

**Recommendations on the final Commission's proposal for
Ecodesign requirements and the Energy Label for refrigerating appliances
with a direct sales function**

December 2018

Ahead of the Member States vote, we would like to welcome the draft Ecodesign and Energy Label regulations proposed by the European Commission. The drafts include many positive aspects that will lead to substantial energy savings. It is therefore crucial that the text is adopted swiftly because the regulation is estimated to result in 19 TWh/yr of electricity savings and GHG emission savings of 7.4 MtCO₂eq./a by 2030 and any delay will lead to forgone energy savings. We strongly advocate the entry into force no later than 1 September 2020. Manufacturers and dealers will have had the requisite year of preparation; already some are very advanced in their preparations, having stayed up to date with the preparation of the work on ecodesign regulation for refrigerating appliances with a direct sales function that began in 2007; a further delay will also unjustly penalize them.

EC, EL -> Return to the EEI Formula that was first proposed

Since the previous draft, major changes have occurred to the Standard Annual Energy consumption (SAE) formula with the introduction of new modelling parameters on top of the M and N parameters. **We urge the Commission to return to its original proposal and remove the two new parameters (C, P) and the sub-parameters to the original Y parameter** that make the formula less transparent:

$$SAE = (M + N \cdot Y) \cdot 365 \cdot C \cdot P$$

Parameter C favors appliances that can cool at lower temperatures. Manufacturers will be incentivized to produce appliances that reach lower temperatures and therefore consuming more electricity to be able to benefit from this advantage.

In the case of beverage coolers and ice-cream freezers, the **Y parameters** is determined by a formula that calculates the equivalent volume (V_{eq}). The calculation of Y has been made more complicated by adding sub-factors and overall **EEI values are 30-40% lower** than in the previous draft (cf. case study below):

$$\text{Beverage coolers:} \quad V_{eq} = \text{GrossVolume} \cdot ((25 - T_c)/20) \cdot C_c$$

$$\text{Ice cream freezers:} \quad V_{eq} = \text{NetVolume} \cdot ((12 - T_c)/30) \cdot C_c$$

In both cases, C_c is the climate class factor and it can lead to a 10%-20% allowance for appliances in the highest tropical class. This is another way for manufacturers to exploit the allowances and put more energy-consuming appliances on the market as they falsely appear efficient. This course of action has already taken place with household refrigerators where a large majority of products on the market are now intended for tropical climate class.

Furthermore, beverage coolers are required to use to Gross Volume in the calculation of Veq. This not only makes the Y calculation less transparent as beverage coolers are the only products that may use the gross volume instead of the net volume but also it can be an incentive to unnecessarily increase the un-usable volume that needs to be cooled.

Another 10% allowance is given to non-remote supermarket cabinets through the P value. If non-remote supermarket cabinets receive a bonus in their EEI calculation, there will never be a fair comparison in between the two different technologies.

Case Study Ice-Cream Freezers

Results of EEI calculations for static freezers for pre-packed ice-cream according to the current draft differ from the previous draft due to the following factors: a new **test standard** (EN 16901), new **M value, equivalent volume** instead of net volume (including factors **for temperature and climate classes**) and factor P for **non-remote appliances**.

Topten has analyzed the differences in EEI between current and previous formula, taking into account the different test standards.

Model	EN ISO 23953-2, previous draft EEI formula	EN 16901, previous draft EEI formula	EN 16901, current draft EEI formula	Difference previous and current draft EEI formula (%)
C1, CC_B for ICFT	63.3 (E)	39 (D)	23 (C)	- 41%
C1, CC_B for ICFT	51.1 (E)	29 (C)	18.7 (B)	- 36%
C1, CC_B for ICFT	73 (F)	46.9 (D)	27.2 (C)	- 42%
C1, CC_B for ICFT	57.2 (E)	42.1 (D)	27.9 (C)	- 34%
C1, CC_B for ICFS	47.5 (D)	33.2 (C)	20.2 (C)	- 39%
C1, CC_B for ICFS	39.8 (D)	26.5 (C)	17.8 (B)	- 32%

The elimination of the door opening sequence in EN 16901 has led to **“upgrades” by at least one energy class**. Instead of balancing this effect, the raised M value and correction factors of the new **draft decrease the EEI values by another 30-40%**, resulting in a yet higher energy class. For CC_C models this effect will be even stronger.

