

# Green or not green

## – Feedback on the EU classification system for green investment

*Proposals to improve the delegated EU regulation 2020/825*



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The EU Taxonomy is a classification system to channel private investments into clean technologies. The EU Taxonomy technical screening criteria will have an important impact on the investment decisions in the European building and HVAC sector. This article recalls proposed criteria for new and existing buildings and make comments for revisions.

**Keywords:** Green investment, Green Deal, Renovation wave, Taxonomy, EU standards, Energy efficiency, Buildings

Building professionals will be strongly impacted by the channelling of green investment into clean technologies (e.g. from fossil fuel boilers to renewables). They will play a key role to make the EU policies happen by implementation the new technologies and by reporting the benefits from green investment in the building sector. Regulation (EU) 2020/852 [2] (the ‘Taxonomy Regulation’) provides

the framework and requirements for technical screening criteria. The taxonomy will provide investors with an EU common framework definition of what is green and what is not. The technical screening criteria for climate change mitigation and adaptation are under preparation as a delegated regulation. A public second phase consultation was running until 18th of December 2020.

To have a real positive impact on the planet, reliable technical screening criteria are needed, which will not only intend but also deliver what is promised. They must be widely accepted by the market participants who should implement the necessary actions that will transform the EU policies into real results. There is the need for common definitions and methods at European level to provide comparable, reliable results with a sustainable, transparent and affordable ambition level.

Hereafter extracts of the draft “Delegated regulation supplementing Regulation (EU) 2020/852)” are provided and proposals for revision are made.

## Chapter 7.1. Construction of new buildings

The eligibility criteria stated in the draft regulation in Annex 1 - Chapter 7.1. Construction of new buildings are reported hereafter (extract):

“The Primary Energy Demand (PED)<sup>511</sup>, defining the energy performance of the building resulting from the construction, is **at least 20% lower** than the **threshold set for the nearly zero-energy building (NZEB)** requirements in **national** measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).

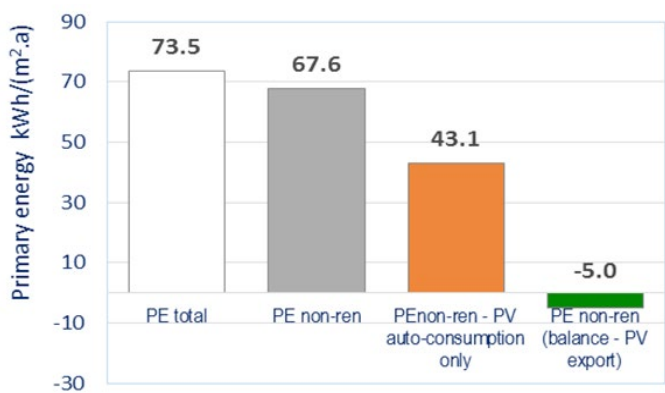
Footnote<sup>511</sup>: The calculated amount of energy needed to meet the energy demand associated with the typical uses of a building expressed by a numeric indicator of total primary energy use in kWh/m<sup>2</sup> per year and based on the relevant **national** calculation methodology and as **displayed on the Energy Performance Certificate (EPC).**”

The taxonomy bases the threshold on national methods. In Europe more than 30 **national or regional** regulations are used. Several studies (e.g. EC ENER/C3/2013425 Technical assessment of national/regional calculation methodologies for energy performance of buildings [6]) showed that national or regional regulations have:

- **different levels of technical qualities** e.g. new technologies, some renewables, are missing;
- **different boundaries conditions and definitions** e.g. export of on-site PV electricity production;

- **different indicators** e.g. total primary energy, non-renewable primary energy;
- **different ambition levels for NZEB definition.**

Therefore, there is **no comparability** between all national calculation methodologies. The figure hereafter shows the results on **primary energy demand (PED)** for the **same building**, for the **same climate conditions**, but with **different boundary conditions and definitions**. The results vary from 73,5 kWh/(m<sup>2</sup>.a) to – 5,0 (kWh/m<sup>2</sup>.a) depending on the type of primary energy and the way how and if PV production is considered (source: ALDREN project <https://aldren.eu/>).



