# ALDREN and CEN-CE

## – Two EU projects grounding the EU Green Deal and Renovation Wave on EU standards and EU skills

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To be efficient, the EU Green Deal must be consistent from the political top level to the application by qualified building professionals. For the EPBD, these coherence stops at 34 different national / regional implementation. ALDREN proposes a common EU wide building quality benchmark and CEN-CE an EU wide training and certification scheme based on EU standards.

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### From the EU to the national / regional level - a need for a coherent, comparable and reliable implementation of the Green Deal

There is a consensus in Europe that the Green Deal needs a clear associated taxonomy* defining the sectors, actions and targets to orientate and justify the related EU funding. Several taxonomies have already been worked out at high political level (EU Parliament, EU Council, EU Commission) and by the European Investment Bank (EIB).

The problem is that to realise energy efficient buildings, low carbon and healthy buildings in practise (and not only on the paper), the general taxonomies need to be completed by detailed technical rules and methods. This is well-known by HVAC professionals when designing HVAC systems.

As the Green Deal will be related to EU funding, it should be associated to a common EU wide Building quality benchmark. There is a need for transparency, technical neutral assessment and EU wide comparability to measure the results. The effort and results cannot be measured with different metrics.

It is not surprising that the taxonomy defined at the highest EU level is a general framework. This is also the case at national level. The approach is top-down: from the law, to the decree, to the regulation, to the technical rules. But at EU level this "top – down" approach is sometimes stopped at Member State level.

For some directives (e.g. the Ecodesign Directive) the implementation is straightforward, from the EU level to the national application. There is no possible deviation at national level. This is not the case for the Energy Performance of Building Directive (EPBD). For the EPBD the final implementation is made at national / regional level. Therefore, there are today 34 different methods, 34 different metrics in Europe.

To implement the Directive at the national level not all Member States have the same experience, the same

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* Taxonomy is the process of naming and classifying into groups within a larger system, according to their similarities and differences.

funding capacities. These differences are among the reasons why there are now in Europe different qualities of implementation, without any possibility of comparison: the m², the kWh primary energy, the calculation methods, the way how to export energy, the way how to define renewables, all is different.

Hereafter these differences are illustrated by an example. The EPBD requires that "*the energy performance of a building shall be expressed by a numeric indicator of primary energy use in kWh/m².y*". But the EPBD does not provide the assessment method neither the associated boundary conditions. As mentioned, this is done 34 times at the national/ regional level. **Figure 1** shows that for the same building, the same climate, the numeric indicator of primary energy may vary from 73.5 kWh (a rather normal building) to minus 5 kWh (a nearly zero energy building), only by changing the boundary conditions.

How in that case the EU policy objectives can be coherently implemented and measured?

The European Commission is aware about the need of improving the reliability of the transposition. This is underlined in the revised Directive EPBD 2010/31/EU (2018/844/EU). To reach a more harmonised transposition and to support the Member States in implementation, the EU Commission funded European Standards (Mandate 432 and Mandate 480) and European projects (e.g. H2020 projects ALDREN and CEN-CE). The use of standards and project outcomes, based on the best available European practice, would allow a coherent, comparable, reliable implementation and at the same time still consider potential national / regional characteristics of building.

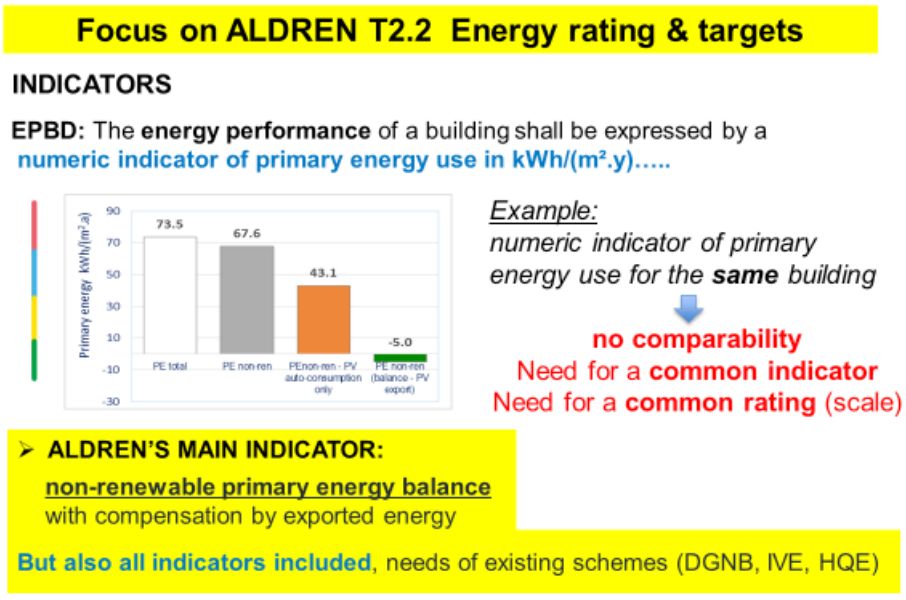


**Figure 1.** Indicators expressed in primary energy (total, non-renewable) and on the consideration of photovoltaic electricity production and export.

