

Enabling an effective “Renovation Wave”

Eurelectric position paper

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:

- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow our industry to lead this transition.

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WG Electrification and Energy Efficiency
WG RES and Storage
WG E-mobility
WG Customers and New Services
WG Technology

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KEY MESSAGES

The Renovation Wave (RW) initiative is a critical step for achieving the decarbonisation of EU economy as well as a unique opportunity to tackle climate change while delivering concrete benefits to European citizens. It can create high quality jobs, improve comfort and system efficiency, and support low-income households. Investments in upgrading the building stock’s energy performance stimulate the economy, especially the construction and renewable energy industries, generating about 9% of Europe’s GDP and directly accounting for 18 million direct jobs (Source: European Commission). This is crucial in a context of economic recovery.

Eurelectric has identified 7 key enablers to unlock the renovation potential of the building stock:

1. **The integration of electricity in buildings is key to reach decarbonisation by 2050.** The RW should prioritize direct electrification of H&C in buildings, at individual building or at district level as part of an urgent transition away from inefficient fossil-based heating solutions towards full decarbonisation by 2050. Electric heat pumps, combined with PVs, batteries, high-efficient and decarbonized district H&C, integrated energy managements systems should become mainstream solutions.
2. **Focus on the synergies between buildings and transport sector to also underpin a quick economic recovery.** The RW should promote charging infrastructure which is able to interact with the grid (i.e. smart charging infrastructure, vehicle to grid). The projects are there and ready to be carried out, boosting both the construction and automotive sectors. They only need to be implemented at large scale, underpinned by smart grids.
3. **Encourage innovative business models enabled by digitalisation and channelling accessible, targeted and tailored public investments.** Streamlining both public and private investments towards scalable innovative financing models for deep energy renovation is critical. Energy savings and renovation potential should also be made explicit to consumers via digital tools like smart meters.
4. **Tackle non-economic barriers by facilitating the dialogue among stakeholders.** To overcome the non-economic barriers to renovation (from targets to administrative simplification for permitting, from standardizing financing procedures to strengthening building standards), regular dialogue and a shared vision with all stakeholders involved is needed.

5. **Set up up-to-date skills programmes for workers.** The Renovation Wave will not happen without the right skills. The construction sector already faces huge shortages in manpower and skills, and lack of supplier training, of customer information and awareness are major barriers to more efficient building renovation. There is a need for an impetus in apprenticeship, up-skilling and reskilling for green works in the construction field.

6. **Carry out energy efficiency measures targeted to low-income households financed via dedicated instruments.** Affordability and up-front costs of low-carbon solutions (EVs, PVs, batteries or heat pumps) are sometimes holding back consumers from engaging in the energy transition, especially low-income households that might benefit the most from adopting them. EE measures can be implemented in ways to benefit low-income households by financing them via revenues coming from different sources.

7. **Creating the legislative and enabling framework to support building renovation.** The RW requires joined-up thinking and contributions from every actor in the value chain. It should be considered to introduce and/or review existing legal provisions, including, the investment in well-structured and-facilitated knowledge and experience sharing among all actors in the value chain, with a strong focus on national and regional policymakers.

Introduction

The Renovation Wave (RW) initiative is a critical step for achieving the decarbonisation of EU economy as well as a unique opportunity to tackle climate change while delivering concrete benefits to European citizens. It can create high quality jobs, improve comfort and system efficiency, and support low-income households that are the most in need of energy efficiency (EE) upgrades. Investments in EE stimulate the economy, especially the construction and renewable energy industries, generating about 9% of Europe's GDP and directly accounting for 18 million direct jobs (Source: European Commission). This is crucial in a context of economic recovery.

Collectively, buildings in the EU are responsible for 40% of our energy consumption and 36% of greenhouse gas emissions. Renovating existing buildings could increase energy efficiency and lower CO2 emissions. Yet, on average, less than 1% of the national building stock is renovated each year (Member State rates vary from 0.4% to 1.2%).

The RW should take a system-wide approach and work to fully leverage the potential of highly energy efficient, smart and flexible buildings as a key component of a decarbonised energy system, powered by renewable-based and carbon-neutral electricity. To decarbonise the building stock in the most efficient manner, Integrated Renovation Programmes (IRPs) should combine energy efficiency improvements with policies that boost on-site renewable generation, promote demand-side flexibility and transition away from pure fossil-based heat supply by prioritising electrification.

