



EUROPEAN COMMISSION
EUROSTAT

Directorate E: Sectoral and regional statistics
Unit E-2: Environmental accounts and climate change



Doc. ENV/ACC/WG/05 (2013)
Point 5 of the agenda (day 1)

Energy Accounts

Progress and work planned

Eurostat – Unit E2

Working Group Environmental Accounts

Meeting of 19 - 20 March 2013
BECH Building – Room Quetelet

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Energy Accounts

Progress and work planned

This paper provides information about progress in developing Physical Energy Flow Accounts (PEFA). The focus of 2013-work is on the development of an IT-tool ("PEFA-Builder"). A Task Force meeting is *not* planned in 2013.

The Working Group is asked:

- to take note of the work done so far, and
- to endorse the planning for the future work.

1. Overview past developments

The ESEA 2008 gives the overall mandate to develop Energy Accounts. The Working Group agreed to develop first Physical Energy Flow Accounts (PEFA).

Eurostat set up a *Task Force on Energy Accounts* which met three times:

- 6-7 May 2010
- 7 June 2011
- 28 March 2012

The Task Force developed a set of physical supply and use tables on energy in order to derive "vectors" of certain energy indicators (see Annex 1) which e.g. can be added to environmentally extended Input-Output models.

In January 2012 a draft *Manual for Physical Energy Flow Accounts (PEFA)* was provided.

In February 2012 a ESTP training on PEFA took place in Vienna.

Between January and March 2012 a selected number of countries tested the PEFA tables. Energy statistics form the major data source for "populating" PEFA tables.

The testing revealed that "populating" the PEFA tables constitutes a complex compilation challenge to most of the countries. The conclusion was that - although the PEFA tables are conceptually mature - the actual compilation seems not feasible without some supporting tools.

As a consequence the Task Force agreed at its meeting in March 2012 that Eurostat should develop an *IT-tool* which shall facilitate the compilation of PEFA tables ("PEFA-Builder").

Since spring 2012 Eurostat (with the help of external contractors) is working on the development of this IT tool "PEFA Builder".

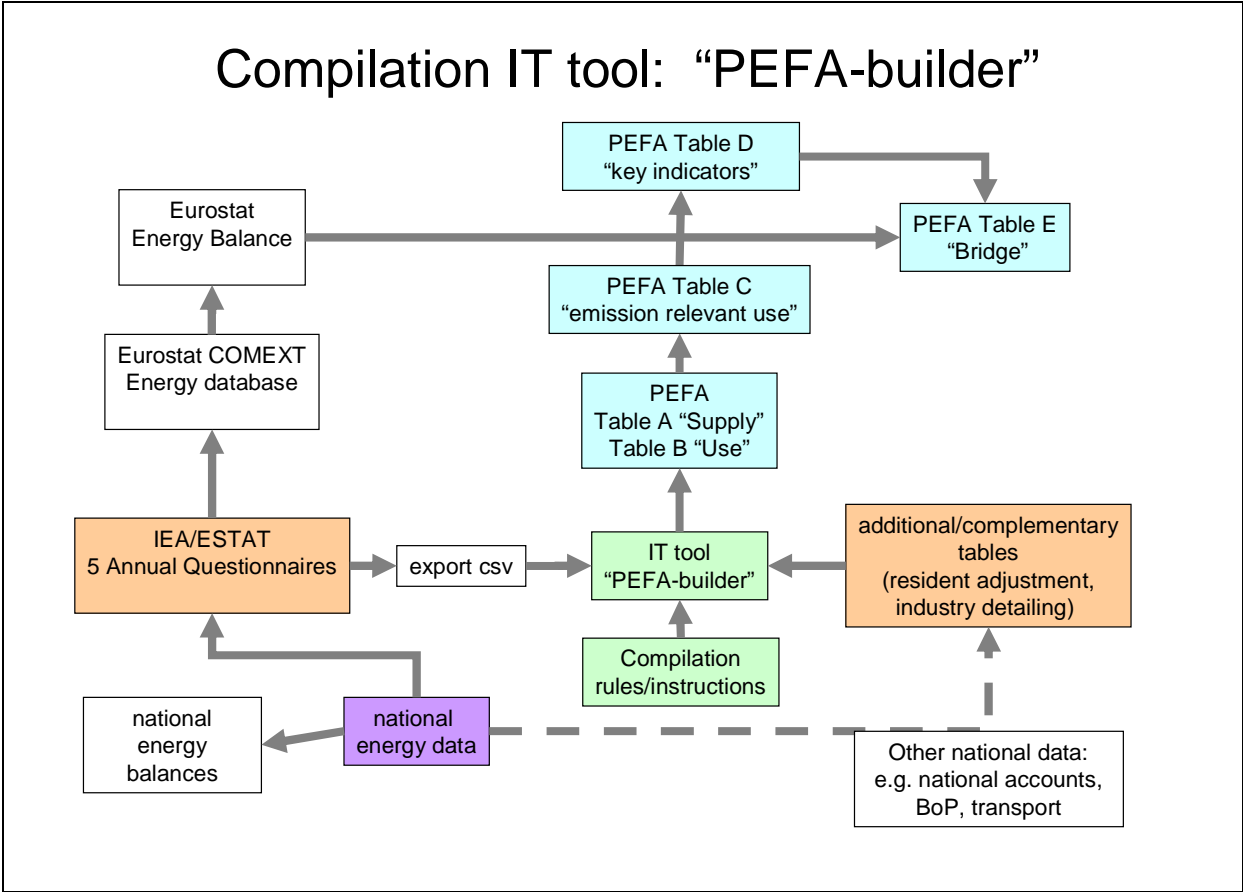
2. IT-tool "PEFA-Builder"

The "PEFA-Builder" is an IT tool currently developed by Eurostat (E.2 Environmental Accounts). It is supposed to support countries in compiling Physical Energy Flow Accounts (PEFA) which consist of a set of tables (A to E, see Annex 1).

