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Introduction

This document highlights some of the main United States (US) and European Union (EU) policy initiatives presented in a five-part 'US-EU Exchange' webinar series organised through the *'Strategic Partnerships for the Implementation of the Paris Agreement'* (*SPIPA*) project. The webinar series, which ran from June 2021 to January 2022, covered five main topics related to renovation of buildings and clean-energy solutions: advancing a climate-neutral recovery, affordable housing, job creation, financing, and building standards and codes. The following excerpts are meant to be instructive in a comparative sense and do not represent the full landscape of policy initiatives currently underway in either the US or the EU.

Advancing a climate-neutral recovery

June 17, 2021
Recording found here.

US perspective

As part of the Biden Administration's effort to confront the climate crisis, the Department of Housing and Urban Development (HUD) has released its Climate Action Plan, a comprehensive strategy to help put the country on a path to building more equitable, efficient and sustainable housing infrastructure, while at the same time increasing the resilience of vulnerable communities and creating good-paying jobs in new

industries. HUD's annual spending on utilities in public and assisted housing is an estimated USD 6.9 billion (14% of the agency's total budget). HUD is committed to boosting the efficiency of public and assisted housing, both by lowering carbon emissions and by making housing more affordable through decreased utility costs.

The Department of Energy (DoE), meanwhile, is helping to support a just transition to a clean-energy economy through its Weatherization and Intergovernmental Programs Office (WIP). The DoE's Weatherization Assistance Program (WAP) is the nation's largest whole-house energy-efficiency programme. Using appropriated funds from Congress, WAP has provided weatherisation services to more than 7 million households: the average value of health and household-related benefits for each weatherised unit is USD 14,148. In the public sector, the DoE's State Energy Program (SEP) has provided approximately USD 300 million to 56 state energy offices since 2016 via formula grants and competitive awards to help introduce best practices, facilitate inter-state cooperation, and provide insights into the current energy-job landscape.

EU perspective

The European Commission introduced its Renovation Wave Strategy in October 2020 to boost buildings renovation, create jobs and improve overall quality of life. A key intention behind the strategy is to at least double the renovation rate of buildings in the EU over the next ten years. Delivering revolutionary change in the EU buildings sector will require, among others: decarbonisation of heating and cooling systems; tacking energy poverty and renovating the worst-performing buildings; renovating public buildings (e.g. schools, hospitals, administration buildings); and introducing or improving policy measures, funding tools and technical assistance instruments to break down existing barriers throughout the renovation chain.

The current Multiannual Financial Framework for 2021-2027 and NextGenerationEU have a combined budget of EUR 1.8 trillion, 30% of which is to be spent on climate-mainstreaming actions. The Recovery and Resilience Facility will channel an estimated EUR 249 billion into climate-related investment. At the same time, the vast majority of National Recovery and Resilience Plans (NRRPs) contain a strong renovation component. Stepping up renovation also means providing increased levels of capacity, such as providing technical assistance to national and local authorities or delivering training and skills development for workers in new 'green' jobs. Neighbourhood-based approaches for local communicates should also be explored as a means of integrating renewable digital solutions and creating 'zero-energy' districts. In an effort to explore new ideas and buildings technologies through inclusive dialogue, the New European Bauhaus initiative takes a highly creative and interdisciplinary approach through projects that are focussed on a combination of sustainability, art and culture.

How to achieve energy-efficient and affordable housing

September 24, 2021
Recording found here.

Energy poverty – the inability to afford basic household energy needs - is a growing issue globally and affordable and energy efficient housing is essential to combat energy poverty while leading a just, green transition.

With an ever-increasing amount of extreme weather, the ability to heat and cool homes affordably and without severe environmental impact is more essential than ever. However, financing such measures and upgrades can be difficult, especially for vulnerable and energy-poor communities.

While energy efficiency measures can lead to significant financial savings in the long-run, capital costs can inhibit implementation for vulnerable households or affordable housing companies. Energy retrofitting of affordable housing therefore faces specific financial challenges, but also has the potential benefit to simultaneously improve energy efficiency, health, and wellbeing.