For the RW to be impactful and in order to put the building sector on track with the goal of decarbonizing the EU building stock by 2050, the initiative should strive to both greatly reduce the energy consumption of all buildings and electrify the remaining demand. Energy efficiency and electrification go hand in hand, as there are instant energy efficiency gains just by electrifying end-use solutions. Moreover, high levels of building renovation, targeting a minimum renovation rate of 3% per year, combined with the direct electrification of heat supply could unlock up to 23 bn EUR in savings on consumer energy bills. (Source: European Climate Foundation).

Direct electrification of heating and cooling (H&C) plays a central role in achieving a climate neutral economy by 2050. Assessing the current performance of buildings and the cost-effectiveness of needed investments to reach a certain energy class is crucial. Accelerate the cost-effective renovation of existing buildings and integrate long term building renovation strategies, supporting the mobilisation of financing and creating a clear vision for a decarbonised building stock by 2050 is also essential.

In this paper Eurelectric spells out 7 key enablers for kick-starting an effective Renovation Wave.

1st Enabler: The integration of electricity in buildings is key to reach decarbonisation by 2050.

Electrification of H&C in buildings is key to unlock the decarbonisation potential of the EU while at the same time reducing air pollution¹ and improving living conditions. The RW should prioritize direct electrification of H&C in buildings, at individual building or at district level - where district grid exists - as part of an urgent transition away from inefficient fossil-based heating solutions towards full decarbonisation by 2050. Electric heat pumps constitute market-ready solutions that

¹ One in every eight deaths in Europe can be linked to pollution, according to a new report by the EU's environment agency – data refers to 2012 (EEA, 2020)

can be deployed and which can produce up to 4 units of heat for each unit of electricity consumed. Even higher benefits can be achieved in combination with solar panels, batteries and integrated energy management systems, in well insulated buildings.

This reflects a vision of buildings where different flexibility tools can bring added value to their inhabitants and more widely to the whole electricity system structurally incorporating demand side response and dynamically interacting with the electricity system operation through ever smarter grids. Heat pumps are as well able to enable flexibility and demand response features in heating and cooling and they can be easily coupled with other smart devices in smart buildings. In this context, it is key to promote technological, legal and regulatory changes that allow for an increased interaction with the distribution grids (mainly low voltage) for an efficient and active management of the use of electricity as well as support development and upgrading of the distribution networks.

While the decarbonisation will not happen at the same speed in all EU Members States (MS) due to their diverging starting points and heat markets, the RW should set the path for all EU MS. In suitable areas, the RW should adopt a holistic approach that promotes the connection to networks of high-efficient and decarbonized district heating and cooling, coupled with the installation of the necessary devices for its use. Buildings both in urban and rural areas are a natural site for sectoral integration between heat and electricity, various combinations of which may fit different local needs and require the necessary grid planning, i.e. deploying big heat pumps in existing district heating systems, utilising waste heat coming from industry, integrate heat coming from all carbon neutral sources. As a consequence, policy coherence should be ensured between the Renovation Wave and the Energy System Integration Strategy (ESI), which sets the basis to create stronger links between energy carriers, infrastructures and the consumption sectors to deliver on a low-carbon European economy, including buildings.

Moreover, taxation differences between electricity and fossil fuel sources of energy should be addressed. Today, electricity is subject to heavy taxation and imposed charges and levies depending on the Member State, while the price gap between energy carriers on end-users' bills has increased, limiting the electrification potential of buildings and affecting vulnerable customers the most.

2nd Enabler: Focus on the synergies between buildings and transport sector to also underpin a quick economic recovery

Considering 90% of electric vehicles (EVs) charging takes place at home or in the workplace and 80% of existing building stock in Europe will still be in use in 2050, the Renovation Wave has a key role to play in accelerating the deployment of (smart) charging infrastructure.

The sectorial integration between buildings and transport should be enhanced through the effective right to plug in the residential buildings as well as the deployment of future-proof smart charging infrastructure in residential and commercial real estate, existing or newly-built. In order to truly tap on the potential of integrating EVs and buildings, the RW should go beyond the minimum requirements of the Energy Performance of Buildings Directive (EPBD). The RW should promote charging infrastructure which is able to interact with the grid (i.e. smart charging infrastructure, vehicle to grid), a requirement which is not foreseen by the EPBD.

Moreover, the EPBD includes rules for charging points for new buildings only, while the RW should extend the requirements to existing buildings as well. The projects are there and ready to link the Green Deal with the EU recovery, helping both the construction and automotive sectors. They only need to be implemented at large scale. The buildings that would be renovated under these initiatives would have to be equipped with auxiliary infrastructure (such as ducting infrastructure

under a comprehensive local distribution network development plan) to ensure future ramp up of transport electrification and the growing needs of residents for charging infrastructure would be accommodated.

