Annex I to Briefing note BN-16.1

Last update: 21 June 2016

Impact of current proposals in Lot1 and Lot 2

ESTIF working document

Current PEF calculation proposals

The proposals are based on a study ordered by the European Commission. The study was requested to look in particular at how to measure the efficiency of electricity generation, including the following aspects:

- average vs. marginal electricity generation;
- current, future or desired efficiency of the electricity generation;
- time of use of energy.

Calculations methods

Four calculation methods are proposed:

- Calculation method 1
    - designed to provide a calculation method that is in line with the Eurostat primary energy calculation.
- Calculation method 2
    - designed to provide the most appropriate calculation method reflecting the total consumption of non-RES (renewable) sources.
- Calculation method 3
    - variation of calculation method 1 in order to analyse the impact of changing the allocation method for CHP from the “IEA method” to the “Finish method”.
- Calculation method 4
    - modifies calculation method 3 by adding the life cycle perspective to the conventional fuels.

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Results of calculations methods

Summary of the results based on the four proposed methods:

Table 1: Calculated PEF of electricity

Method	2000	2005	2010	2015	2020	2025	2030
Method 1	2.41	2.37	2.26	2.08	1.87	1.79	1.74
Method 2	2.41	2.36	2.14	1.90	1.59	1.46	1.35
Method 3	2.52	2.49	2.38	2.21	2.01	1.93	1.87
Method 4	2.65	2.61	2.49	2.30	2.09	2.00	1.93

The current PEF is set up at 2.5.

Besides the proposed methods, it is also discussed if the process should take:

- Average from 2015 to 2020 (PRIMES model projections)
- An intermediate year: 2017
- An extrapolation of Eurostat data

The expected impact in terms of variations in comparison the PEF 2.5 are:

Method	**2005**	**2010**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**		**2017**		**Average 16-20**
Method 1	2.37	2.26	2.08	2.04	2.00	1.96	1.91	1.87		2.00		2.0
Method 2	2.36	2.14	1.90	1.83	1.77	1.71	1.65	1.59		1.77		1.7
Method 3	2.49	2.38	2.21	2.17	2.13	2.09	2.05	2.01		2.13		2.1
Method 4	2.61	2.49	2.30	2.26	2.22	2.17	2.13	2.09		2.22		2.2
Variation: lowest			-24%	-27%	-29%	-32%	-34%	-36%		-29%		-32%
Variation: Highest			-8%	-10%	-11%	-13%	-15%	-16%		-11%		-12%

Impact on Lot 1 and Lot 2

Scenario 1	
Current PEF	2.5
New	2.2
Improvement	12%

Scenario 2	
Current PEF	2.5
New	2
Improvement	20%

Space heaters

Number of potential 'jumps' in energy labelling classes per type of product, based on the lowest value in each class, for both scenarios.

	Heaters	LT-HP
A+++	0	0
A++	0	0
A+	0	0
A	1	1
B	1	1
C	1	1
D	0	0
E	1	1
F	0	2
G	N/A	N/A

	Heaters	LT-HP
A+++	0	0
A++	0	1
A+	0	0
A	1	1
B	2	2
C	1	2
D	0	0
E	1	1
F	1	2
G	N/A	N/A

Water heaters

Number of potential 'jumps' in energy labelling classes per type of product, based on the lowest value in each class, for both scenarios.

	3XS	XXS	XS	S	M	L	XL	XXL
A+++	0	0	0	0	0	0	0	0
A++	0	0	0	0	0	0	0	0
A+	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0
B	1	1	1	1	0	0	0	0
C	1	1	1	1	1	0	0	0
D	1	1	1	1	1	1	1	1
E	0	0	1	1	1	0	0	0
F	0	0	0	0	1	1	1	0

	3XS	XXS	XS	S	M	L	XL	XXL
A+++	0	0	0	0	0	0	0	0
A++	1	1	1	0	0	0	0	0
A+	0	0	1	0	0	0	0	0
A	0	0	0	0	0	0	0	0
B	1	1	1	1	0	0	0	0
C	1	1	2	2	1	0	0	0
D	1	1	1	1	2	1	1	1
E	1	1	1	1	2	1	1	1
F	1	1	1	1	1	1	1	1

Conditions for 'jumps' in classes[1]:

More in detail, the variations required for a 'jump' between classes are estimated as described below.

For space heaters:

- The lowest possible A needs +9% to become A+
- The lowest possible A+ needs +28% to become A++
- The lowest possible A++ needs +20% to become A+++

If goes from CC = 2,5 to 2,0 = η => **+25%**

As a result A always becomes A+, A+ could become A++ and A++ always becomes A+++

For water heaters (load profile: L or XL):

- The lowest possible A needs +53% to become A+
- The lowest possible A+ needs +30% to become A++
- The lowest possible A++ needs +25% to become A+++

If goes from CC = 2,5 to 2,0 = η => **+25%**

As a result A could become A+, A+ could become A++ and A++ has a good chance to become A+++

This is also true for E-fired solar water heaters.

Note: Thermosiphon systems: Basic electrical water heaters will go one label step higher (e.g. D>C or C>B). For water heaters the max is label: A. 'Thermosiphon' systems are left with a minor potential difference of one (B>A) or two steps (C>A).

[1] Analysis courtesy of VA Consult, Gerard Van Amerongen