

Explanatory Note

Energy – CO₂ monitoring tool for all activity sectors

This tool may assist local authorities signing the Pact of Islands to monitor the energy and the respective CO₂ emissions of all the activity sectors during the implementation and monitoring period of their ISEAP. The initially developed Business As Usual (BAU) and ISEAP scenarios can be compared with the real monitored data and provide information about the success of the ISEAP implementation. The tool is developed in a way to adapt to the results derived from the “Pact of Islands - Modelling Tool for Energy Planning” in order to make easier the monitoring process.

The user can choose between a simple and a full monitoring method, the differences will be explained next.

Detailed instructions are incorporated in the tool and should be advised in any case before the use of the tool.

The monitoring methods

Simple method

In this version the user can manually fill in and register the necessary energy data in the “Scenarios data” and “Monitoring” sheets for the corresponding year.

Full method

In this version the user can automatically import the necessary energy data in the “Scenarios data” sheet for all the planning years and in the “Monitoring” sheet for the corresponding monitoring year. This method is applicable only if the “BAU scenario” and “ISEAP scenario” (for the “Scenarios data” sheet) but also the actual energy – CO₂ emissions inventory (for the “Monitoring” sheet) are developed using the “Modelling Tool for Energy Planning” tool (available under WP3). In this case the data are imported from respective files in the form of the above-mentioned tool.

The sheets

The tool is divided into 8 sheets; the purpose of each one will be explained below. Further instructions are incorporated in every sheet.

Start here: In this sheet some principal choices should be made (Monitoring method, CO₂ calculation method). Basic information for the tool contents are given also.

Translation: In this sheet the user can translate the contents of the tool from English to the preferred language.

CO₂ Factors: In this sheet the user can define the values of the CO₂ emission factors (IPCC or LCA). Note that these values are used for the calculations of CO₂ emissions through the entire tool. As it will be explained in the following sheets only the energy magnitudes are being imported or registered by the user; the CO₂ emissions are automatically calculated.

Scenarios data: This sheet holds the energy data of the initially planned BAU and ISEAP scenarios to be compared further on with the actual monitored data. The choice of monitoring method in the “Start here” sheet defines the function of this sheet.

If the user has chosen the simple monitoring method then the relevant values of the corresponding year and scenario shall be manually filled in the respective cells and can be easily registered by pressing the button “Registration”. For each sector the user can define the way of registration depending on the available data. The two choices are “Total” or “Individual” appearing in column A of the sheet. By selecting the “Total” choice, the user should register the values at the line of the sector (i.e. the summation of the subsectors for each energy carrier at the corresponding sector). By selecting the “Individual” choice, the user should register the values at the lines of the subsectors; the summation of the subsectors for each energy carrier at the corresponding sector is being automatically calculated. It should be noted that the user must first of all choose the way of registration and then proceed with filling in the corresponding cells.

If the user has chosen the full monitoring method then the energy data regarding the BAU and the ISEAP scenarios can be automatically imported. This can be done by simply clicking the corresponding buttons and choosing the correct file with the corresponding energy data. Note that the files to be imported should be in the form of the “Pact of Islands - Modelling Tool for Energy Planning” file.

After having finalized the import of files (energy data for all planned years are imported) the user can choose between the two sets of data (two scenarios) and by selecting the desired year the data are automatically retrieved in the current table.

Monitoring: This sheet holds the actual energy data collected during the implementation period of the ISEAP representing the real impact of the ISEAP in the island energy profile. The options are similar to the “Scenarios data” sheet.

Having chosen the simple version the energy data must be filled in manually either as total values of sector or individual values of sub-sector.

However, in the full version the user is given the choice to directly import energy data from a respective “Pact of Islands - Modelling Tool for Energy Planning” file created especially for the implementation period. The user having gathered actual information about the past year growth rates, the new installed energy units and the possible

change in energy efficiency can simulate the island energy profile for the past monitoring period.

It should be noted that by importing the monitoring file the energy data for all the available years are loaded (past and future). For this reason it is considered useful to include in the monitoring file also the modelled energy profile for the years following the monitoring period. This will provide an indication to the user whether corrective measures are needed or not in order to reach the initially set CO₂ emissions reduction targets.

FED Graphs - Indicators: In this sheet the user can initially plot two different types of graphs presenting the results from the “Scenarios data” and the “Monitoring” sheets.

In the two top graphs of the first type (left side of the sheet) the user can plot the distribution of Final Energy Demand (FED) and the respective CO₂ emissions per energy carrier and demand sector for a defined time period on an annual basis. There is the option to define the chart titles, to select the time period, the energy carriers and the demand sector to be plotted. The user can also define the data series among “BAU Scenario”, “ISEAP Scenario” and “Monitoring”. In this way it is easy to observe the agreement or the diversion among the planned scenarios and the actual values.

For the second type of graphs (right side of the sheet) the user can calculate in an easy way two different sets of Energy monitoring indicators. Plotting options are also provided for each set of indicators for better observation of the results. Further instructions are included in the respective sheet.

SEP Graphs - Indicators: In this sheet the user can plot the distribution of Secondary Energy Production and Energy Fluxes (SEP) and the respective CO₂ emissions per energy carrier and energy product for a defined time period on an annual basis. The plotting options are similar to those of the “FED Graphs - Indicators” sheet.

PED Graphs - Indicators: In this sheet the user can plot the distribution of Primary Energy Demand (PED) and the respective CO₂ emissions per energy carrier for a defined time period on an annual basis. The plotting options are similar to those of the “FED Graphs - Indicators” sheet.