



## Briefing note

*Last update: 6 October 2016 (v2)*

**Issue: PRIMARY ENERGY FACTOR**

### Context

The European Commission is due to publish its major legislative reviews on the energy sector -EED, EPBD, RED, Market Design- before the end of the year. This is the precise moment in which changes to the current energy policies can be introduced, which could affect the future energy mix. The electrification of the energy system (both for the heating and for the transports sectors) is on top of this agenda (see dedicated briefing note). The two camps now being clearly set and pushing in different directions in several issues, first of which the review of the Primary Energy Factors (PEF).

### Relevance for industry

The PEF is the main tool to calculate the primary energy consumption in EU. As such, it impacts most energy related EU legislations, and influences both the balance between energy efficiency measures and decarbonisation of the supply, and the relative competitiveness of electricity in the decarbonisation of the energy system. The lower the PEF, the better electricity would be performing in the future EU energy mix, compared to alternative fuels.

The main impact is related to the electrification of the heating sector, as electricity will be advantaged as a source of energy for the production of heat. The decrease of the PEF value will benefit mostly low performance electric heaters, with low classes and in some cases allowing them not to surpass 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.

### Primary Energy Factors: an update

After the Commission consultation on the review of the PEF, the DG Energy Unit on Energy Efficiency, in charge of the dossier, has been elaborating the inputs of this consultation,



and started working on its results. The PEF affects several EU legislations, from the EPBD to the Ecodesign and Energy Labelling, however, it is on the EED that a clear mention has appeared first.

In mid-September, after entering into the Inter-Service Consultation process, a first draft of the new EED and EPBD has been leaked. Among some other points of concern, **an article has been inserted, changing a footnote of the original EED, which would bring down the PEF value from 2.5 to 2.0.** The tiny article change has been overshadowed by more general debates on the leaked version, and did not receive much attention, apart from electrification vested interests.

The value of 2.0 is surprisingly even below the 2.2 value being discussed among stakeholders during the consultation process. The Commission justifies it in the introduction of the revised EED, as follows:

*‘Calculations of the PEF for electricity are based on annual average values. The Physical energy content accounting method is used for nuclear electricity (and heat) generation and the Technical conversion efficiency method is used for electricity (and heat) generation from fossil fuels and biomass. For non-combustible renewable energy, the method is the direct equivalent based on the Total primary energy approach. To calculate the primary energy share for electricity in CHP, the method in Annex II of the Directive is applied ('Finish method' or 'Alternative production method'). An average market position is used rather than a marginal one. Conversion efficiencies are assumed to be 100% for non-combustible renewables, 10% for geothermal power stations and 33% for nuclear power stations. Total efficiency for CHP is calculated based on the most recent data from Eurostat. **As for system boundaries the PEF is 1 for all energy sources.** Calculations are based on the most recent version of the PRIMES Reference Scenario. **The PEF value is based on the projection to 2020.** The analysis covers the 28 EU Member States and Norway’.*

There is still debate in the interpretation of this new value of 2.0, as to whether it comes from the projections being moved from an average date between now and 2020, to 2020, or if it stems from the PEF electricity being now calculated with the value of 1 being attributed to all fuel sources (including fossil fuels).



The second view opens what it is right now the main weakness of the whole Commission reasoning, hence a strong argument for the anti-electrification camp. **Considering a PEF=1 for all fuels in the calculation of the electricity PEF, would lead to an unfair treatment and market distortion**, as there would be no consideration of upstream energy losses for the electricity sector, leading to a situation where fuels applied to direct heating (such as gas) are considered differently from the same fuels, when applied to power production (gas turbines).