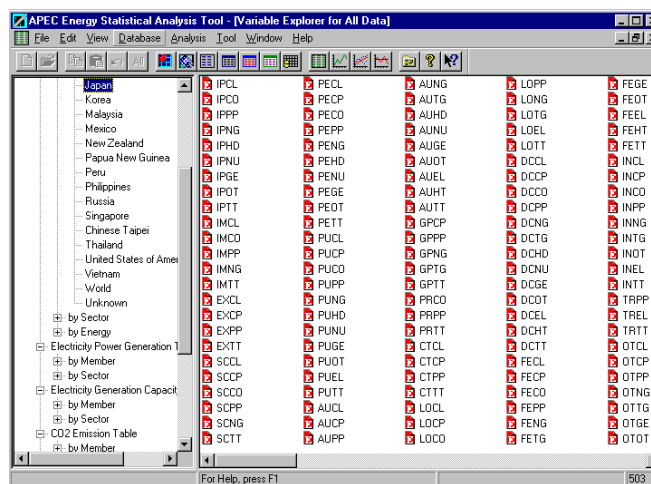
Small icons
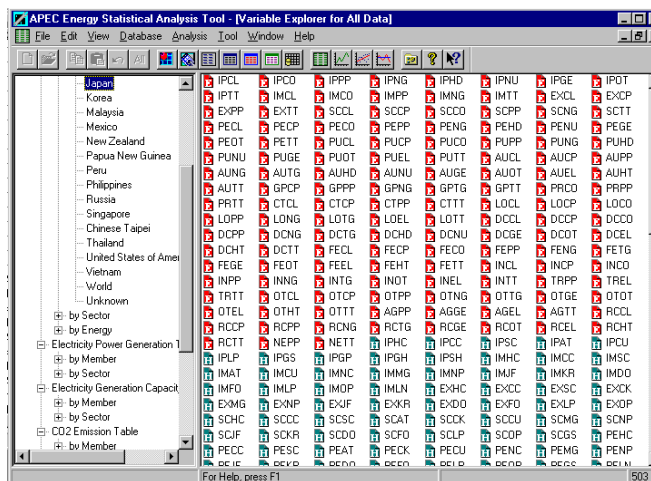
Large icons
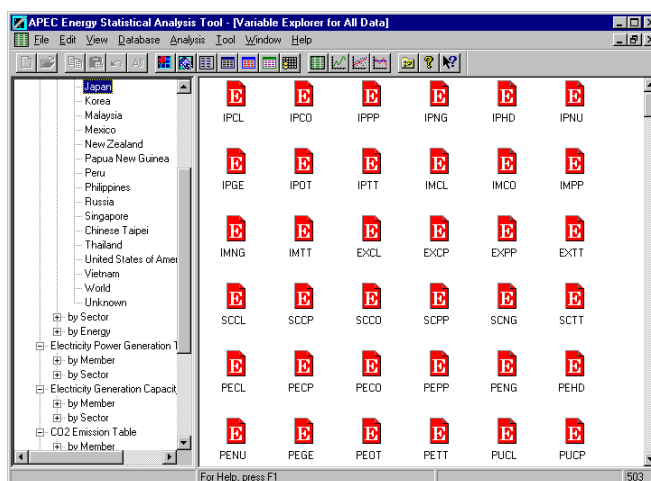
Clicking the column button rearranges the list.   The next screen shows an example of an ascending order sort of the name column.
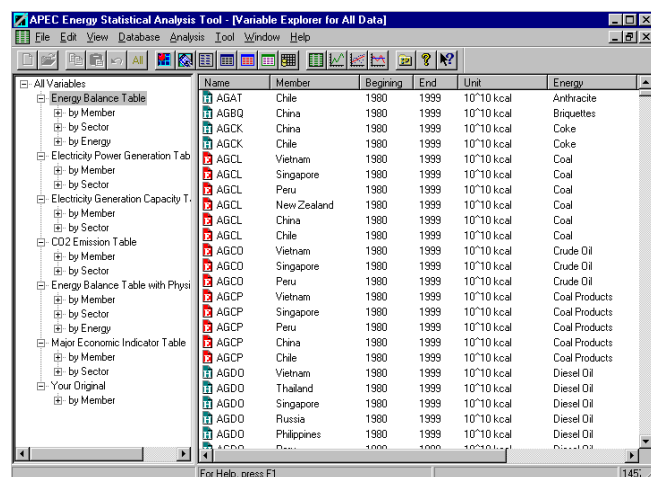
There are two methods in selecting an item.   Clicking the left mouse button while the pointer is over an item selects that item.   