US perspective

As more and more cities and states across the US are passing or seriously considering implementing 'building performance standards' – which could require energy improvements in multifamily buildings that house low-income people – jurisdictions risk intensifying the housing-affordability crisis and current recession by imposing more costs on the owners of these buildings, thus making their properties less economically viable. This in turn could result in higher rents for tenants or redevelopment of these properties, possibly leading to increased rates of displacement for low-income communities. An estimated 11 million families in the US already spend more than half of their income on rent, and nearly one-third of US households experience some degree of energy insecurity.

The US has several robust federal programmes that focus on supporting energy-efficient affordable housing. The Bipartisan Infrastructure Deal includes a provision to increase the level of support to some of these foundational programmes. Other programmes and initiatives related to housing affordability include: the Low-Income Housing Tax Credit (run by the Internal Revenue Service and guided at state level through Qualified Allocation Plans); the Low-Income Home Energy Assistance Program (run by the Department of Health and Human Services), the Weatherization Assistance Program (run by the Department of Energy (DoE)), and the 'Better Buildings' initiative (also run by the DoE).

Because of the focus on the importance of energy efficiency in affordable housing, many affordable-housing developers are leading the charge to deliver innovative project examples that showcase how to build high-performing projects in a cost-effective way. One such example is the Park Avenue Green development in New York City.

EU perspective

Energy poverty affects up to one-third of European households. Even before the start of the pandemic, one in ten Europeans was spending more than 40% of their income on housing, and the pandemic has made conditions even worse. Housing affordability is a central principle of the Renovation Wave, and one of the greatest challenges in making a successful energy transition is to carry it out in a socially fair way. In seeking to achieve a maximum reduction of greenhouse-gas emissions by increasing the rate and depth of buildings renovation, the Renovation Wave requires a strong focus on fighting energy poverty by investing in retrofitting social housing and the worst-performing buildings.

Many countries in the EU have already included support for renovation in their national recovery plans, but we need to look closely at these plans to see how they contribute to the greater affordability of housing. In fact, the very opposite could happen if subsidies for housing are going mostly to the middle

class, or if the improvement of rental housing leads to higher rents, followed by increased rates of eviction and homelessness. While the costs of renovation should be compensated over time by gains in energy efficiency, even future savings will require financing. Low-income households should have access to zero-interest loans, and part of the cost of renovation should be borne collectively. The benefits of doing so, however, extend to everyone. In addition to moving the EU closer to its long-term climate targets, the Renovation Wave, if done well, has the dual potential to alleviate poverty and create jobs. A clear and early demonstration of successful action to bring positive change to people's everyday lives will also generate much more political support to fight the climate crisis.

Finance for energy efficiency in residential buildings – the process

October 20, 2021
Recording found here.

US perspective

As in the EU, the US residential market provides a vast array of opportunities to achieve energy-efficiency and emissions reductions. An analysis conducted by the US Energy Information Administration found that total residential energy consumption accounted for 22% of total energy consumption in the US in 2020. While the time is ripe for intervention, the patchwork of financial resources available to property owners, which varies by locality and ownership type, is complex and difficult to navigate. The affordable housing sub-sector in particular faces an additional layer of challenges related to subsidy restrictions, and even accessing these programmes is difficult. While loan products like 'Commercial Property Assessed Clean Energy' (CPACE) have been widely available for the last decade, other new and innovative models, such as tariff-based repayment programmes (or 'on-bill financing') and 'green banks', are starting to fill in some of the gaps needed to address the full spectrum of owners' needs across the US market.

On-bill tariff programmes use the customer's utility bill as a cost-recovery mechanism and do not require credit underwriting, making them a good tool for use in the affordable-housing market, where owners are often prohibited from taking on additional loans. The 'Pay As You Save' (PAYS) model enables a utility to capitalise cost-effective energy upgrades and recover those costs with a site-specific charge on the customer's bill. When the full cost is recovered, the customer is no longer charged and is given the opportunity to access the benefits of energy-efficient retrofits at no upfront cost. Importantly, the programme is also available to renters. 'Green banks' are also emerging as a solution to help businesses and residents secure low-cost capital for clean-energy projects.

