EVIA feedback on the Energy Efficiency First Principle: Financial Aspects

EVIA welcomes the opportunity to continue to contribute to the development of the European Commission's guidelines on the implementation of the Energy Efficiency First (EE1) principle. We note that the consultation in question is targeted at actors in the financial sector from the perspective of integrating EE1 into financing processes and using the principle to develop new financial products.

Nevertheless, EVIA notes that the first two questions in the consultation questionnaire are more generic. As such, a contribution from the perspective of an association representing manufacturers of ventilation units/systems as a Technical Building Systems (TBS) in the built environment, represents valuable input for framing the discussion on financial processes and products.

In this submission, EVIA therefore provides input on the following questions:

1) **Do you support ring-fencing of EU funding to energy efficiency and if yes are there critical market segments to be addressed specifically?**

Ring-fencing financing for building energy efficiency renovations:

The European Commission's Renovation Wave Communication[1] states that 220 million building units, representing 85% of the EU's building stock were built before 2001 and that 85-95% of the existing buildings will be standing in 2050. According to the Joint Research Centre (JRC) 75% of the existing building stock is energy efficient according to current building standards[2]. As buildings are responsible for 40% of EU total energy consumption and for 36% of GHG emissions, energy renovations aiming at improving the energy efficiency of the building stock will be vital to deliver on the EU's 55% emissions reductions target for 2030 and on climate neutrality by 2050. To achieve the 2030 target, the Commission has called for a 60% reduction in building emissions and a 18% reduction in energy consumption for heating and cooling. As such, it is essential that EU funding for energy efficiency is ring-fenced for financing schemes aimed at supporting the decarbonisation of the building stock via renovations.

Ring-fencing financing for retrofitting Technical Building Systems in energy efficiency renovations:

EVIA notes that the Renovation Wave will build on the EE1 principle to achieve the decarbonisation of the EU building stock. Energy efficiency renovations primarily target insulation of the building envelope with a view to limiting thermal losses and thus improving the energy performance of the building. However, **in new or refurbished buildings, which are well insulated, approximately 50% of the energy demand, and even a higher rate in non-residential buildings, can stem from thermal losses due to air renewal achieved through window airing in the absence of mechanical ventilation**, depending on the use of the building. EVIA stresses that **this energy waste can be significantly reduced thanks to the implementation of a dedicated well operating mechanical ventilation system.** As such funding for energy efficiency in the

[1] COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives.

[2] Filippidou, F. and Jimenez Navarro, J.P., Achieving the cost-effective energy transformation of Europe's buildings, EUR 29906 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-12394-1, doi:10.2760/278207, JRC117739.

context of renovations must be ring-fenced for the retrofitting of state-of-the art Technical Building Systems (TBS) covered by the Ecodesign Directive, including mechanical ventilation.

Ring-fencing financing for retrofitting mechanical ventilation in energy efficiency renovations:

Ventilation must be at the forefront of the Renovation Wave and thus financing schemes. For ventilation, the EU building Stock Observatory (EU BSO) suggests that 42% of the building stock does not have any ventilation installed. Of the 58% that does mechanical ventilation accounts for only 42%, with heat/cold recovery only featuring in 28% of buildings where ventilation is installed[3]. This means that around 75% of the EU's building stock does not benefit from appropriate air renewal. The room for improvement is significant.

State-of-the-art ventilation is a great enabler of buildings' energy efficiency optimisation. Indeed, buildings lacking such equipment and using window airing to renew indoor air require considerably higher energy consumption to cover their heating and cooling needs because of the great thermal losses incurred by window airing. Demand-controlled ventilation limits thermal losses to the minimum, whilst guaranteeing an adequate air renewal. Ventilation systems, equipped with heat/cold recovery, passively re-use heat/cold that would otherwise be wasted. Such processes additionally allow to significantly lower the energy consumption of buildings. **Those in which the latest demand-controlled or heat/cold recovery ventilation systems are implemented are thus much more energy efficient.** The use of a small amount of electricity to operate mechanical ventilation brings overall a significant benefit in terms of energy consumption. Typically, **1 kWh of consumed electricity results in savings of 4 to 10 kWh of thermal energy, depending on climate and use.** These elements have been acknowledged in the 2017 report by the JRC on promoting healthy and highly energy performing buildings in the EU[4].