Clicking on individual items while the shift key is pressed will select a number of items.   For this purpose, the [Ctrl] key works in the same way as the [Shift] key.
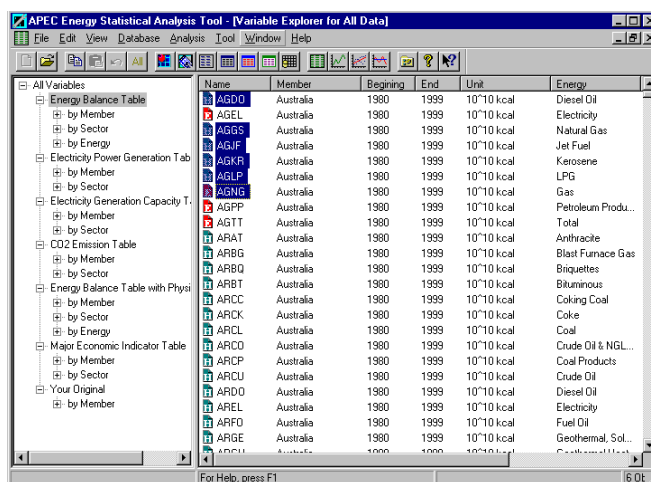
Detailed information will be displayed when an item on the list is specified (Pressing the return key will bring the same result).
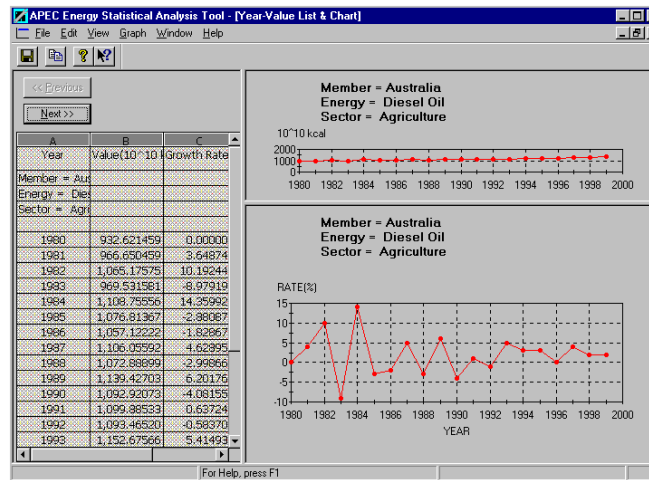
This screen consists of three parts, the data list by year, time series figures by years, and a graph of annual growth rates against the preceding year.

