



Briefing note

Last update: 21 June 2016

Issue: Primary Energy Factor

Annexes:

- *Impact of current proposals in Lot1 and Lot 2 – ESTIF working document*
- *EC discussion paper for 17th June ad-hoc consultation (DiscussionPaper20May16)*
- *Annex to EC discussion paper for 17th June ad-hoc consultation (AnnextoDiscussionPaper_Report_PEF_2)*
- *EC presentation at 17th June ad-hoc consultation (pptPEF17June2016)*

Outline

The European Commission launched a consultation on the definition of the Primary Energy Factor. This factor indicates a reference value for the primary energy required per unit of final energy demand.

This calculation is relevant for different legislative pieces:

Energy Efficiency Directive (EED)

The European Commission has set the target in the EED to reduce EU primary energy consumption in 2020. Due to the fact that the target is defined on primary energy level the primary energy factor (PEF) that is applied for electricity is a crucial aspect in the overall assessment of energy saving measures that affect electricity demand.

Energy using products – Eco-design and Energy Labelling Directives (ED / EL)

The PEF is also used to define efficiency criteria for energy using products (eco-design and energy labelling) and has hence an impact on the choice of electricity versus fossil fuel based technologies, e. g. for space and water heating purposes.

Energy performance of buildings Directive (EPBD)

The PEF is also used in the EPBD in the framework of the cost optimal calculations. These are directly related to the performance level required for different types of buildings in different countries.



The current discussion was brought up by several Nordic countries, in particular Norway¹. As such, the EC started a consultation process, with the first meeting taking place in December 2014.

The EC is mandated in the EED to carry out a review of the PEF. Though they are proposing to do it earlier, within the current legislative review, which includes the EED and EPBD.

General Comments

The main discussion regards the energy labelling and eco-design, more concretely Lot1 and Lot2.

In the context of the EED and EPBD, the PEF might be calculated at national level². The discussions at European level are relevant in terms of setting the framework for the such calculation. But both the values and the calculation might be specific for each MS.

With regard to energy labelling, the PEF is relevant when comparing products using different energy carriers/sources, as it is the case of the water and space heaters (Lot1 and Lot2).

The current discussion of the PEF, clearly meaning to bring the value down will have two main implications:

- EL/ED: products using electricity will have a better result in terms of efficiency and might go up in the energy label classes. This effect will be mostly felt on the lower classes (with smaller intervals). In the case of heat pumps the PEF of electricity and the efficiency are the two central factors to assess the potential primary energy savings of the technology.
- EED: in the case of EED, the calculation of the PEF will affect the statistical data regarding the energy efficiency targets. In case of electricity saving measures a lower PEF leads to a lower theoretical contribution to the stated target on reduction of primary energy demand.

¹ Norway is member of the European Economic Area, and as such some EU regulations apply to them.

² Annex IV of the Directive 2012/27/EU states that:

“For savings in kWh electricity Member States may apply a default coefficient of 2.5. Member States may apply a different coefficient provided they can justify it.”



Expected impacts

The only solar thermal products that might be subject to the energy labelling for products are the thermosiphon systems with an electric back-up element. In this case, a lower PEF would benefit these systems. The impact would not be as strong as for electricity-only powered products, but would a slight increase in efficiency and in some cases, for those on the top of one energy class, could represent jumping one class.

The main impact is for heat pumps and mostly for direct heating. For these, they might in most cases benefit with one (some cases two) jumps in class.

Therefore, on one side, the packages with solar thermal are likely to have to face heat pumps with “improved” classes.

But the main impact is related to the electrification of the heating sector. The current changes will benefit mostly low performance products, with low classes and in some cases not surpassing the thresholds defined in the Eco-design regulations (for Lot1 and Lot2). Some products might go above the threshold (and continue in the market) and most are likely to jump at least one class.

This is the most serious issue and justifies also the urgency of revising the PEF in the framework of the ongoing legislative review, where the EC is also bringing other instruments that can support the electrification of the heating sector. More details in the Annex – Impact of current proposals in Lot1 and Lot 2.

Ongoing process

The European Commission has set the boundaries for the current discussion.