## ALDREN in a nutshell

The ALDREN project (ALliance for Deep RENovation in Buildings) is the extended development and the implementation of the European Voluntary Certification Scheme (EVCS) for non-residential buildings based on the EPBD Art. 11 (9) and CEN / ISO standards.

The core objectives of the ALDREN project are:

- to provide a harmonized European energy performance rating methodology, based on the European Voluntary Certification Scheme (EVCS),
- to design and verify by measurements the deep renovation energy performance in order to increase comparability and confidence by standardized solutions (CEN/ISO standards). We should definitely reduce the gaps in between predicted (calculated) and actual energy performance and make all efforts to avoid a "Buildinggate".
- to associate low energy renovation with high quality indoor environments (ALDREN TAIL) to promote solutions supporting health and well-being. A step-by-step renovation process is integrated in a Building Renovation Passport, the ALDREN BRP;
- to align market recognition of high quality with enhanced building value and capacity building.

The ALDREN outcomes support directly the EU policies. The non-residential sector (office buildings and hotels) is to be considered as a first step.

ALDREN is a holistic approach tackling not only energy performance, but also health /wellbeing and finance. Theses aspects are also requested by the revised EBPD amending Directive 2010/31/EU which must be transposed at national / regional level.

**Table 1** shows how the different ALDREN tasks (T2.1-T3.2)

***Table 1.*** *ALDREN outcomes supporting revised EPBD.*

DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 **amending Directive 2010/31/EU** on the energy performance of buildings and **Directive 2012/27/EU** on energy efficiency

| | **T2.1** Overall integration | **T2.2** EVCS | **T2.3** Measured energy | **T2.4** Health Wellbeing | **T2.5** Financial evaluation | **T2.6** Building passport | **T3.2** Training |
|---|---|---|---|---|---|---|---|
| **Art 1 Amendments Directive 2010/31/EU** | | | | | | | |
| **'(1) Article 2** | | | | | | | |
| **'(2) Article 2a Long-term renov. strategy** | | | | | | | |
| '1 highly energy efficient and decarbonised building stock by 2050, | | | | | | | |
| (b) cost-effective approaches considering potential relevant trigger points, | | | | | | | |
| (c) introducing an optional scheme for building renovation passports; | | | | | | | |
| (f)… as well as skills and education in the construction and energy efficiency sectors; | | | | | | | |
| (g) evidence of expected energy savings and related to health, and air quality. | | | | | | | |
| 2. roadmap with measures and measurable progress indicators | | | | | | | |
| (4') Article 7 existing buildings | | | | | | | |
| high-efficiency alternative systems and shall address healthy indoor climate'. | | | | | | | |
| (5) Article 8 Technical building systems, | | | | | | | |
| '1 overall energy performance, proper installation, appropriate dimensioning, | | | | | | | |
| (6) Article 10 | | | | | | | |
| '6. link their financial measures to the targeted or achieved energy savings | | | | | | | |
| 6a. Databases for energy performance certificates shall allow data to be gathered | | | | | | | |

address the recast EPBD requests and support the transposition at national level.

## CEN-CE – training expert on common methodologies

ALDREN provides a common methodology, the EU building quality benchmark. This is the needed first step of harmonisation. The second step is to bring the methodology into application, into professional practise. Therefore, a qualified building workforce and training is needed.

CEN-CE provides an EU wide training and certification scheme for HVAC professionals. CEN-CE focus on the following parts of the ALDREN outcomes:

- the energy performance assessment based on European standards. CEN-CE train HVAC professional on CEN TC228 standards (EN 15316 and EN 12831 series) and EN ISO 52000;
- cost optimality. CEN-CE train HVAC professional on EN 15459;
- measured energy and inspection. CEN-CE train HVAC professional on EN 15378 pArt 1 and 3.

The CEN-CE project is described widely in this special issue of REHVA Journal.

## Resume

To be efficient, the EU Green Deal for building renovation must be coherent form the political top level to the application by qualified building professionals in practise. To be coherent, the taxonomy is to be based on one single and common method (one common EU building quality benchmark) developed from the European best practice (the European Standards). The EU building quality benchmark must be precise and detailed, without any ambiguity so that the EU Green Deal can refer to it (European funding should be linked to European methods). This is the proposal of the ALDREN methodology.

The common ALDREN methodology will facilitate recognition of the professionals skills EU wide. Then the European professionals would be able to be trained on and to work with the same European tools. Qualified and upskilled experts will be the guarantee that the European Commitments on energy saving and $CO_2$ emissions are reached in reality.

ALDREN is contributing to display the quality of buildings and CEN-CE to increase the skills of European professionals. Both favour innovation by creating a European level playing field and quality jobs. ■