The draft of the Ecodesign regulation states that: “energy efficiency requirements are set according to the characteristics of each technology, thus creating a level playing field in the market”. We believe that technologies should indeed be on a same level playing field and be subject to the same rules. These coefficients however will disfavor efficient technologies and incentive manufacturers to produce devices with larger compressors (to reach lower temperature thanks to the C coefficient) or built for tropical climates (as it has been observed for household refrigerators with factor Cc).

For ice-cream freezers our data shows that new EEI values will be on average 55% lower than 2014 draft equivalents (EN ISO 23953), due to the new EEI formula and the new test norm EN 16901. In 2014 the average model on the market was set to EEI=100; now, measured according to EN 16901 and calculated with the new formula, the same model would have an EEI of approximately 45 (class D).

As a result, even the second tier of EEI<80 in 2023 will allow the sale of products that have only about half the efficiency of 2014 “average” models. This leaves absolutely no incentive for the market to develop. We strongly suggest that the Ecodesign follow its intention to set minimum requirements according to characteristics of each technology:

Maximum EEI for ice-cream freezers, expressed in %

From 01/01/2020 onwards	80
From 01/01/2023 onwards	50

These EEI values are based on the current draft EEI formula. We are prepared to re-calculate based on final adjustments to the EEI formula as well as to **calculate similar values for beverage coolers.**

The Energy Label uses the same formulas for the calculation of the EEI than the Ecodesign regulation. We believe that the introduction of these labels will lead to confusion because appliances consuming more energy might be in a better energy class. It is expected that buyers understand that an appliance that reaches a lower cooling temperature will be consuming more energy. It is important that they are aware of that when making their purchasing decisions.

EL -> The climate class should appear on the label

The Label also has an informative function and should help the consumers understand the difference in between products. **The climate class and temperature class should both be shown on the label** to explain the differences in energy consumption. This can be done analogous to the way the climate class is shown in the label for professional refrigerators.

EC -> Scope

Refrigerated drum vending machines have been taken out of the scope as they are inherently inefficient and might have been banned completely by the MEPS. However, they are covered by EN 50597. As such we ask for refrigerated drum vending machines to be covered by the mandatory product information requirements of the Ecodesign regulation so the market will be mature when the next revision takes place.

EC, EL -> Definitions needing clarification

Some new terms have been introduced that may lead to ambiguities that we would like to clarify:

- **“Custom-made refrigerating appliance”**

Custom-made appliances can be mistaken with one of the many uncommon appliance configurations. Uncommon configurations could be considered as custom-made and therefore fall out of the scope of the regulation. We support the definition given by the Commission in EC & EL Article 1.2(g), but suggest to add the highlighted sentence: *“custom -made refrigerating appliance with a direct sales function made on a one-off basis, not to be mistaken with configurations as described in EC Art. 4.3 and Annex II 3b, (...)”*
- **“Built-in appliances encased by panels”**

Built-in appliances are not part of the scope of the draft Regulation including cabinets that are “to be installed in cabinetry or encased (top, bottom and sides) by panels”. We believe that appliances that are encased in panels could be used as a loophole where a normal appliance is put on the market but is out of scope because it has panels around it. **We call for the removal of encased built-in appliances from the scope exemptions.** [EC Art. 2.16(a), EL Art. 2.18(a)]
- **“Refrigerating appliances with a direct sales function that have no integrated system for producing cooling and function by ducting chilled air that is produced by an external air chiller unit”**

We request the Commission to be clearer in defining this product as it is in the list of product types that are excluded from the draft Regulation. Specifically, it should be made clear that the “external air chiller unit” is part of the refrigerating appliances and not a remote component; otherwise it could lead to conflicts with the specific inclusion of remote cabinets with a direct sales function into the scope of the regulation. [EC & EL Art. 1.2(m)]
- **“food processing”**

The wording of the exclusion of food-processing appliances from the scope is not unambiguous with regards to appliances with one compartment specifically designed for carrying out food processing which is equivalent to less than 20% of the net volume. We ask the Commission to adjust the text in the following highlighted way: *“refrigerating appliances with a direct sales function specifically tested and approved for carrying out food processing such as ice-cream makers or microwave-equipped refrigerated vending machines, where the mere presence of one compartment with a net volume equivalent to less than 20% of the cabinet’s total net volume and specifically designed for carrying out food processing is not sufficient for exemption;”* [EC & EL Art. 1.2(d)]