Additionally, **EVIA reiterates that ensuring the implementation of well-functioning mechanical ventilation systems in new and renovated buildings is essential to help guarantee an adequate Indoor Air Quality (IAQ) for people living, working, or undertaking recreational activities more than ever in insulated and air-tight environments.** The 2017 JRC report also states that mechanical ventilation, if properly operated and maintained, leads to an increased removal of pollutants and thus to an overall improvement of IAQ, and the reduction of associated health problems.

2) Should the EE1st principle be part of EU funding eligibility criteria, or only be reflected in relevant selection criteria?

EE1 trade-offs in the built environment:

EVIA supports the EE1 principle and its integration in EU funding eligibility criteria. However, EVIA note that energy efficiency is a factor that is not mutually exclusive. Indeed, efforts to address energy efficiency often have direct impacts on other factors. These impacts are not always necessarily positively correlated and thus contribute to negative trade-offs in the built environment. EVIA therefore strongly encourages

[3] EU Building Stock Observatory – Workshop Presentation – 27 May 2019.

[4] Kephalopoulos, S., Geiss, O., Barrero-Moreno, J., D'Agostino, D. and Paci, D., Promoting healthy and highly energy performing buildings in the European Union: National implementation of related requirements of the Energy Performance Buildings Directive (2010/31/EU), EUR 27665 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-79-70594-6, doi:10.2760/73595, JRC99434, pp. 132.

the Commission to integrate the concept of 'do no significant harm' in the forthcoming guidelines on the EE1 principle.

'Do no significant harm'

The precautionary principle of 'do no significant harm' is already used elsewhere in the EU acquis as a guiding principle for conditionality for private financing. Under the Sustainable Finance Taxonomy Regulation (EU) 2020/2088[5] financial undertakings are required to ensure that an investment 'does no significant harm' to environmental or social objectives, for the investment to be classified as sustainable, based on harmonised EU criteria for environmentally sustainable activities. In essence, for an investment to be classified as sustainable, it should 'do no significant harm' to one of the six environmental objectives established under Article 9 *Environmental objectives,* including non-exhaustively climate change mitigation, and pollution prevention and control.

The 'do no significant harm' principle has more recently been utilised as a guiding conditionality[6] for the Recovery and Resilience Facility Regulation, for the dispersal of EU public financing in the context of COVID-19 economic stimulus, including for building renovation initiatives.

In the context of the implementation of EE1, EVIA note in Annex I negative trade-offs (red titles), that would be addressed by a 'do no significant harm' principle. Annex II details positive trade-offs for EE1 (green titles).

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[5] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 (Text with EEA relevance).

[6] Commission Notice Technical guidance on the application of 'do no significant harm' under the Recovery and Resilience Facility Regulation (2021/C 58/01).

Annex I – Negative trade-offs from EE1 that would be addressed by the 'do no significant harm' principle

EE1 and Indoor Air Quality:

Health of building occupants

People spend 90% of their time indoors, with the WHO estimating that 120,000 Europeans die prematurely every year due to poor IAQ, translating into an annual cost to society of EUR 260 billion[7]. Poor IAQ is linked to negative health outcomes from irritation of the eyes, nose, and throat, through headaches, dizziness, and fatigue to respiratory diseases, heart disease, and cancer. In the context of the current COVID-19 outbreak, the proper use of ventilation is a particularly important contributor to maintaining an adequate level of IAQ and to limiting the potential for aerosolised transmission via mechanical air renewal. A recent article by *The Lancet*, the well-known weekly peer-reviewed general medical journal, estimates that ventilation can reduce the risk of airborne infection by the SARS-CoV-2 virus by a factor of ten[8].