**Figure 1.** Primary energy demand for the same building but with different boundary conventions.

These **high differences** between the results **lead to a fragmentation of the EU market** because it does not allow to create an EU wide level playing field for technical neutral solutions and tools.

National EPCs are official documents and should be used for the technical screening to avoid additional administrative burden for the EU taxonomy. But **their quality should be verified** and improved if necessary (the improvement of the EPCs is already requested in EPBD [4]). **EU funding** should be based on a **comparable ambition level** to ensure that in all countries the activities in construction sector are treated equally.

### Proposal 1:

The **proposal 1** is made to compare the results of national and regional methods with those of EU standards developed under Mandate 480. The results of EU standards itself should have been checked against measurements. Only verified methods should be allowed to be used for the technical screening criteria for EU taxonomy.

The taxonomy proposes as threshold for eligibility “at least 20% lower than NZEB”. The NZEB level will be mandatory in MSs for all new buildings from 1st of January 2021 however the ambition levels differ.  
**Proposal 2:**

The **proposal 2** is to replace the threshold “at least 20% lower than NZEB” by “the comparable NZEB level” based e.g. on the values in Commission Recommendation (EU) 2016/1318 on guidelines for the promotion of NZEBs [5] as a **starting point of the eligibility**. To motivate building owners going beyond the NZEB level towards the net zero or energy positive buildings the eligibility of the **project capital expenditures** could be based on an **improvement target proportional to the difference between the mandatory NZEB level and the net zero level of a building** (e.g. entirety of capital expenditures at net zero level).

The taxonomy sets the Primary Energy Demand (PED) as an indicator for the energy performance of building. But using PED as unique indicator, a low Primary Energy Demand can be reached by compen-

sating a low level of building envelope insulation by using energies with a low primary energy factor. This is a negative side effect. A green building should be resilient, should have the high quality of the building envelope, of the building technical systems, and use renewables to satisfy the small amount of energy still to be delivered while ensure good indoor environment quality. This approach corresponds to the definition on NZEB in the EPBD [4].

**Proposal 3:**  
 The **proposal 3** is to **complete the Primary Energy Demand (PED) by additional indicators** and thresholds. The PED should be only allowed to be used to characterise the building performance if other indicators (thresholds) are reached before (e.g. final energy, energy efficiency, indoor environment quality). This approach is recommended in EN ISO 52000-1 Annex H [8]. The thresholds are defined for example in the H2020 ALDREN project [7]. These additional indicators are not an additional administrative burden because they are needed in any case to calculate the PED. They have been used in most EU countries in former building regulations (see **Figure 2**).

**Example on new requests: Assessment of energy performance**  
 Evolution of assessment perimeters (assessment boundaries)

