

Instructions On How To Operate OM Spreadsheet

Objective

An MS Excel file has been submitted containing every calculation details required for estimating the OM Emission Factor.

The file contains a simple macro in order to load the correspondent pivot tables to a single date and display every calculation detail with the correspondent formulae according to AM0026 (version 3) methodology.

Opening the excel worksheet

This manual assumes that the user has a computer running MS Excel version 97-2003 or later.

In order to open the file, Double click on the excel file named:

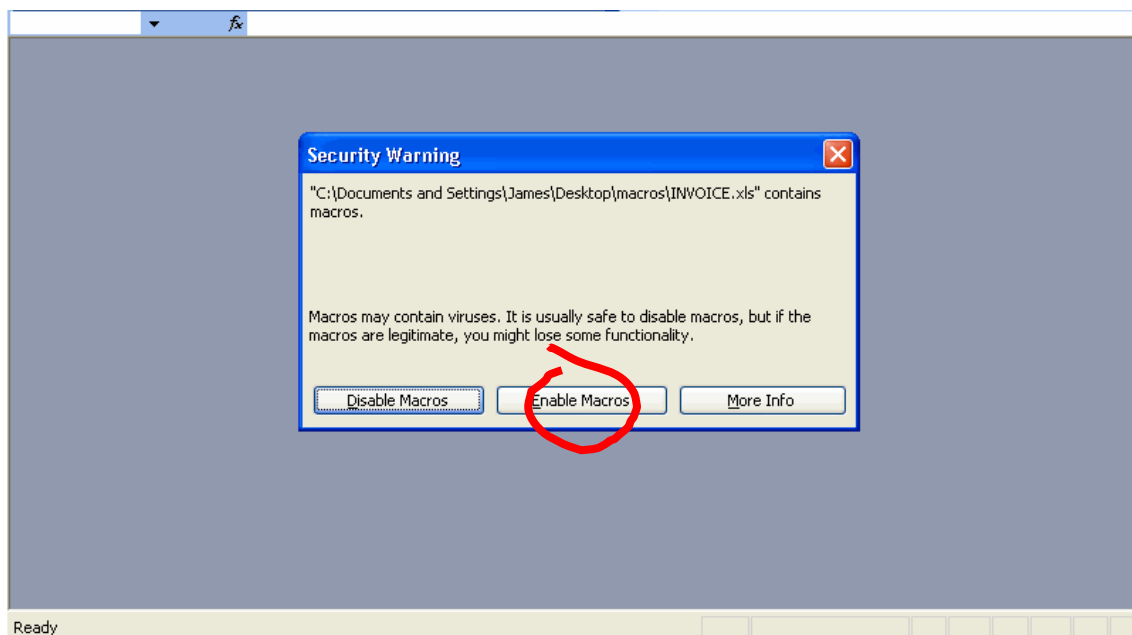
“OM Vxxx.xlsm”

Once opened, depending on the security settings that the user has implemented, the excel program may display a warning message indicating that the file contains macros. Please **enable** the excel program to run the macro.