- **“low noise refrigerating appliance”**

This definition was newly adjusted to refer to appliances with noise power emission lower than 23 dB(A) instead of the previous 20 dB(A); this definition is used to exclude all low-noise appliances from the scope of the regulation. In the last draft for the revision of EC No 643/2009 for household refrigeration, low noise appliances are defined as appliances with noise power emission lower than 20 dB(A), where low noise appliances between 10 l and 60 l are included in the scope. **We ask for the dB(A) limit to be re-set to 20** in order to maintain congruence of definitions within regulations covering refrigerator and freezer appliances and to prevent gaps in the scope. [EC Art. 2.30, EL Art. 2.30]

- **“Refrigerated vending machine”**

There exist on the market refrigerating vending machines that have an additional hot beverage functionality. These products are not covered by the measurement method for vending machines.

We ask the Commission to modify the definition for this product and add the highlighted text:

“vending machines with an additional function such as hot beverages are not included”. [EC Annex I Clause 1(4), EL Annex I Clause 1(11)]

EL -> Display of the label adapted to the B2B market
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Obligation for dealers

The current phrasing in the text of the draft of the Energy Label Regulation does not take into account the fundamental differences between B2C and B2B markets. The specifications under the obligations of dealers (EL Art 4b) require the label to be presented in proximity to the price of the product in case of distance selling through the internet (EL Annex VIII); this is not sufficient to guarantee that the energy efficiency class is shown online because many manufacturers and dealers do not mention this information in the first place.

We propose to remove this gap by replacing the price with the following highlighted phrase in EL Annex VIII:

“The appropriate label made available by suppliers in accordance with point 1(g) of Article 3 shall be shown on the display mechanism in proximity ~~to the price of the product~~ to any material concerning a specific model of a refrigerating appliance with a direct sales function.”

Obligation for suppliers

In the B2B market, suppliers showcase their product lines on their websites and redirect buyers to local dealers that will deliver an individual quote for the product for the purchase (depending on the number of appliances, the client relationship, ...). The supplier is not actively promoting its product but passively showing them on their website. They might therefore not feel the need to add the energy label next to the products on their websites. However, we believe that these websites serve as an important decision-making platform which in itself is a significant part of the sales process.

In the article on responsibilities of suppliers (EL Art.3) the obligation for the presence of the energy label on manufacturers' websites is not clearly stated. It can be argued that the content of their websites is not considered as "visual advertisement" or "technical promotional material" (EL Art. 3e and 3f) because both would involve some act of active promotion.

To ensure that the Energy Label is presented consistently next to the products, we suggest the additional reference to Annex VIII (selling through the internet) and to remove the limitation to technical promotional material as highlighted below as well as to insert a new paragraph:

EL Article 3

- (e) "any visual advertisement for a specific model of a refrigerating appliance with a direct sales function, including on the Internet contains the energy efficiency class and the range of efficiency classes available on the label in accordance with Annexes VII and VIII"*
- (f) Any **technical-promotional** material concerning a specific model of a refrigerating appliance with a direct sales function, including on the Internet, which describes its specific technical parameters includes the energy efficiency class of that model and the range of efficiency classes available on the label, in accordance with Annexes VII and VIII.*
- (i) Each refrigerating appliance with a direct sales function, at the point of sale (including trade fairs), bears the label provided by suppliers in accordance with point 1(a) of Article 3, with the label displayed in such a way as to be clearly visible".*

Trade fairs

In the B2B market, large sales volumes are generated during trade fairs. These events are not considered as a traditional "points of sale" and in fact many appliances are not labelled during these events.

We would like to see the labelling duties expanded at the point of sale for dealers and suppliers to ensure that labelling is also mandatory at trade fairs.

We suggest introducing the following highlighted text::

EL new Article 3i (obligations of suppliers, as shown above):

“Each refrigerating appliance with a direct sales function, at the point of sale (including trade fairs), bears the label provided by suppliers in accordance point 1(a) of Article 3, with the label displayed in such a way as to be clearly visible”.

