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AIE position paper on the revision of the EPBD

The Directive has set ambitious goals for new buildings but in a revised EPBD for 2030, the AIE recommends to focus on the following crucial issues:

a) There is still a huge **potential in existing buildings** that now needs to be tackled. In the revision there should be a higher focus on measures for existing buildings, harmonized with the EED.

b) There needs to be more focus on **effective and individual measurement and monitoring** of the real energy usage by type of energy. Today's electrical and electro technical installations, active control systems and technical installations enable simultaneously high functionality (enabled by digitalization) and cost-effective energy production, energy saving and load leveling (PV, storage, metering, control systems, technical integrations, end-user information systems etc).

c) The **end-user benefits** need to be emphasized and how they can **actively participate to the energy market**. Electrical contractors are the front runners enabling the end-user to be active in the energy market. From there the end-user will choose the active measures to have a reasonable pay-back time.

d) The revision needs to tackle the **active role of a building** and its life-long **operation phase** by providing a specific framework for mandatory and regular maintenance.

In this context, we define **Active Energy Efficiency** as lasting changes in the life-long building operation phase through measurement, monitoring and control of energy usage through integrated solutions (not just included in the equipment separately). It improves comfort in residential and commercial buildings and the efficiency of industrial processes.

Passive energy efficiency is regarded as the installation of countermeasures against thermal losses.

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In this paper the AIE would like to draw your attention on how to:

1. Increase energy efficiency
2. Increase renovation
3. Increase awareness
4. Increase investment
5. Increase renewables

1. Increase efficiency

- Making mandatory energy requirements both for new and deep-renovated buildings, has helped the market to accelerate the efforts made in improving energy efficiency. Further to the minimum requirements of EPBD, the cost of new buildings has however increased significantly.

→ *But still, there is a potential in **new buildings** for cost effective Active Energy Efficiency and Energy Management taking a closer look at how buildings use energy, particularly electricity, and what we can do to reduce that demand and ensure low consumption over time.*

More focus should be given to existing buildings, where the potential is equally high for both passive and active energy efficiency measures.

→ *The new international standard IEC 60364-8-1, “Electrical energy efficiency within low-voltage installations,” provides a framework for this effort, with useful guidance for both the designers of new buildings and owners of existing structures.*

- The envelop of a building depends on the climate in each country and should thus be considered at national level, but more focus and benefits of measurement, automation and active control systems inside the building should be emphasized at the European level.

Even the highest-efficiency buildings become less efficient over time if owners aren't vigilant in monitoring ongoing operations. A formal, continuous-improvement style efficiency program can ensure new buildings maintain their performance and can help bring existing facilities up to present-day standards over time.

→ *There is a need to go beyond thermal performance and cover all energy issues and not just insulation. To do so, specific measures need to be taken to understand current and ongoing electricity use through appropriate metering and monitoring equipment and facilitate the installation of automation and active control systems in buildings.*

- The methodology of the calculation of the performance of a building can be defined at European level, but the calculations should be made at national level because of different climate, building types etc.

We need to move towards **individual measured energy performance** in order to improve energy efficiency during the use phase and improve the operation of the building. Theoretical calculation methodologies do not reflect real consumptions and give a wrong picture to the consumers. The calculation methodology should be **technology neutral** and should apply regardless of the energy used to avoid discrimination between energy carriers.

We need MEASURES TO MONITOR AND CONTROL! The revision of EPBD should give a common framework and a calculation methodology to measure **real** energy consumptions. If we have higher energy requirements, we need to improve and have more monitoring and

measurement requirements. Measurement in kWh and kilowatts, in case they like to have some factor we need CO₂ factors instead of PEF.

→ *The energy performance of a building should only be expressed in final energy i.e. real energy as seen from the end-user side as it appears on the energy bill.*

An obligation for the meters to display real time consumption and compare it with similar houses to raise awareness amongst users would be a cheap and most useful way to increase energy efficiency.

- What is needed are regulatory actions ensuring smart meters not only for billing, but as a tool for utilizing investments in order to meter and control energy consumption on end-user side. Data needs to be anonymous, and it needs to be accessible to every company offering services that could increase energy efficiency with it, with the approval of the customer.