Operations

Transferring the three parts to the clipboard.

(Any part can be individually transferred to the clipboard).

Saving data to disk.

(The data in the data list will be saved, while the other parts are saved as bitmaps).

Changing the chart type

Changing graph properties.

Selecting [Graph] > [View 2D Chart] > [Graph name] will allow the graph type to be changed.   The following graphs are examples of 3D chart graphs

Bar graph and 3D bar graph
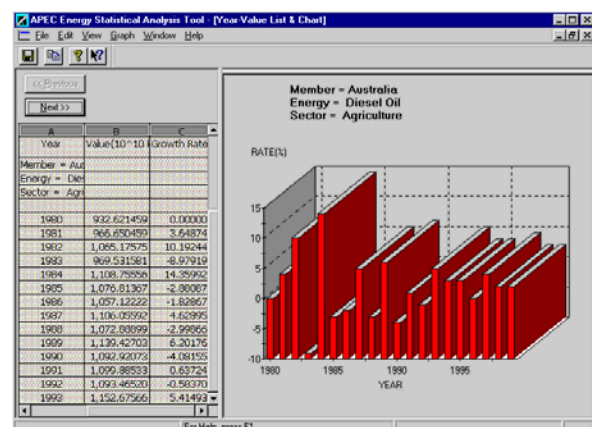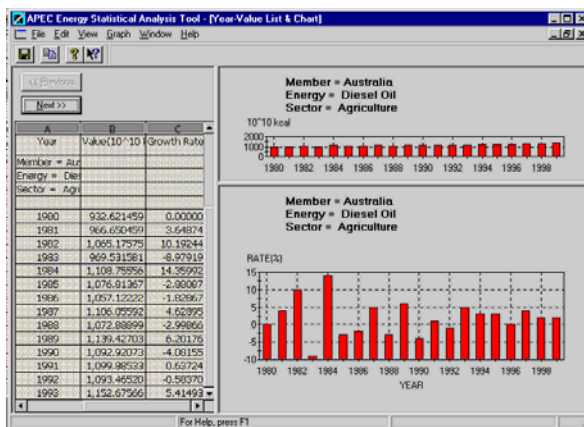
Select [Properties] by clicking the right mouse button and a dialog box will appear that allows graph property

setting to be altered.
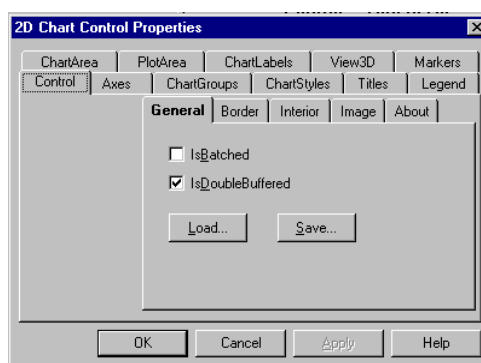
Any modification of the data will be immediately reflected in its graph.

The use of a logarithmic axis is recommended when the maximum value is much larger than the minimum value.

The following four menu items [HiLo, Open Close, Candle, Polar] in the Chart type menu, should not be selected because of system management limitations.

Registering new variables

To register new variables, select [File] > [New] and a time series data input box will appear. Data can be registered by variable name, economy, comments, and units.   The range of the display can be changed by using the year spin button.
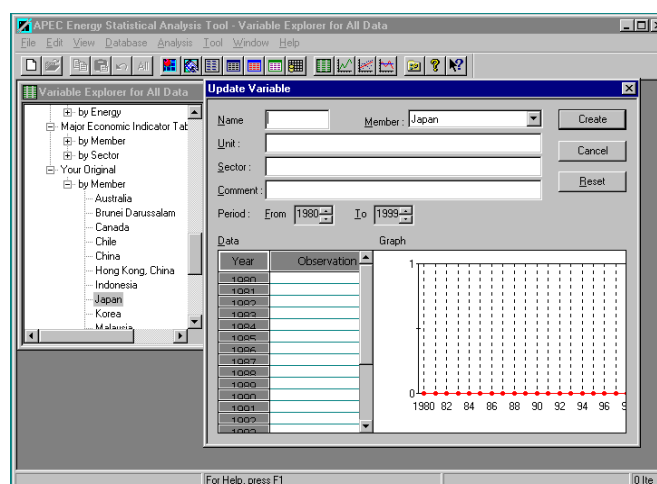
Once the required information is entered, and the member drop-down list procedure complete, the [OK] button will register the new data.