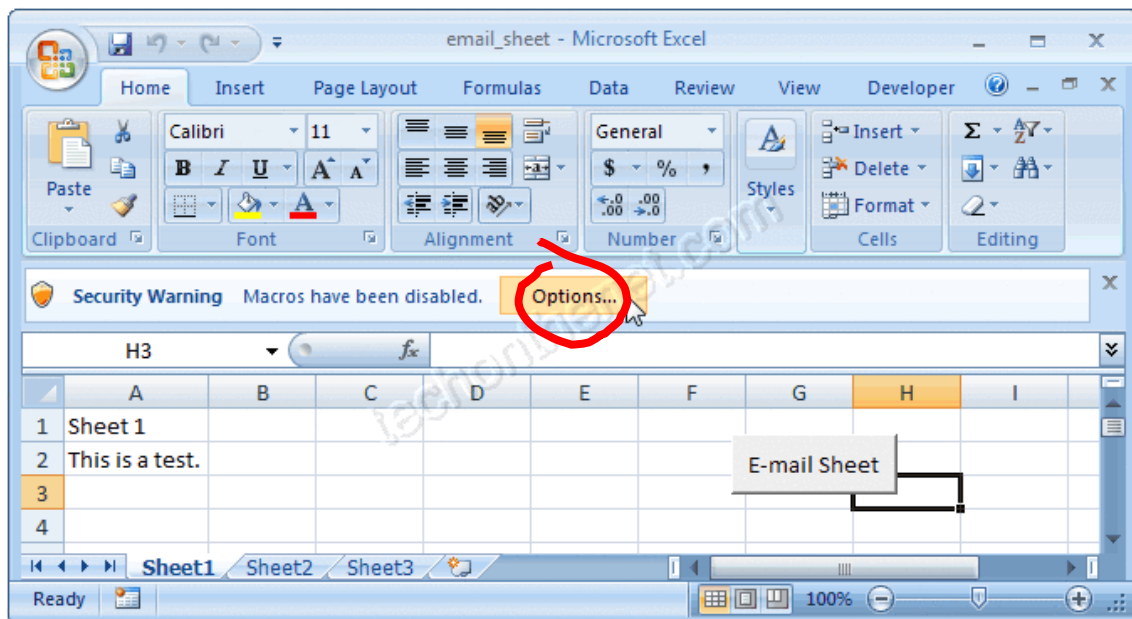
Enabling Macro Execution in MS Excel

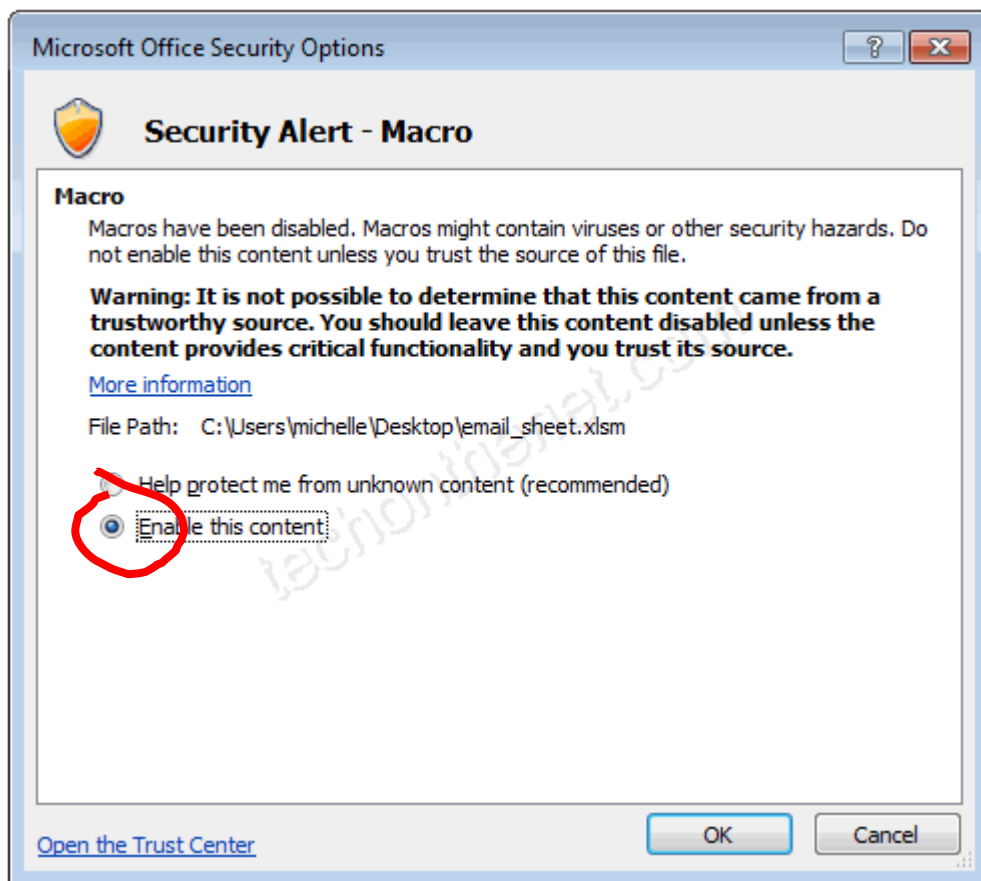
In the images bellow is an example on the security warning message to enable macro execution on excel 97-2003 and 2007 or later versions.