→ *The EU should make sure data does not distort competition by giving an advantage to companies collecting the data and having access to them and using them to provide other services.*

Example in Denmark and in Norway: ELHUB: a transparent IT centralized metering data system accessible to all authorised companies by the end-user = very good incentive to propose EE measures.

- Metering should be implemented on all energy carriers of the existing buildings. In this regard the revision of EPBD should be consistent with the revision of articles 9-11 of the EED on metering and billing information.
- The existing technologies and technical building systems can easily generate 10-20% energy savings based on addressing the active part of the installations. Moreover, electro technical installations become progressively less suited to the higher standards of functionality, security and safety required by today's society.

→ *A new article to include an obligation to verify that materials, equipment and systems have been properly installed and ensure energy efficiency as well as proper monitoring and maintenance of the technical installations and energy management systems by skilled contractors will equally improve the general reliability of the installation!*

- **Art. 8 energy efficiency directive: highlight the operation phase**
- EPBD doesn't take the CO₂ emissions at all into account, which can result in buildings using fossil fuel that can have a better certificate value than building using e.g. heat pumps with electricity. So EPBD leads to conflict with the EU's emission targets.

In addition, the Primary energy conversion factor for electricity (when defining nZEB) creates discrimination for electric solutions, not just in existing buildings but also in new buildings. In a lot of countries electric heating has become nearly impossible in new buildings, even when e.g. in Sweden and Finland it is their main way of heating and their electricity production is 80% CO₂ neutral, even more in Norway it's about 99% CO₂ neutral (hydro and wind power).

→ *The AIE is aware that the EC recognizes the problem of the current PEF and will contribute to the launched study on this specific issue as to find a fair and balanced solution coherent with the EU Energy Policy and long term vision and strategy.*

2. Increase renovation

- Today when renovating a building, energy performance is not the main objective. Energy prices are too low to stimulate that. People are rather pursuing a better quality and comfort, and consumption reduction is a plus but not decisive.

→ *In order to accelerate and increase the renovation rate and energy performance, EPBD now needs to strengthen its energy requirements in particular regarding the active role of the building. Obligations should not only focus on the envelope, but also **consider active energy efficiency, building automation controls (BAC's) and energy management technologies, which are also cheaper and have a short payback time.***

- In the existing building stock electrical installations and systems are often outdated and not suited to implement all new technologies. Moreover, in a renovation project the electrical system is often not the first thing that is being looked at. But the **backbone to implement smart technology and the Internet of Things in a safe way would be to first verify the compliance and conformity of the electrical system.**

→ *To not specifically address the **promotion and stimulation of active control systems, automation, energy management systems** would definitely impede a full implementation of the energy savings potential in Europe.*

However, a prior inspection of the existing technical systems in buildings should be added to ensure the highest and best efficiency level when renovating.

- The Commission also needs to make sure the national strategies tackle all types of buildings (housing, commercial, industrial, public and private...) and focus on a **stable financial framework** to boost investments.

The **Danish national building renovation strategy** is a nice example of an efficient strategy reducing energy consumption in existing buildings. This strategy is mainly targeting efficiency improvements in conjunction with retrofits/ renovation i.e. ensure the highest possible level of efficiency improvements whenever retrofits /renovation are taking place.

→ *The AIE recommends 4 different mandatory frameworks in the EPBD:*

- *Minimum requirements for thermal efficiency;*
- *Minimum requirements for active energy efficiency (see definition supra) and energy used in the building;*
- *Minimum verification requirements.*
- *Minimum requirements regarding local energy storage and renewable energy production for commercial buildings (payback time much shorter than for residential buildings).*

3. Increase awareness

- The main benefit of the directive is that the awareness has increased. When the awareness and consequently the knowledge rises, also the demand for solutions rises. After a while the solutions then become cost-effective. Therefore, we need to support first cost effective renovations and systems with a short payback time.
Nothing is done at the individual level to foster demand response: as long as there is no **individual metering and measurement** which requires the use of a smart meter,

demand response will not take off. This will allow the end-user to verify and control the performance of the building and make informed decisions.