EL Article 4a (obligation of dealers):

“Each refrigerating appliance with a direct sales function, at the point of sale (including trade fairs), bears the label provided by suppliers in accordance with point 1(a) of Article 3, with the label displayed in such a way as to be clearly visible”.

EL -> Reinforce Regulation (EU) No 517/2014 “F-Gas Regulation”

Current numbers on high market demand for HFCs from the supermarket sector strongly suggest that the planned HFC phase-down is not progressing according to plan. In order to inform and protect buyers during this transition period, we recommend the following highlighted additions to the Annex V of the proposed Energy Label regulation for refrigerating appliances with a direct sales function:

EL Annex V, Table 10:

“Refrigerant fluid(s): [...] In case the refrigerant is affected by the phase-down foreseen in Regulation (EU) No 517/2014, a clearly visible coloured warning shall be displayed according to the following example: ‘Warning, this appliance contains a refrigerant with a high GWP ([value]) that will be banned from the European Market in [year of ban].’”

EC -> Reinforce provisions on resource efficiency

We support the requirements made to facilitate the disassembly and repair of refrigerators with a direct sales function made in the current draft. We believe that some of the provisions can be taken a step further and be in line with the ambition of the requirements set forth in the draft for washing machines and dishwashers.

Availability of spare parts is a key material efficiency consideration, and we strongly support the inclusion of a minimum period of spare part availability and a list of available spare parts, however this needs to be improved as highlighted below:

EC Annex II, Clause 2c:

*“manufacturers shall make available at least the following necessary spare parts, **including at least thermostats, temperature sensors and printed circuit boards**, for their refrigerating appliances with a direct sales function for at least 10 years after the production of the specific model has ceased. Manufacturers shall document the sequence of non-destructive,*

reversible operations needed to access the parts listed above, including for each of these operations, the type and the number of fastening techniques(s) to be unlocked, and non-proprietary, commonly available tool(s) required:

- Thermostats / thermistors / temperature sensors
- Starting relays
- No-frost heating resistors
- Electronic processors (PCBs)
- Compressors
- Interior elements (drawers, baskets, shelves...)
- Knobs, Dials & Buttons
- Refrigerant gas tubes

Minimum availability of spare parts

The reduced availability of spare parts to 6 years after the production of the specific model has ceased, is insufficient. Taking into consideration the time from production at the factory, to the delivery to the dealers, the installation at the final location, spare parts could cease to be available after little more than half of the products' lifetime. In order to truly effect the market, we strongly urge the minimum availability for spare parts, door gaskets and light sources to return to **at least 10 years**. [EC Annex II, Clause 2c, 2d]

Maximum delivery time of spare parts

The timely delivery of spare parts is also a key consideration. Especially in the commercial sector where a faulty appliance may lead to a decrease in revenues and possibly a loss of inventory. We urge the Commission to require a maximum delivery time of **one week** for spare parts should also be specified. [EC Annex II, Clause 2b]

EC, EL -> Items to consider in the revision

For the revision of the regulation, attention should be brought to:

- **The scope:**

Built-in cabinets, vertical static-air refrigerated cabinets, refrigerated drum vending machines, saladettes and chilled horizontal serve-over counters with integrated chilled storage should be assessed and see if they can be included into the scope of the regulation. We suggest the following highlighted addition to EC Art. 8:

The review shall in particular assess:

- *Any significant changes in the market shares of various types of appliance, in particular vertical static-air refrigerated cabinets, saladettes and chilled horizontal serve-over counters with integrated chilled storage;*
- *The appropriateness of including refrigerated drum vending machines into the scope of Ecodesign minimum requirements and Energy Labelling*

- [The appropriateness of introducing a harmonized method for determining the standard annual energy consumption for vertical static-air cabinets;](#)

- **Simplified EEI formula with different MEPS values per technology**

For the sake of keeping the EEI formula transparent, it would be worth investigating if the Commission doesn't wish to have a simplified EEI formula and different MEPS for the different types of refrigerating appliances. The simplified EEI formula could be defined as in the 2014 draft:

$$EEI = \frac{AE}{SAE} \times 100 = \frac{TEC \times 365}{(M + N \times Y) \times 365} \times 100$$

with $Y = TDA$ for supermarket cabinets and
 $Y = Vol$ for beverage coolers and ice – cream freezers