Excel 97-2003 sample



Excel 2007 or later version sample





For further details on enabling macro execution on MS excel, please refer to the MS Excel program reference manual pressing “F1” key

Loading the OM Emission Factor calculating formulae

The data required to calculate the Emission Factor for the whole period is impossible to visualize at once. For this reason the Excel file contains a Macro that loads a single date and displays all the calculations for this date according to AM0026 (version 3) methodology.

In order to load a single date, please go to the “OMcalc” worksheet and insert a date in cell “B4” (“DATE fin”). The date must be contained within the monitoring period.

Once the required date has been inserted in B4, simply press “Load DATE fin” button near cell “M5”, and the macro will automatically update all pivot tables and data to the specified date.

The macro should take a few seconds to load and display all the data and formulae in “OMcalc” sheet. Once loaded, all calculation details (data and formulas) for the selected date are displayed in tables 1 to 9.

For selecting another date, simply change the date in cell “B4” and press again “Load DATE fin” button.

The final calculation results are displayed in Table 9. The resulting calculations of Table 9 for each day is saved in OMresults, in order to calculate formula 8 of AM0026 (version 3) methodology.

Explanation on the excel worksheets

The following table contains a brief explanation on the contents of each of the excel file worksheets:

Worksheet name	Extended Name	Contents
“plants”	System Power Plants Data	<ul style="list-style-type: none"> Table 1: Contains every system plant data, such as: Installed Capacity, Commissioning Date, Fuel Type, and the calculation of the emission factor for each plant. Also, all data sources are indicated in columns “P” to “S”
“MOD6_B1” “MOD6_B2” “MOD6_B3”	“Merit Order hourly Dispatch”	<ul style="list-style-type: none"> Table1: Contains a Pivot Table showing the dispatch of the system units according their dispatch priority (in increasing economic order given by the parameter “varc”. The Pivot Table in MOD6_B1, MOD6_B2, and MOD6_B3 respectively show the data for one block of a day. It is possible to visualize different blocks and days through these Pivot Tables, however it is better to use “OMcalc” to load a single date with all detailed formulae.

"CDMD5"	"CDM Plants Dispatch"	<ul style="list-style-type: none"> Table1: Contains a Pivot Table showing only the registered CDM projects in the system, ordered by their registration date "cdm_start".
"OMcalc"	"Operating Margin EF Calculation from Merit order Dispatch"	<p>This sheet contains all relevant information required to calculate the OM emission factor.</p> <ul style="list-style-type: none"> Table 1 - CDM Plant j Energy Dispatch (Cj) for each hour h. Table 2 - Marginal Plant i identifier (id) for each hour h. Used only for referring to each marginal plant. This is obtained hourly from MOD6_Bx sp sheets, Table 1 - following the priority list Table 3 - Marginal Plant i Maximum energy generation (Ai) for each hour h. Data from MOD6 worksheet for determining the set of Ai plants according to Table 2 and 'plants' worksheet, plant capacity (net) Table 4 - Marginal Plant i actual Energy Dispatch (Bi) for each hour h (data from MOD6_Bx worksheets) Table 5 - Marginal Plant i Remaining energy generation capacity (Ai-Bi) for each hour h (data from Table 3 and Table 4) Table 6 - Marginal Plant i Emission Factors (di) for each hour h (data from "SP" worksheet, Table 1, Plant CO2 Emission Factors) Table 7 - Energy Displacement matrix for the Marginal Plant i due to the CDM Project j $D(j,i)$ for each hour h (calculated from above tables) - AM0026 Formula (11) Table 8 - Emission Factor (EFj,h) for the CDM Project j for each hour h (calculated from above tables) - AM0026 Formula (9) Table 9 - Emissions Abated by each CDM Project j (EFj x Generationj) for each hour h (calculated from above tables) - Numerator of AM0026 Formula (8)
"OMresults"	"Daily Calculation Results for AM0026 formula (8): Emission Abatement and Generation"	<p>This sheet stores daily OM calculations from "OMcalc" in order to compute AM0026 formula 8 for the whole period.</p> <ul style="list-style-type: none"> Table 1 - EFOM results according to AM0026 formula (8). Data from Table 2 below Table 2 - Daily results for emissions abated by each CDM Project j (EFj x Generationj) - Values are computed for each day in Table 9 of OMcalc spreadsheet. Once calculated, results are saved in this table. No calculations executed here