This IT tool is supposed to be used by countries (NOT by Eurostat!). Usage of this IT tool by individual countries would strengthen the data comparability. Compilation of PEFA tables would be based on:

- a harmonised basic data set (the 5 Annual Questionnaires for energy statistics + some clearly defined additional/complementary data);
- a harmonised compilation approach.

The following flow chart illustrates the general architecture of the IT tool "PEFA-Builder":



National energy data (violet box at the bottom) in the one or the other form may be considered a point of departure. It is important to acknowledge that *national energy data* are differently organised in each individual country.

National energy data are used to compile *national energy balances* (white box at left hand bottom). *National energy balances* are not comparable across countries because they vary in scope, format, and compilation conventions due to different historical developments in individual countries.

National energy data do also form the basis for *5 Annual Questionnaires* (orange box left hand) developed and established jointly by the International Energy Agency (IEA) and Eurostat. The *5 Annual Questionnaires* are collected from ESS countries by Eurostat unit E.5 (deadline November). This data collection is legally based on Regulation (EC) No 1099/2008 on energy statistics amended by Regulation (EU) No 844/2010.

Eurostat unit E.5 validates the *5 Annual Questionnaires* in an iterative procedure and stores the content in an internal database, the *Eurostat COMEXT energy database* (see white box left hand).

From this internal energy database unit E.5 compiles *Eurostat Energy Balances* (see white box upper-left) following a harmonised conceptual approach. The *Eurostat Energy Balances* are comparable across countries. First versions are available around March/April.

The *5 Annual Questionnaires* constitute a harmonised energy data set at most detailed level. It is suited also as a point of departure for the "PEFA-Builder". One may assume that the *5 Annual Questionnaires* are available to national compilers of PEFA.

The data contained in the *5 Annual Questionnaires* can be exported into a flat file (see white box "*export.csv*" right to the orange box "*IEA/ESTAT 5 Annual Questionnaires*").

The *IT tool "PEFA-Builder"* (see upper green box in the middle) itself is an EXCEL-file with a number of macros and sub-sheets. It reads the exported data from the *5 Annual Questionnaires* and processes them according to certain *compilation rules/instructions* (see lower green box).

This processing leads to the filling ("populating") of *PEFA Table A "Supply" and Table B "Use"* (see blue box in the middle above the upper green box).

The information contained in the *5 Annual Questionnaires* is not sufficiently complete to populate PEFA Tables A and B. *Additional/complementary tables* (see orange box right hand) are required. E.g. additional information is needed for the adjustments towards residence principle (international transport). Additional information is also required for certain industry detailing (e.g. service industries).

The PEFA Builder (i.e. EXCEL-file) provides clearly defined templates for inserting *additional/complementary tables* by the user of the "PEFA-Builder" tool. The auxiliary data can consist of socio-economic statistics, transport statistics etc. They may be also based on national (energy) data which may be more detailed than the data provided through the Annual Questionnaires.

The *PEFA Table A "Supply" and Table B "Use"* (see lower blue box in the middle) is used to derive the other PEFA tables (upper blue boxes):

- PEFA Table C "emission relevant use"
- PEFA Table D "key indicators"
- PEFA Table E "Bridge"

The latter *PEFA Table E "Bridge"* corresponds to the main indicator "Gross Inland Energy Consumption" in *Eurostat Energy Balance* (white box, upper left hand).

3. Work Planning 2013

Work in 2013 will be devoted to the further development of the "PEFA-Builder".

If the project progresses as expected, a prototype version of the IT tool "PEFA-Builder" should be available by September for testing.

A technical documentation (guidelines/instruction how to use the tool) shall be finalised by the end of the year.

Annex 1: Overview PEFA tables

Scheme providing an overview on the set of reporting tables

Table A: Physical Supply Table for Energy Flows

	industries	households	accumulation	rest of world	environment	Total
natural energy inputs					A.	
energy products	C.			D.		
energy residuals	I.	J.	K.	L.	M.	

$$I. = B. + E. + N. - C.$$

$$J. = F.$$

Table D: Vector(s) of key energy indicators

	industries	households
energy key indicator(s)		

Table E: Bridge Table

energy key indicator (resident principle)
- energy use by resident units abroad
+ energy use by non-residents on territory
= energy key indicator (territory principle)

Table B: Physical Use Table for Energy Flows

	industries	households	accumulation	rest of world	environment	Total
natural energy inputs	B.					
energy products	E.	F.	G.	H.		
energy residuals	N.		O.	P.	Q.	

Table B.o: Physical Use Table for Energy Flows - of which: own use

	industries	households	accumulation	rest of world	environment	Total
natural energy inputs						
energy products	E.o					
energy residuals						

Table C: Physical Use Table of Emission-relevant Use of Energy Flows

	industries	households	accumulation	rest of world	environment	Total
natural energy inputs	B.er					
energy products	E.er	F.er	G.er			
energy residuals						

Legend:

	grey shaded cells do not contain anything
	white cells: numbers or symbols '-' (not applicable), '.' (not available)
R.	capital letters denote sub-matrices (cells) in accordance with draft chapter 3 of revised SEEA