Ever smarter buildings need to digitally interact with ever smarter grids helping to maximize system wide efficiencies that will increasingly be characterized by millions of supply and demand points. EV chargers can contribute to provide flexibility to the network with the added advantage that smart charging and storage use of EVs can lead to optimised network investments. The RW should also take into account the role that Energy Communities can play in order to integrate the production of RES, the EVs/batteries interaction and smart load management for housing blocks. The EU building stock should become ready for e-mobility in this decade. Streamlined permitting is also key for the adoption of e-mobility practices in buildings.

3rd Enabler: Encourage innovative business models enabled by digitalisation and channelling accessible, targeted and tailored public investments

Considering the anticipated level of investment needed (the RW is estimated to cost €200 billion a year for the next 30 years²), scaling up mechanisms for the public and private sectors to successfully prioritise deep energy renovation is critical. The access to these mechanisms intended to support the mobilisation of investments in building renovation, including retrofits to electric heat pumps for space H&C should be facilitated.

Some of the challenges of creating the right financial incentives to make this happen relate to a) lack of awareness of the existing funds dedicated to renovation, b) improvable selection and cost-effectiveness of the projects financed³, c) difficulty in unlocking private investments and ensure the effective use of public funding, d) lack of effective coordination between the actors from the private and public sectors (i.e. public local authorities).

Eurelectric thinks that scalable innovative financing models should be further promoted in order to unlock the potential of sustainable renovation. Energy Performance Contracts, on-tax programmes, leasing schemes for rooftop solar panels, crowd financing schemes and the aggregation of small-scale projects are proven methods to foster renovations. Other tools are:

- Dedicated credit lines and risk sharing schemes should be encouraged more, in order to move away from the traditional public grants and traditional private loans;
- Sets of procedures and standards for energy efficiency and buildings renovation should be improved and be more accurately evidenced for strengthening Energy Performance Contracting (EPC) and for increasing market trust;
- Linking of EPC tools such as building energy audits, Energy Performance Certificates, etc. to the Building Renovation Passports, providing roadmaps for staged deep renovation for individual buildings;
- On-tax programs: consumers may be incentivized to retrofit or renovate by lowering certain taxes like income tax or property tax, which could be linked to the energy efficiency of the building (i.e. in Ireland).
- Streamlining of existing EU and EIB financing instruments that can be easily used (i.e. ERDF, cohesion funds, JTM public loan facility, Recovery and Resilience Instrument etc.) at regional and local level to stimulate energy-efficient renovations of public and residential buildings.
- Public-Private partnerships, which allow to combine the public and private funding towards decarbonization of the public sector.

² <https://foresightdk.com/what-will-it-take-to-start-and-sustain-a-renovation-wave/>

³ As concluded by the European Court of Auditors in a [2020 Special Report](#)

EC should explore the possibility of a more coordinated approach to building performance certification, taking into account geographical and climatic differences across the EU. The highest energy performance category should be reserved for those buildings with zero primary fossil fuel energy consumption (i.e. “zero energy and CO2 buildings”). For new buildings, the regulation should set a binding trajectory for implementing a minimum energy performance category, to make sure that by 2050 all buildings meet the highest energy performance category (i.e. be ‘zero energy and CO2 buildings’). Moreover, building on the existing provisions of the EPBD, it is necessary that the measures put in place respond to a clear trajectory to reduce emissions in buildings to zero. This may include exploring the possibility of going beyond the concept of energy efficiency and considering it together with the ‘carbon efficiency’ of a building.

Energy savings realized through renovation should be monetized, so as to facilitate the development of Energy Service Companies (ESCOs). The introduction of digital technology to monitor such savings is crucial to facilitate such monetisation. Moreover, promoting and strengthening the use of digital tools can improve the durability and adaptability of buildings and maintenance of building systems that are also important in this context.

Renovation itself has to be efficient. Existing digital tools can contribute to quantify the renovation needs of a building. Smart meters provide for reliable energy consumption data, which empowers the consumer to compare the energy consumption of a building with other similar buildings and - once the renovation carried out – it helps quantify the efficiency gains of the renovation actions in terms of decreased energy consumption. Moreover, digital tools are key to monitor the efficiency of public and private expenses in renovation.

4th Enabler: Tackle non-economic barriers by facilitating the dialogue among stakeholders

Accelerating the rate of renovation in the EU building sector calls for the deployment within a just transition framework of a diverse set of policy measures. The latter range from targets to administrative simplification for permitting, from standardizing financing procedures to strengthening building standards, but also include fiscal incentives and actions aimed at abating non-economic barriers. Carry out an inclusive regular dialogue with all stakeholders to develop a shared vision on how to tackle non-energy barriers is important.