4.8 Updating the local data file

(1) After selecting [Update Data] from the [Tool] menu, the following screen will be displayed.
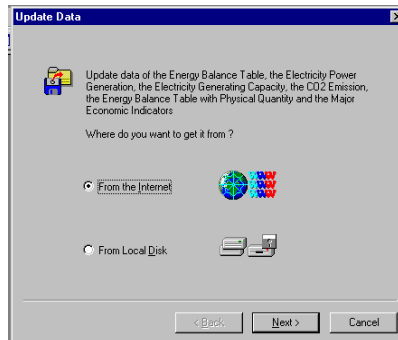
From the Internet

The URL of the Web site required to access the latest data on the Web site.
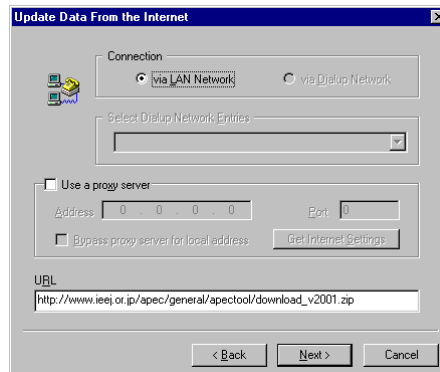
Operations

Enter the URL: The URL of the Web site does not need to be entered the first time because the URL has already been provided during the installation process.

Back: Go back to the previous page

Next: Go to the next page.

After entering the URL, designate a directory and a file name in which downloaded data will be stored.
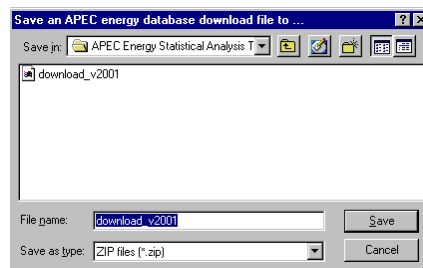
The downloading of the file starts when the URL and a file name are entered.
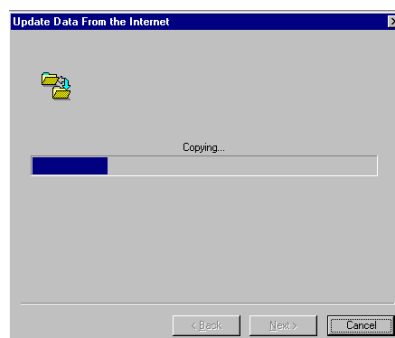
Click the [Next] button on finishing the copy process.
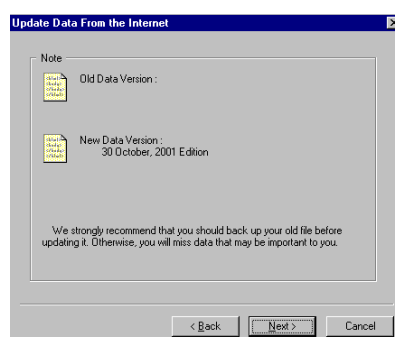
A screen for the confirmation of the data version will be displayed. The version information of the currently used data and the data on the Web site will be displayed.
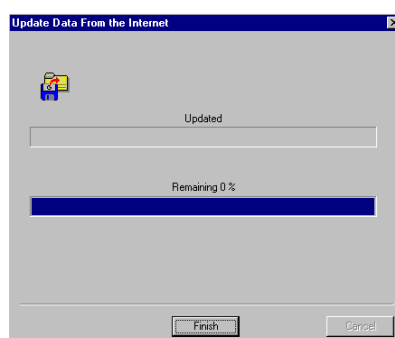
The registration data will be updated. All operations are now complete.

4.9 Utilizing the analytical tools

The following operations are included.

Calculation of statistical values

Regression analysis

The final test
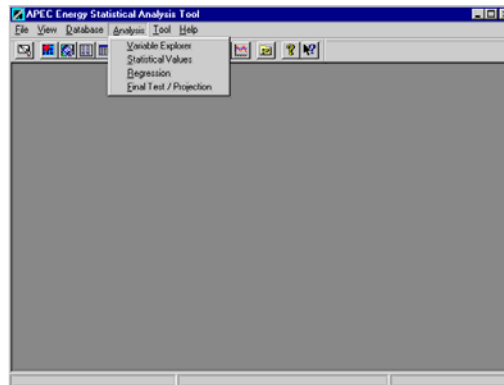
4.9.1   Calculation of statistical values