EU perspective

Renovating buildings at mass scale is an enormous investment, but significant public funds are available. Between 2018 and 2020, the European Investment Bank doubled its energy-efficiency lending for buildings from EUR 2 billion to 4 billion. At the same time, the size of the investment gap is clear from European Commission estimates: EUR 43 billion is invested annually in the energy efficiency of buildings in the EU, and this number will need to increase nearly six-fold to EUR 243 billion annually to meet 2030 climate and energy targets in line with the Paris Agreement. Meanwhile, the InvestEU Programme, with a budget of €6.1 billion, is the key programme under the EU's Multiannual Financial Framework 2021-2027 for investment through financial instruments. The main objectives of InvestEU are: to support

financing and investment operations related to sustainable infrastructure, operations related to research, and innovation and digitisation; and to increase access and availability of finance for SMEs. Additional support for InvestEU from NextGenerationEU effectively doubles the programme's capacity.

The aim of the EU's Recovery and Resilience Facility (RFF), the key instrument of NextGenerationEU, is to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable. To receive RFF funding, Member States must submit both a 'national reform programme' and a 'recovery and resilience plan' (RRP): these provide an overview of reforms and investments in line with RFF objectives that any Member State plans to undertake in the coming years. Additionally, RRPs are required to allocate at least 37% of expenditure to climate-related investment and policy.

Job creation and workforce development for building renovation

December 2, 2021
Recording found here.

Sustainable home renovation brings a benefit-cost ratio of 4:1 , resulting in reduced healthcare costs, obviating energy subsidies, and the creation of local jobs and professional opportunities. In fact, nearly 60% of home renovation expenditure is attributed to labor, making it a key element of job creation post-COVID-19.

Both the new US administration and the European Commission repeatedly point out that an investment in green technology (including refurbishment of the building stock) is a job creator.

US perspective

By reducing healthcare costs and obviating the need for ongoing energy subsidies, energy renovations can also create many local jobs and professional opportunities. Nearly 60% of home-renovation expenditure in the US is attributed to involved labour, making renovation a key element of post-pandemic job creation. The new US administration has pointed out repeatedly that an investment in green technology (including building-stock refurbishment) is a job-creator. At the same time, there is an emerging network of stakeholders in the US – from government agencies to innovative private-sector companies – that are working to support growth in this area.

From the federal side, the DoE's Building Technologies Office is managing more than USD 15 million in awards to support the development of a 'green buildings workforce'. One key resource that supports people just starting out on a 'green buildings' career path is the DoE's Green Buildings Career Map, which houses detailed information on more than 50 careers related to green buildings, including salary information and educational requirements.

Private-sector companies are also beginning to offer innovative programmes to support growth in the green jobs sector. Johnson Controls, an international heating, ventilation, and air conditioning (HVAC) and controls vendor, has created a jobs institute in the US to support several career pathways, including Building Maintenance Specialists, Green HVAC Technicians, and Building Automation Systems Technicians.

EU perspective

One of the targets of the Renovation Wave is to energy-renovate up to 35 million buildings in the EU before 2030. The European Commission says that the current push to improve energy efficiency in buildings and reduce the amount of fossil fuel they consume could create more than 160,000 jobs in the energy and heating sectors by 2030. In an even more optimistic scenario, a deep-renovation rate of 3% of the European buildings stock could create up to 2 million new jobs. There are significant obstacles in the way, however, one of which is that many relevant EU initiatives currently lack specific national action plans. Member States need to get involved at all levels to push things forward, and the EU needs to be more active in providing assistance, especially to those countries which, because of budget constraints, are hesitant to invest large sums of public money in building renovation.