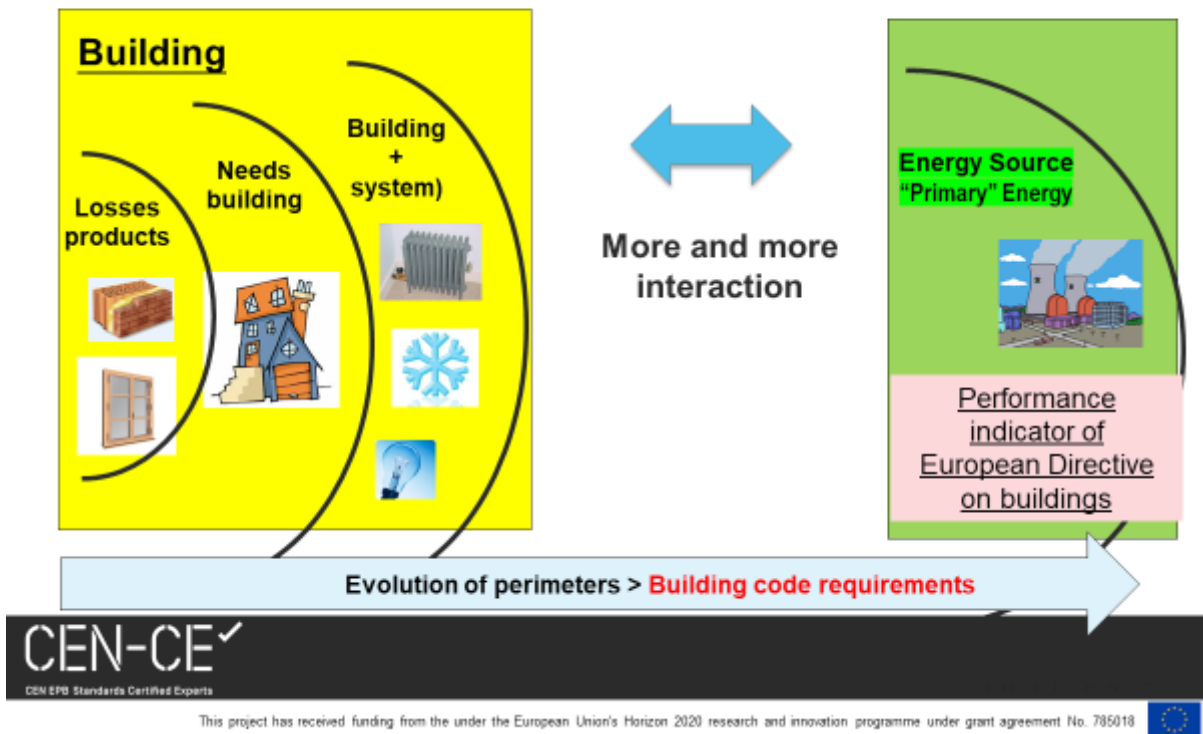


Figure 2. Evolution of request in building regulations.

## Chapter 7.2. Renovation of existing buildings

The eligibility criteria stated in the draft regulation in Annex 1 - Chapter 7.2. Renovation of existing buildings are reported hereafter (extract):

“A renovation is eligible when it meets one of the following thresholds:

- Either building renovation complies with the applicable requirements for **major renovations**<sup>534</sup>
- Footnote <sup>534</sup>) As set in the applicable **national and regional** building regulations for ‘major renovation’ implementing Directive 2010/31/EU. The energy performance of the building or the renovated part upgraded **meets cost-optimal minimum energy performance requirements** in accordance with the respective directive.
- Alternatively, it leads to a reduction of primary energy demand (PED) **of at least 30%**<sup>535</sup> in comparison to the energy performance of the building before the renovation.
- Footnote <sup>535</sup>) The initial energy performance and the **estimated improvement** shall be based on a detailed building survey, an energy audit conducted by an accredited independent expert or **any other transparent method and validated through an Energy Performance Certificate**.
- The **30% improvement results** from an **actual** reduction in primary energy demand (where the reductions in **net** primary energy demand through renewable energy sources are not taken into account) and can be achieved through a **succession of measures within a maximum of 3 years.**”

The taxonomy allows two eligibility criteria: one based on the national and regional regulations for major renovation and another on the reduction of the PED. Allowing two eligibility criteria is **confusing** and could lead to **choose the less ambition solution**.

### Proposal 4:

The **proposal 4** is to keep only the eligibility criteria based on an improvement target on the annual PED.

The taxonomy states a **30% improvement threshold for eligibility** (compared to the existing stage). This would probably motivate building owners towards

building renovation. But the real renovation potential is much higher, especially for major or deep renovation. In some countries the requirements for major renovations are the same as for new buildings.

Taking **the existing stage** of the building as the **reference** for the 30% improvement is **critical**. For example, the 30% threshold for an old building with a primary energy consumption of 200 kWh/(m<sup>2</sup>.a) before renovation would lead to an energy consumption of 140 kWh/(m<sup>2</sup>.a) after renovation. This is far from a possible NZEB building level of e.g. 50 kWh/(m<sup>2</sup>.a) PED. A building consuming 140 kWh/(m<sup>2</sup>.a) after renovation cannot be qualified as “green”.

The 30% threshold on the existing stage may lead to **low ambition level, untapped energy savings potential** and a lock-in effect for further renovation towards NZEB level.