After selecting [Statistical Values], the next dialog box will be displayed.
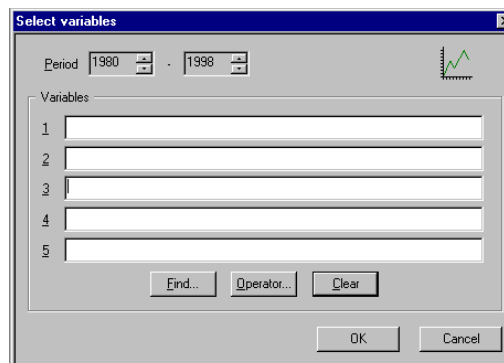
By clicking the [Find button] in the text box, a screen for selecting the variable name corresponding to each item will be displayed.
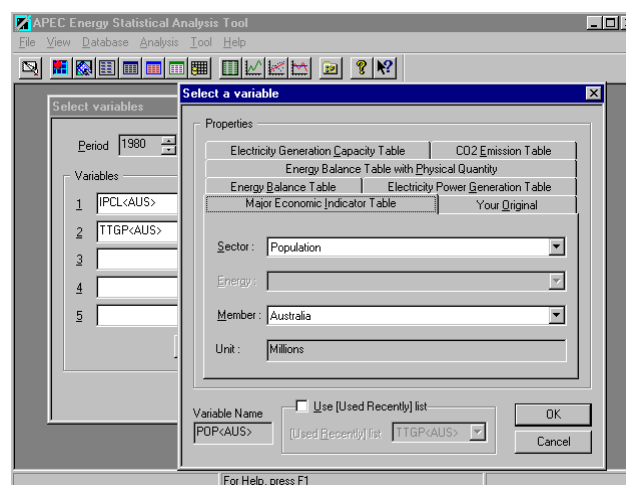
In this screen, from the drop down menu, select the variable name and economy on which the operations will be undertaken.   Click the [OK] button to confirm.   The variable names selected here will be shown in the text box

on the variable name designation screen. By clicking the [OK] button; the designated statistical values will be displayed.
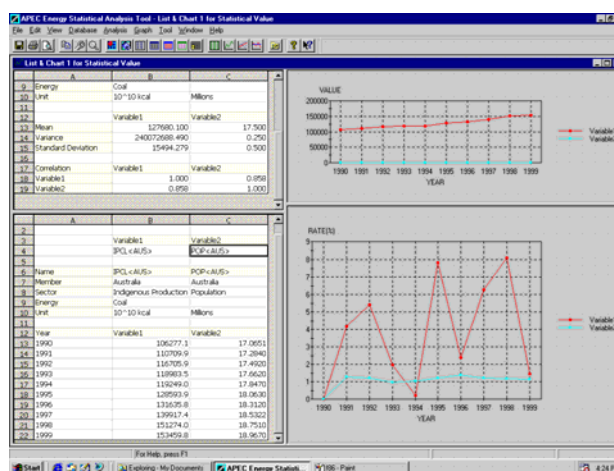
Selecting [Graph] > [Show] will display the graphs.

4.9.2   Regression analysis

After selecting [Regression], the next screen will be shown as follows.

By clicking the [Find] button on the right of the screen, a screen for the selection of a variable name corresponding to each item will be displayed. The way to designate a variable is similar to that in the display of statistical data. After confirming with the [OK] button, the selected variable will be shown in the independent or dependent variable text box that is currently active.

Select an operator
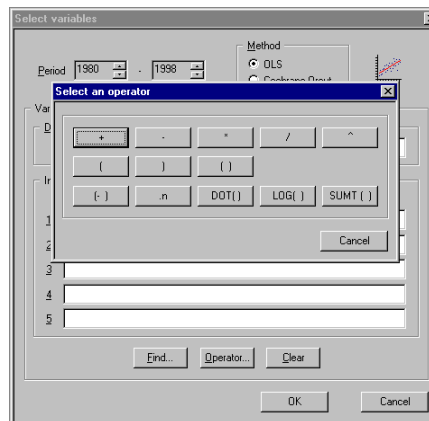
By clicking the [Operators] button on the right of the display, a dialog box appears with operators that can be used in the procedure.   After selecting an operator from the list box, and confirming with the [OK] button, the operator will be added to the text box that is currently in focus.   If the [Clear] button is clicked, all the contents of text box will be cleared.