In its October 2020 Renovation Wave Communication, the Commission aims to double the annual renovation rate of residential and non-residential buildings by 2030. The primary objective of the Renovation Wave is EE1, with a view to the decarbonisation of the building stock. Energy efficiency renovations primarily target insulation of the building envelope with a view to limiting thermal losses and thus improving the energy performance of the building. The insulation and in consequence air tightness of the building envelope, heavily reduces the air infiltration and energy losses of a building. In such a context, controlled air renewal via mechanical ventilation becomes a necessity to avoid negatively impacting health outcomes. As non-residential buildings typically need higher ventilation rates caused by higher occupation density this aspect is even more acute in this type of environment.

Ensuring the implementation of well-functioning mechanical ventilation systems in new and renovated buildings, is essential to help guarantee an adequate IAQ for people living, working, or undertaking recreational activities more than ever in insulated and air-tight environments. However, ensuring an adequate ventilation rate providing the necessary air-renewal requires a minimum of electricity to ensure the efficient operation of a mechanical ventilation system. As such, the proper operation of mechanical ventilation units/systems could suffer from the unrestricted implementation of EE1, with unintended negative consequences for the health of building occupants. The use of a small amount of electricity brings the benefit of a reduced heating or cooling demand thanks to the proper operation of the ventilation system in the building.

[7] WHO Regional Office for Europe, OECD (2015). Economic cost of the health impact of air pollution in Europe: Clean air, health and wealth. Copenhagen: WHO Regional Office for Europe.

[8] "Small droplet aerosols in poorly ventilated spaces and SARS-CoV-2 transmission", The Lancet, 27 May 2020.

Health of buildings

Poor IAQ affects not just the health of occupants but also of the building itself, due to the effects of mould and damp, which reduce the lifespan of a building or increase its the required rate of renovation and thus does not allow to optimise the investment budget allocated to building renovation, a must in view of the very large amounts involved. This is acknowledged in Doc 2. from the EE1 expert meeting on *'EE1 assessment'*; "Mould and dampness, generally resulting from the temperature level and the ventilation level of the building". As such, strict application of EE1 could also have negative trade-offs for resource efficiency and sustainability, as well as economically, in respect to a buildings/renovation's longevity, if IAQ is not addressed.

Recommendation

The implementation of the EE1 principle in the context of the energy performance of buildings must be conditioned on the basis that 'no significant harm' results from the action on IAQ. Ideally, the risk for 'significant harm' would be mitigated by ensuring that, within the energy consumption limit of the building, enough power is devoted to the proper operation of the ventilation system for it to renew the air in a sufficient manner. It must be noted that Annex I 2 of the Energy Performance of Building Directive (EPBD) requires that Member States, when setting energy consumption limits for buildings, must include the energy needs for ventilation, among others, to optimise health, indoor air quality and comfort.

EVIA questions the suggestion in Doc 3. that a "certain energy performance level or improving first the performance of the building envelope before replacements of heating systems". **In fact, ventilation and insultation/air tightness of the building envelope and the use of the building are inseparable in the context of renovations and should be dealt with at the same time.** Retrofitting of ventilation is then to be considered before the heating system, in respect to 'do no significant harm'. In addition, the ability for state-of-the-art ventilation units/systems to limit thermal losses to the minimum and recover heat/re-use waste heat further supports the early retrofitting of ventilation. **Systematic commissioning of newly installed ventilation systems in new and renovated buildings as well as its maintenance throughout time to maintain its performance should also be mandatory.**

EE1 and Renovations:

Strict application of the EE1 principle could also lead to negative economic trade-offs in the context of building renovations.

The ventilation unit market is segmented between unidirectional ventilation units (UVUs) and bidirectional ventilation units (BVUs). Both UVUs and BVUs are covered by a single energy label under Regulation (EU) 1254/2014[9] to the relative disadvantage of UVUs, which score below BVUs from an energy efficiency perspective. Strict application of the EE1 principle would suggest that public and private financing conditionality or public procurement criteria, should be geared towards BVUs due to their higher efficiency, as illustrated via the energy label.

