

Making Energy Efficient Buildings a Reality: the 3 Point Plan

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European Energy Innovation is happening before us. As Europe modernises infrastructures, shifts away from a fossil fuel based and dependant society to a decarbonised, decentralised and flexible energy system – it is going to change the way we produce, transport and consume energy.

As the EU sets out to realise the five dimensions of its European Energy Union Strategy; secure energy supply, an integrated internal energy market, energy efficiency, decarbonisation, and research and innovation – highly efficient buildings not only tick all the above boxes but also bring the most multiple benefits (jobs, health, social, GDP etc.) to consumers, business and government alike.

Buildings are responsible for the largest share of European final energy consumption (40%) and CO₂ emissions (36%) and they represent the greatest potential to save energy, reduce our energy dependence, shrink our carbon footprint, tackle fuel poverty, and lower our household energy bills. Keeping in mind that the energy transition will require massive investment in supply network and infrastructure, highly efficient buildings can precisely reduce this infrastructure investment and bring supply side flexibility

through a reduction of the overall base load and the system peak¹.

As our energy system faces a transition, EU buildings legislation must follow the principle of 'trias energetica'², this means ensuring a low energy demand in buildings, particularly for heating and cooling needs. Doing so will ensure resilience in the energy system, enable the right equipment sizing, and create the best start for integrating renewables and connectivity (e.g. demand response).

Whether it's constructing new buildings or renovating existing buildings, we need to make sure that our buildings are resilient in long run. This is where the building envelope plays an essential role, as it provides a structural solution and ensures the overall efficiency of a building over its entire lifespan.

In this respect, mineral wool insulation is a unique, reliable, cost-effective and highly versatile product. Its thermal properties contribute hugely to European efforts to save energy and combat climate change. Additionally, the structure of mineral wool prevents the movement of air- coupled with its long-term stability, gives the building a unique ability to combat noise pollution and improve fire protection. As Europe seeks to upgrade the

sustainability of its building stock, mineral wool insulation is key to the creation of low energy buildings.

So then how can we speed up the rate and quality renovation of our existing and inefficient building stock (75%) and reduce the enormous energy wasted in buildings for heating and cooling?

The answer is embracing this energy change by placing an economic and societal value on the array of energy efficiency benefits and giving precedence to building envelope measures.

The below three point policy plan illustrates how we can ramp up renovation and get back on track to making highly efficient buildings a reality.

1. Vision: Renovating the existing EU building stock to NZEB level by 2050.

The Energy Performance in Buildings Directive recast (EPBD) created an important market pull for sustainable construction products by setting a long term objective for our buildings to be 'nearly energy zero' by 2020. We now need a similar EU framework, supported by clear national targets and milestones, for the existing building stock to be NZEB by 2050.

2. Objective: Reducing energy demand for heating and cooling.

Measures to improve buildings should focus on the root of the problem, the 70% energy used for heating (and cooling). A 'ceiling' benchmark for heating & cooling (H&C) energy demand will trigger the needed energy renovations, prevent the lock-in of voluminous portions of savings and avoid having oversized heating and cooling distribution system ending up as stranded assets.

3. Action: renovation.

- **Creating demand** and self-acceleration towards renovation means information, visibility and knowledge for stakeholders including building owners, and a more tangible business case for renovation. This also includes linking renovation to key 'trigger points' (change of tenant, extension of building, renting a property).

- **Energy Performance Certificates** (EPC) should be developed into a building passport, which follows the building throughout its life and contains tailor-made

renovation recommendations. Such a passport would include steps to undertake to achieve a targeted level of performance. This oversight can also help consumers with awareness about the gains and paybacks of energy renovations and enable them implement the recommendations.

- **Financing** is essential to spurring renovation, but it can only be done if building owners can easily, cheaply and for the long haul tap into financing. A 'one stop shop' at local level with technical expertise (about available subsidies, policies, and accredited professionals) is another key ingredient to unlocking the renovation challenge.

We now need to prioritise energy efficiency in buildings as part of broader structural reforms to improve the EU and national competitiveness of the economy and make it a fundamental part of our climate & energy strategies.

The energy, climate, economic, societal and health benefits are too many and too large to go unnoticed anymore...it's time to unleash the power of mineral wool insulation... ●



1. Ecofys 2015 energy efficient buildings and the future power system

2. The Trias Energetica makes clear that energy savings have to come first on the path to environmental protection. Only when a building has been designed to minimise the energy loss, should the focus shift to renewable energy solutions, such as solar panels or heat exchange and recovery systems.