When the estimation year, OLS method, and the presence of the constant term are entered, clicking the [OK] button, will execute the regression analysis.   After the calculation, the next screen will be displayed.
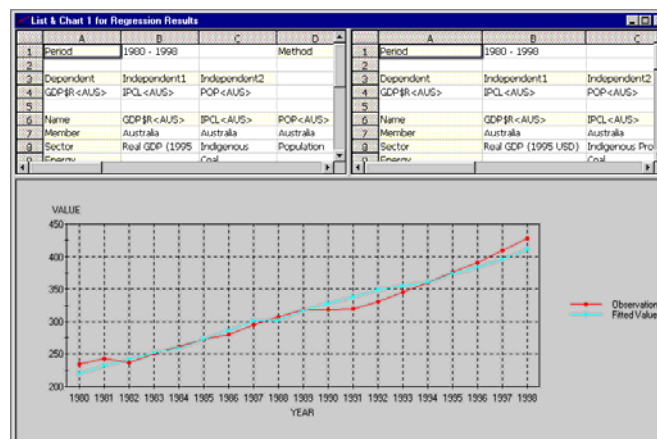
Clicking the [File] > [Registration] button will register the regression equations and they can be used in the final test/projection.

A graph of the regression analysis result
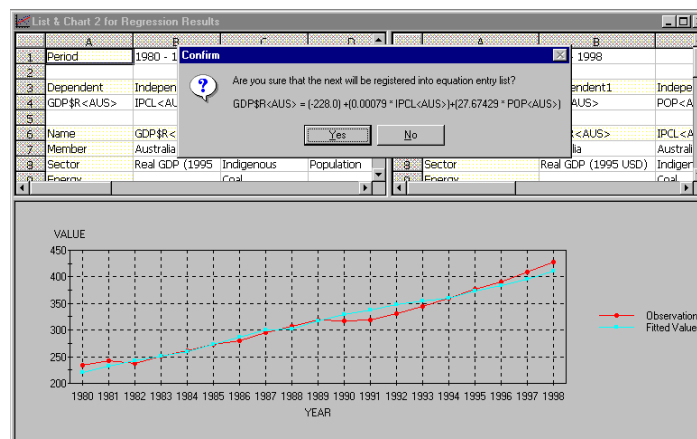
4.9.3 The final test/projection

The First formulae registered in the system will be displayed. One of the regression analysis equations to be tested should be clicked. Then designate a year, and click the [OK] button.
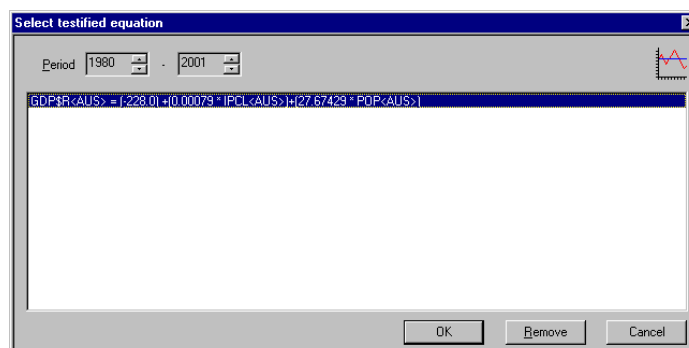
The next screen will be displayed. Click on the cell and enter appropriate values in it. Then designate the beginning year of the estimation and the presence of the constant term. Then click the [Calculate] button. The projected values will come up in the cell as they are calculated.
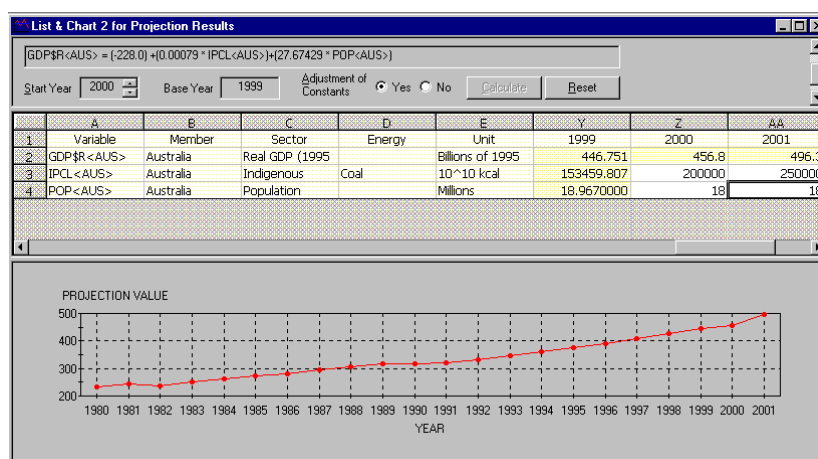
Appendix 1: Troubleshooting