Besides national governments, there are many entities that can be just as important to the industry and job creation. Municipal authorities, for example, are closer to people at local level. Many cities have already drawn up 'green-transition plans' that also involve the construction industry. Employers, trade organisations and other interested parties need not wait for national government action: it is often much easier to find a friendly mayor to get something done that will spark renovation and create jobs. At the same time, most building owners lack sufficient knowledge of what they own, and they need to be able to receive sound, unbiased advice on what can be done to make real improvements in the most cost-effective ways. It is also vital to ensure that there will be enough workers to fill new vacancies. This means retraining workers, investing more in vocational and technical education, and promoting jobs in construction to make them more attractive.

Building standards and codes to drive renovation

January 11, 2022
Recording found here.

At just 1% annually, the current renovation rate of Europe's building stock is off track to reaching carbon-neutrality by 2050 – 97% of existing buildings are currently inefficient. Reaching EU targets will therefore require ambitious action. Projected scenarios show that achieving climate-neutrality by 2050 will require the annual renovation rate to increase to 3%, with 70% of total renovations being "deep" renovations.
To date, renovations largely take place on a voluntary basis – there is no uniform obligation on member states and local authorities to renovate buildings, and engaging both building owners and the financial sector is a lengthy and uneven process. However, building standards and codes, which can be defined as a comprehensive set of interconnected regulations that are designed to govern new construction or renovations, are potential paths to support and boost renovations.
The EPBD (2018) launched the discussion of making minimum requirements mandatory, as they can be effective instruments to achieve the European Union's long-term targets of achieving a highly efficient and decarbonised building stock by 2050.

US perspective

In the US, there is no nationwide energy code for buildings: the majority of code adoption occurs at state level, with some local exceptions. National model codes do exist, however, and most state and local codes

are based on them. For commercial properties, the official model code by statute is the ASHRAE 90.1 Energy Standard for Buildings except Low-Rise Residential Buildings; the applicable code for residential buildings is the International Energy Conservation Code (IECC). In practice, the commercial version of the IECC is often adopted, with ASHRAE 90.1 as a compliance option.

Buildings comply with the relevant energy code via one of two paths: 'prescriptive' or 'performance'. The prescriptive path is a checklist of minimum requirements that must be met in all categories. The performance path requires an energy model to compare estimated performance of the proposed building with that of a minimally compliant structure, producing an estimated percentage increase in efficiency over the baseline. Building performance standards (BPS), an emerging policy type, require direct action from building owners to meet city- or state-mandated performance-improvement targets for their property. These targets become stricter over time, driving continuous, long-term improvement of the building stock. Codes, as they apply to existing buildings, call for building elements or system elements to meet current requirements only when they are being replaced or upgraded. Building performance standards allow building owners broad flexibility to use whichever technologies and operational strategies they decide are most cost-effective to meet targets. While most codes are adopted at state level, the BPS approach is gaining more traction in local and city governments.

EU perspective

A well-established legislative framework means that newly constructed buildings in the EU are now much more energy efficient, but 85% of buildings in the EU were built before 2001, and roughly 75% of the EU's total building stock is well below standard. The Renovation Wave aims to deliver renovation to 35 million buildings by 2030, but the existing regulatory framework needs an upgrade to reflect higher ambitions and more pressing needs in climate and social action, while providing EU countries with the flexibility needed to take into account the differences in the building stock across Europe

The Energy Performance of Buildings Directive (EPBD), the cornerstone of EU buildings legislation, is being fine-tuned to improve its effectiveness in the following focus areas: renovation, decarbonisation, financing, and modernisation and system integration. The EPBD provides a methodology for calculating the energy performance of buildings and for setting cost-optimal minimum-energy-performance standards – both for new buildings and existing buildings undergoing major renovation. It also establishes 'nearly zero-energy building' (NZEB) targets for new buildings. At the same time, it offers flexibility to reflect national conditions such as climate, market uptake, energy mix, building types and construction methods. Successful implementation of the EPBD should reduce greenhouse-gas emissions from buildings by 60% and final energy consumption by 14% by 2030, while providing a long-term vision to ensure an adequate contribution towards achieving climate neutrality by 2050.