The following topics are considered closed and not for discussion anymore:

- There should be a value for the PEF;
- This value should be only one (i.e., not a set of values, so no seasonal PEF)
 - o *Note: this refers to the European PEF, that is mostly relevant for EL/ED. For the EED and EPBD, when transposing the Directives into national legislation, Member States can indicate a national applicable PEF.*
- The calculation method should endure, meaning that the method should be replicable and used in the coming years, just recalculating with new data.



Other topics, related to the scope where addressed, but rather for clarification, as EC considered them as non-controversial:

- The data used will be for EU 28 plus Norway
- The method will work on average PEF rather than marginal PEF
- It will use an annual PEF rather than seasonal ones
- Data on physical energy content being used.

There is in fact some dispute on the use of Norway, a country with very low PEF and that can bring down average. EC explained that this discussion applies to EU and EEA, hence only Norway should be considered.

Other questions brought for discussion included:

- Should the PEF take an average of 2015 to 2020, intermediate year (middle of the 5year period) or statistical data
- Proposal to use PRIMES data for the estimate 2015 to 2020
- Use a PEF rounded to the nearest decimal

Finally, a set of more complex discussions on methodology and very much related to nuances on the CHP processes and the way RES-E is considered:

- Should there be a different calculation for thermoelectric than power or heat
- Should non-biomass RES be counted or not
- What should be the system boundaries.

The positions differed clearly between those supporting electric power use and those support thermal energy use. The Member States were not active in this discussion, so it was mostly done between EC and different trade associations.

ESTIF position

ESTIF position regarding the PEF are focused on the fact that this discussion is mostly related to the heating sector and electrification of heating, and as such, the impacts will be felt mostly on EL/ED Lot1 and Lot2.

As such, ESTIF defended:

Seasonal PEF

A seasonal PEF would reflect better the higher PEF during winter, when most of the demand for heating occurs. Therefore, electric –powered products would consume more primary energy than an average annual PEF would indicate.



This proposal was dismissed by the EC due to the complexity of adopting different values for the PEF.

Base PEF calculation on historical data

The use of projections would reduce the value of the PEF further, as it is expected that there will be a higher level of RES in the power mix. These projections would be based on the PRIMES model which has been criticized by RHC association (Renewable heating and cooling) due to its limitations (and errors) in estimation heating demand.

This points is one of the main points currently discussed. EC wants to use an average of the projections up to 2020. Their argument is that statistical data is available too late and will be always outdated, not reflecting the current/future mix. They have the support of the “electricity lobby” and the opposition of the thermal one.

In Annex I the differences between using statistical data and projections.

Methodology should be comparable between countries

Each country will be able to calculate their own PEF, which will be relevant mostly for EED and EPBD. Taking into account the differences in the transposition at national level of the requirements stemming from EED and EPBD, ESTIF advised that the methodology should be consistent across borders, even if applied to local conditions and hence providing different values.

As such, following the work CEN is doing on PEF would also be relevant.

EC said that being able to compare methodologies would be desirable but that is solely up to the Members States. As for CEN, EC is focusing on their own approach and not interested on CEN method, also because that work will still take quite some time.

Impact on Lot1 and Lot2 to be considered

The main impact of the PEF will be on Lot1 and Lot2. In spite of this, the EC is not presenting or even preparing (at least officially) any analysis of the potential impact of the PEF in the current regulations for space and water heaters.

Other topics



Regarding other topics, ESTIF lacks the technical capacity and resources to have a more detailed evaluation and a solid analysis.

Next steps

EC wants feedback from stakeholders by the 4th July (extremely short deadline).

The questions put forward by EC for this consultation stage are:

- As for the RES accounting method, what are your views on the options 'Total primary energy' and 'Non-RES primary energy' approach?
- Which system boundaries would you find appropriate? What are your views on a life cycle approach in the calculation of the PEF for electricity?
- In order to include the effect in the next future of current policies in the calculation, do you think PRIMES data satisfy this need or would you opt for an extrapolation of Eurostata data?

The ESTIF is cooperating with other associations from the thermal sector to develop a joint position. ESTIF Board Members and ESTIF members shall be consulted.