→ *Individual smart meters for all energy carriers (including hot water, heat) per end-user in multi apartment buildings (instead of a single meter for the apartment block) empowering end-users to be informed about their energy consumption (immediate reading of energy consumption).*

Commercial buildings are absolutely needed so that users are more informed and act responsibly (bouncing effect after a renovation).

- There are different ways to raise awareness and Energy Performance Certificates (EPCs) is one of them. The implementation of EPCs has occurred differently at national level probably related with different national support schemes. But it is not really relevant to compare and harmonize EPCs Europe-wide.

The purpose of EPC is to make it easier for end-users to make informed decisions in the building market. In several MS however, the EPC “punish” electrical products and systems because of the Primary Energy Conversion factor (PEF).

This is very unfortunate; it motivates consumers to choose and purchase products that run rather on fossil energy instead of electricity, regardless of whether this will increase both the energy bill for consumers and greenhouse gas emissions.

→ *We strongly urge the revised EPC to focus on final energy use in buildings.*

- To restore public opinion’s trust in EPC’s and better inform and raise awareness amongst consumers, EPCs should not only focus on the envelop but also on measurement of real consumptions and on the promotion of the big potential of technical installations and active control systems.

In the UK e.g. they have a recognized energy advisers scheme for electrical contractors who are at the heart of enabling energy efficiency towards the end-user.

→ *If the consumers are better aware and informed of the possibilities through information campaigns, the interest and demand for energy efficiency measures will increase. The AIE knows that the up-skilling of the electricians will then also automatically happen.*

4. Increase investment

- There is a great lack of information, public and companies’ awareness of the support schemes already created. It is urgent not only to **reinforce the financial support** in place, but also to **better communicate** on this support at national and local levels.

→ *The demand needs to be facilitated/created which will happen if consumers are better informed on both the energy efficiency measures and the access to finance. Information campaigns on easy to implement and short return on investment will stimulate the market.*

- Today too often, the investment is spent in the building envelop resulting in no money left for the technical building systems.

→ *If technical professionals are involved as soon as possible in the construction/renovation project to consider the potential in technical building systems, the investment will then occur in the best efficiency improvements.*

- Investments, especially when investing in developing technologies, first need **stability**. Investors need to have trust in the policies in place and will favor a long term vision which is reassuring.
- **Incentives** should be directed to **renewable production sources, energy storage, and energy efficiency** which have already been identified as a priority by the Commission.
- **Energy performance contracts** are a very important tool in supporting renovation. The EU should encourage the use of energy performance contracts, especially for public bodies and local authorities.

5. Increase renewables

- Renewable energy is really important. The energy should be produced where it is most efficient. All the buildings shouldn't be forced to produce renewable energy, and renewable energy produced "on-site" or "nearby" shouldn't be more valuable or better for the buildings energy class than renewable energy produced a bit further away.
- Also both at district and city level, the combination of renewable energy sources with energy storage systems and energy management technologies should be promoted.

Conclusions and recommendations for review of the EPBD in a nutshell:

- The focus should be on existing buildings.
- Increase active monitoring, measurement and control systems of the energy performance in buildings (according to IEC60364-8-1).
- The energy performance of a building should be the real and final energy use.
- Enhance the consumer's awareness and responsible consumer behaviour through individual metering information and access to and ownership of the data.
- Do avoid discrimination of electrical solutions which is not consistent with the EU Energy Policy and long term Strategy.
- The use of fossil fuels at end-user side should not be possible anymore.
- Raise confidence through minimum verification requirements and involve technical professionals as early as possible in a construction/renovation process.

The AIE represents through its 18 member countries 137.000 Electrical engineering and contracting companies whose turnover is about **158 Billion Euro and employ about 1,3 Million** people work force (=82% of the total workforce in the electrical contracting sector).

The range of activities of AIE-members covers all kinds of electrical installations in the infrastructure, transport and public lighting sector as well as in the industry, tertiary sector and buildings.