Formula 1: Formula for the EEI shows the impact of the M and N values

We suggest the following highlighted addition to EC Art. 8:

[“The review shall in particular assess:](#)

- [The reference values for the calculation of the SAE;](#)
- [Any significant changes in the market shares of various types of appliance, in particular beverage-coolers, ice-cream freezers, supermarket refrigerators and freezers, counter-refrigerators and freezers, roll-in cabinets and semi-vertical cabinets](#)

- **Consistent instructions on testing of products' series**

For commercial refrigerated display cabinets, each model is typically available in up to several hundred configurations (small changes to one model that don't impact the technical components). As such, testing and declaration of energy data for each configuration is a controversial issue. While some of the configurations impact the declaration of energy data, testing all configurations separately is likely to overstrain the laboratory capabilities of many manufacturers.

If each model is not tested separately, the Commission should provide guidelines for the testing of the least-performing configuration and extrapolation methods to calculate all possible configurations. It should also, based on the information gathered so far, determine common factors for the most common configurations that could be used by everyone and thus facilitate this process.

We suggest the following highlighted addition to EC Art. 8:

[“The review shall in particular assess:](#)




- [The appropriateness of introducing a guideline to stipulate a general rule for least-performing configuration testing or extrapolation methods to calculate possible configurations based on data obtained through EC Art. 4.3”](#)

- **Revision of whether the total display area (TDA) parameter used to calculate the EEI unintentionally leads to a bigger glass surface.** We see evidence that the EEI can be lowered by as much as 50% for small cabinets by counting the glass area of the side walls, leading to a misleadingly good EEI. This issues applies to vertical supermarket cabinets as well as supermarket chests with glass sides.

We suggest the following highlighted addition to EC Art. 8:

“The review shall in particular assess:

- *Whether the total display area (TDA) is the best parameter to calculate the EEI;*
- *The appropriateness of introducing a new parameter to calculate the EEI such as net volume of display area of the main glass front;”*

			
Total display area	1.2 m ²	1.4 m ²	4.5 m ²
Display area only front	ca. 0.6 m ²	ca. 0.8 m ²	ca. 2.9 m ²
Difference in EEI when using only the front display area	-50%	-40%	-35%

EC, EL -> Correction of typos

We have noticed some typos, missing mathematical operators and use of incorrect units for measured values:

- TDA definition -> unit should be given in m² according to EN ISO 23953-2 (not dm³ or litres)
- Table 4: M and N coefficient values (Annex III) -> vertical, semi-vertical and combined supermarket refrigerator cabinet M and N values are marked with an Asterix that has been removed from below the table
- Y formula for beverage coolers (EC Annex III, Clause 2(b.3.a) -> multiplication sign missing

EC -> Updated Benchmark values

We have updated product information on benchmark values. The table in the draft could be updated as follows:

EC ANNEX V BENCHMARKS

At the time of entry into force of this Regulation, the best available technology on the market for refrigerated appliances with a direct sales function in terms of their Energy Efficiency Index EEI was identified as outlined below.

	TDA (m ²), net volume (l) or gross volume (l) as applicable	T ₁ or T _v	AE (kWh/yr)
Supermarket cabinets (Vertical refrigerator)	3.3		4526 (= 12.4 kWh/day)
Supermarket cabinets (Horizontal refrigerator)	2.2		2044 (=5.6 kWh/day)
Supermarket cabinets (Vertical freezer)	3		9709 (=26.6 kWh/day)
Supermarket cabinets (Horizontal freezer)	1.4 or 2.76		1621 (= 4.4 kWh/day) or 6424 (=17.6 kWh/day)
Can and bottle machine	548	7 °C	1547 (= 4.24 kWh/day)
Spiral refrigerated vending machine	472	3 °C	2070 (= 5,67 kWh/day in ready mode)
Beverage cooler	506		475 (= 1.3 kWh/day)
Small ice-cream freezer	302		329 (= 0.9 kWh/day)
Gelato-scooping cabinet	1.43		10862 (= 29.76 kWh/day)




Supermarket cabinet (Horizontal freezer)	Beverage cooler	Small ice-cream freezer
		

Table: Screenshots of products used for the updated Benchmarks by Topten