EPBD [4] requires MSs to facilitate the cost-effective transformation of existing buildings into NZEB. Renovated buildings have to meet minimum energy performance requirements (NZEB from 2021) in so far as this is technically, functionally and economically feasible.

### Proposal 5:

With regard to the climate change mitigation only NZEB should be the target of renovation when it is possible. The **proposal 5** is to **replace** the threshold **related to the existing stage** and to set as reference the comparable NZEB level. The NZEB threshold **for existing buildings** could be **different** from the NZEB level of new buildings (e.g. 120% of PED for NZEB) not only because in existing buildings not all possibilities to increase the energy efficiency could be used, but because **the embodied energy to be spent for renovation is lower than for new buildings construction**. As for new buildings, it is proposed also for existing buildings to link the capital expenditures proportionally to the difference between the NZEB level and the net zero level of a building (entirety of capital expenditures at net zero level).

The taxonomy offers the possibility to reach eligibility by measurements *“The 30% improvement results from an actual reduction in primary energy demand can be achieved through a succession of measures within a maximum of 3 years”*. The actual performance of the buildings is key for EU targets and building owners. Therefore, the gap between the modelled and actual performance of the buildings must be reduced.

**Proposal 6:**

The **proposal 6** is to **precise the conditions of the measurements** to be real savings assessed and confirmed. Parameters as climate, use, occupation density, occupancy patterns, etc. should be considered. Reference to EN standards and to H2020 projects (e.g. ALDREN or QUANTUM) could be made.

**Resume**

A **coherent EU Taxonomy** can only be established if there is a common basis, a “**common language**”. In Europe, more than 30 national or regional and several well-known European or international methods are used. Because **the methods are directly linked to the indicators and thresholds**, the first thing to do is to verify if the different methods provide **comparable** results. Otherwise, a taxonomy referring to them would not be coherent, activities will not be treated equally and they will not contribute equally towards the environmental objectives. The methods should be compared to a **reference method**.

It is **proposed** to use the **EU standards** (financed by Commission to establish a Union methodology) as a **reference method** and to check all existing methods. If relevant, the EU standards should be compared to measured data.

Once the “common language” for calculation methodology is agreed, there is a need to define **common indicators** and to set **comparable thresholds** (e.g. NZEB).

The **common performance indicator** in the EPBD for the energy demand in buildings is the **primary energy use**. There is a need to define additional boundary conditions, for example if exported energy is considered which Primary energy conversion factors are used. It is **proposed** to refer to **EN ISO 52000-1** [8].

The **threshold for the EU taxonomy should be the NZEB level**. It is the target of building regulations. A new or existing building should not be considered as “green” if this target is not reached. The results of European funded H2020 projects (e.g. ALDREN project [7]) based on Commission recommendation [5]) could be used as a basis to define the NZEB threshold for the EU taxonomy. The **EU taxonomy should give benefit to a**

**higher ambition level, going beyond the mandatory NZEB level**. It is **proposed to link the capital expenditures proportionally to the difference between the NZEB level and the net zero level of a building** (e.g. entirety of capital expenditures at net zero level).

**Conclusion**

To make the EU taxonomy coherent and unambiguous there is a need for a common method, common indicators and common threshold to ensure that the activities contribute equally towards the environmental objectives. The common method and common indicators are already defined in the EU standards financed by Commission under mandate 480 given to CEN.

Regarding the climate change mitigation, only NZEB levels should be the target or reference for new and existing buildings renovation. The common threshold could be based on EU legislation and EU funded H2020 projects. The cost-optimality based only on the running costs is not the best approach. The non-energy benefits, risks and future costs from the climate change should be included (see experience from ALDREN project [7]).

EU wide common methods and thresholds will not prevent the EU Member States to set the ambition level according to their national needs and specifications. But it will avoid market fragmentation and distorting competition in the EU market, by setting a level playing field in connection with green financing.

The EU taxonomy could be a powerful tool to start the transition to a more coordinated approach on Energy Performance Certificates at EU level and push their quality. The Commission could contribute by putting in place the Voluntary common European Union certification scheme for the energy performance of buildings as requested in EPBD article 11/9. It could serve as an example for the EU member States when upgrading their national EPCs. ■

**References**

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