However, UVUs are widely considered to be easier to install mainly in residential building retrofits and renovations often due to structural legacies arising from requirements in national building regulations.

[9] Commission Delegated Regulation (EU) No 1254/2014 of 11 July 2014 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of residential ventilation units (Text with EEA relevance).

UVUs are also in general less expensive than BVUs, but nevertheless ensure appropriate air renewal when operating properly.

Demand controlled UVUs do represent real added value in reducing energy consumption and in maintaining good indoor air quality, compared to buildings with no mechanical ventilation or buildings with units/systems pre-dating the Ecodesign Regulation for ventilation units. Disqualification of UVUs on the basis of relative energy label performance would disincentivise and contribute to preventing their use in retrofit or renovation projects with technical or tighter budgetary constraints.

The strict application of the EE1 principle favouring only BVUs would hinder the retrofitting or installation of new more energy efficient UVUs in the existing residential building stock, where there is no structural alternative or where the higher cost of BVUs represents an economic barrier to retrofitting or installation of a ventilation unit/system. This could lead to long-term negative lock in effects preventing the replacement of old ventilation units/systems by newer more energy efficient ones or their implementation in buildings from which they are absent. This would also be detrimental to the energy efficiency and IAQ of the buildings not fitted with a well operating ventilation system.

In non-residential buildings, there is a huge stock of old BVU without or low efficient energy recovery and poorly efficient fans. EE1 strategy shall clearly identify the need to change these units to state of the art products.

Recommendation

In this case, the EE1 principle should be implemented with the condition that its application does not disincentivise retrofitting with UVUs, and this does 'no significant harm' to efforts that would contribute immediately and tangibly to decarbonisation as well as IAQ improvements. Implementation of the EE1 principle must be based on forward looking cost-benefit assessments integrating consideration of multiple factors.

Annex II – Positive trade-offs from the EE1 principle for ventilation

EE1 and Energy Efficient Ventilation:

Despite the possibility for the above negative trade-offs to occur from the strict application of the EE1 principle, the latter can also be positively implemented through the use of state-of-the-art ventilation which optimises the energy efficiency of buildings.

For buildings using window airing for air renewal, the energy consumption for heating and cooling is higher. Demand controlled ventilation limits thermal losses to the minimum, while guaranteeing an adequate air renewal, and ventilation systems equipped with heat/cold recovery passively re-uses heat/cold that would be otherwise wasted. This process lowers the energy consumption of a building for heating and cooling. Buildings in which the latest demand-controlled or heat/cold recovery ventilation units/systems are implemented are thus much more energy efficient.

The EE1 principle could also be positively applied by facilitating the upgrade of old equipment with the latest state-of-the-art energy efficiency technologies. In the last thirty-five years the energy consumption

of ventilation units has decreased by a fifth. Old ventilation units over 15 years of age would be advantageously substituted by more modern technologies that are compliant with the latest ecodesign requirements under Regulation (EU) 1253/2014[10].

Recommendation

The EE1 principle would positively drive the uptake of the latest state-of-the-art energy efficient ventilation units/systems in new and renovated buildings. Public and private financing conditionality, as well as green public procurement criteria, are policies that can be used to this effect. However, the assessments should always integrate consideration of the 'do no significant harm' principle to avoid unintended negative impacts.

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About EVIA:

The European Ventilation Industry Association (EVIA)'s mission is to represent the views and interests of the ventilation industry and serve as a platform between all the relevant European stakeholders involved in the ventilation sector, such as decision-makers at the EU level as well as our partners in EU Member States. Our membership is composed of more than 40 member companies and 6 national associations across Europe, realising an annual turnover of over 7 billion euros and employing more than 45,000 people in Europe.

EVIA aim to promote highly energy efficient ventilation applications across Europe, with high consideration for health and comfort aspects. Fresh and good indoor air quality is a critical element of comfort and contributes to keeping people healthy in buildings.

[10] Commission Regulation (EU) No 1253/2014 of 7 July 2014 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for ventilation units (Text with EEA relevance)