Error messages

(1)   Failure in opening files

   Probable cause:

   a. A shortage of disk space

   b. A file has been deleted for some reason during the execution of the application

   c. Files has not been registered in the registry

Solutions:

   a. Check the disk space.

   b. Restart the program.

   c. Perform the registration to the registry referring to Appendix 2.

(2)   Please select a cellblock

Probable cause:

   Before a cellblock was selected, some other operation had been attempted.

Solutions:

   Select a cellblock

(3)   Please select a numerical cellblock

Probable cause:

   A cellblock containing only characters is selected.

Solutions:

   Select a numerical cellblock

(4)   Failed to read registry data

Probable cause:

   a. The registry is damaged.

   b. The keys that have been registered in the registry have changed for some reason.

   c. Items such as the key, the name of the values or the data have not been registered in the registry.

Solutions:

   a. Recover the registry by executing the Windows' registry recovery system

   b. Perform the registration to the registry referring to Appendix 2.

(5)   The letters "http://" are missing at the top of the URL.

Probable cause:

   "http://" not entered in the URL

Solutions:

   The "http://" should be entered

(6)   Can not execute analysis program

Probable cause:

    a.   A shortage of memory for the environmental variables

    b.   A 16 bit program has failed to be executed

Solutions:

    a.   Close other applications

    b.   Try to execute on another PC

(7)   Failed to find data to be set to the chart

Probable cause:

    a.   A shortage of the disk space

    b.   A file has been deleted for some reason during the execution of the application

Solutions:

    Check disk space

    Restart the program.

Other memory related problems

(8)   Failed to create preview view

(9)   Failed to generate bitmap file

(10)   Cannot load DIB file

(11)   Failed to allocate memory

(12)   Not enough memory to copy selected data into clipboard

(13)   Failed to copy selected data into clipboard

Probable cause:

    Not enough memory is available.

Solutions:

    Check system resources

    Close other applications

Appendix 2: Registration to the registry

Main key: HKEY_CURRENT_USER

Key1:   Software

Key2:   IEEJ

Key3:   APEC Energy Statistical Analysis Tool

Key4:   FileDir

          Settings

<u>Value name and the data</u>

Value name   Data

<u>FileDir</u>

analysis tool	[INSTALL DIR]\apectool.exe
ebdata	[INSTALL DIR]\ebdata
ebdata2	[INSTALL DIR]\ebdata2
ebadata3	[INSTALL DIR]\ebdata3
ebtb.idx	[INSTALL DIR]\ebtb.idx
ebtb2.idx	[INSTALL DIR]\ebtb2.idx
ecid.idx	[INSTALL DIR]\ecid.idx
items.dat	[INSTALL DIR]\items.dat
ken.dat	[INSTALL DIR]\ken.dat
Readme	[INSTALL DIR]\readme.txt

Settings

APECHomePage	http://www.ieej.or.jp/egeda/
APECMail	mailto:wwwadmin@ieej.or.jp
EDMCHomePage	http://www.ieej.or.jp/edmc/
TaskNums	0