These barriers should be acknowledged and tackled thanks to new solutions, with the support of all involved stakeholders, especially the design of appropriate funding products, of tools like building energy audits, and the aggregation of actions (i.e. renovation projects or energy loads) via energy suppliers and service companies. Moreover, as underlined in the EU Strategy on Smart Sector Integration, the right adjustments to the Primary Energy Factor (PEF) are needed in order to unleash the electrification potential of EU building stock.

Other challenges across Member States include appropriate information to consumers, the landlord/tenant dilemma (landlords do not have the right incentives to do the works because the tenant is most likely to pay the energy bill), carrying out EE measures in multifamily buildings, or the lack of availability of trained installers with the right set of skills. Already implemented tools, like EEOs, need to be carefully designed and implemented. Around 20% of households in the EU are supplied at regulated prices (in certain Member States that reaches 100% of households) and social tariffs which are administratively set at a low level. In these particular cases, if EEOs are applied, effective financial mechanisms must be in place to enable regulated suppliers to meet their EE obligations.

A less visible barrier is the increasing challenge of encouraging consumers to engage in energy efficiency measures. The COVID-19 pandemic may result in an increasing reluctance for customers to allow energy efficiency works in their homes even when costs are covered (so called 'customer inertia'), meaning further efforts will be required to realise energy efficiency goals across Europe.

5th Enabler: Set up up-to-date skills programmes for workers

The Renovation Wave will not happen without the right skills. The construction sector already faces huge shortages in manpower and skills. This is a rising concern with the growing potential of electrification, installation of on-site renewables, smart system integration and digitalisation. In light of the upcoming Recovery plan, there is a need for an impetus in apprenticeship, up-skilling and reskilling for Green works in the construction field.

Lack of supplier training, of customer information and awareness are major barriers to more efficient building renovation. These obstacles can be overcome by, for instance, reskilling EU workers currently employed in carbon intensive industrial value chains or by upgrading the skills of installers of heating solutions to avoid that a fuel based heating appliance is by default replaced by another fuel based appliance.

The Renovation Wave plays a key role in the EU recovery by providing quality jobs. In France, for instance, 80,000 jobs linked to the power sector will be created by 2030⁴. It represents an increase of 36% compared to 2018.

6th Enabler: Carry out energy efficiency measures targeted to low-income households financed via dedicated instruments

As it emerged from the analysis carried out in Eurelectric's [E-quality study](#), it is possible to design energy efficiency measures in a way to compensate low-income households for regressive distributional effects of other energy policies. The case studies show that effective EE solutions are those that help households to overcome the entry barrier of a lack of initial capital to invest in EE measures. Affordability and up-front costs of low-carbon solutions (EVs, PVs, batteries or heat pump) are sometimes holding back consumers from engaging in the energy transition, especially for low-income households that might benefit the most from adopting them.

Energy efficiency measures can be implemented in ways to target low-income households. The financing of such targeted measures should be based on specific funding programs or revenues coming from policies that go beyond energy efficiency itself (i.e. EU funds, revenues generated from other climate and energy measures, JTF, State budget, i.e. national taxation) and not via obligated parties (as it is the case for some EEOs, i.e. the UK). Moreover, serial renovation programs can also lower costs and contribute to increase the renovation rate.

7th Enabler: Creating the legislative and enabling framework to support building renovation

The RW requires joined-up thinking and contributions from every actor in the value chain. The fragmented nature of the building sector makes its transformation extremely complex, therefore, creating the legislative and enabling framework to support building renovation in Europe is a key element to mobilize private investments. It should be considered to introduce and/or review

⁴ The study focuses on jobs in the building sector in connection with electricity and which will be induced by the energy transition (as planned by the Programmation pluriannuelle de l'énergie, i.e. the French Multiannual Energy Programme).

existing legal provisions, including, the investment in well-structured and-facilitated knowledge and experience sharing among all actors in the value chain, with a strong focus on national and regional policymakers.

The implementation of a flexible and agile regulation, which allows a “sandbox environment” and test proofs of concept is crucial, and over-regulation should also be avoided on topics in which the market can provide more efficient solutions, e.g., not limiting technologies (this should be technology neutral in order to allow and bring the most innovative and cost-effective solutions in a competitive environment).

In this scope, the articulation with the other national energy policy instruments, in particular the NEPC 2030, the LTRS and the Energy Poverty Strategy for each Member State is also crucial.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability



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