



LIFE PLATFORM MEETING ON CLIMATE ACTION AND THE BUILDING SECTOR

Brussels, 17-18 June 2019

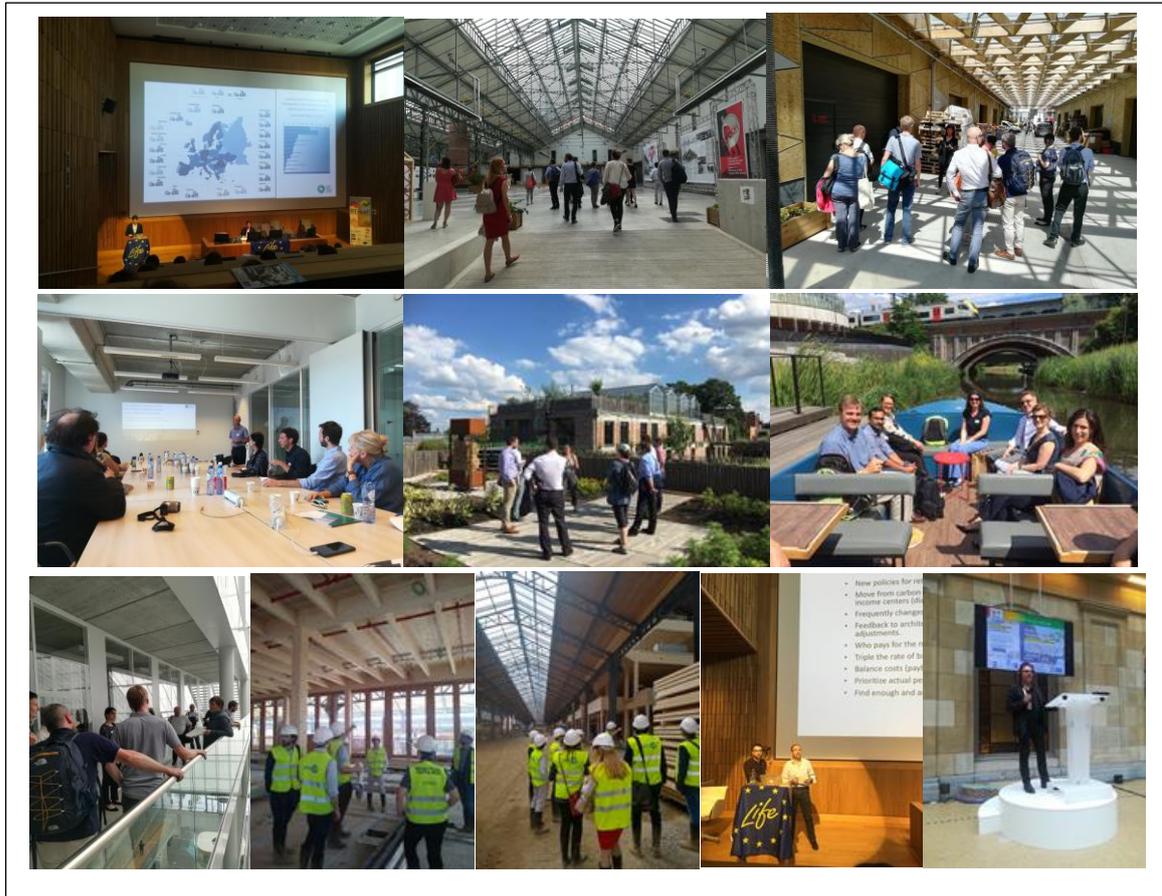


FINAL REPORT

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INTRODUCTION TO AND AIM OF THE PLATFORM MEETING

At the twenty-first session of the Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC COP 21) held in Paris, in December 2015, it was agreed that mobilizing stronger and more ambitious climate action by all Parties and non-Party stakeholders is urgently required if catastrophic climate change is to be avoided.

In order to implement the Paris Agreement, by the middle of this century all economic activities will need to become low or zero emission. We already know that in many cases the technical knowledge to achieve these outcomes already exists. The main barrier now is whether this knowledge and technology will be deployed, or whether new technologies will be developed at the pace and scale required. The Marrakech Partnership for Global Climate Action launched at UNFCCC COP22 (Marrakech, November 2016) identified in its initial engagement plan for industry and energy (Bonn, May 2017) the implementation of ambitious building energy codes for both new buildings and renovations as a core message.¹

Buildings are responsible for approximately 40% of energy consumption and 36% of CO₂ emissions in the EU.² The efficiency of energy use for heating, cooling, lighting, etc., the thermal insulation and other characteristics of private and public buildings, which result from their construction and/or their use, determine the level of energy consumption and CO₂ emissions that a building is responsible for. Improved building materials with enhanced insulation properties, energy saving systems and devices, even renewable energy generation capacity, have been introduced to reduce the carbon footprint of buildings with the end goal of a decarbonised building stock by 2050. The EU has established a legislative framework to facilitate this transition. It includes the Energy Performance of Buildings Directive (EPBD) and the Energy Efficiency Directive, which have been recently amended as part of the Clean Energy for All Europeans package.³

While making sure that the carbon footprint of buildings is reduced, it is equally important to ensure the building sector's resilience vis-à-vis future climatic conditions and extreme weather events. Building codes increasingly foresee measures in that regard, as part of a broader effort to minimise the adverse effects of climate change on core human infrastructure. Several measures are actually of dual use, for example reducing the energy needed to heat buildings, while also insulating the buildings from the higher external temperatures on warm days.

Improving the energy performance of Europe's building stock is crucial, not only to achieve the EU's 2020 and 2030 targets but also to meet the longer-term climate objectives as laid down in the low carbon economy roadmap 2050.⁴

a. MITIGATION AND ADAPTATION IN THE BUILDING SECTOR

In order to achieve the goals mentioned above, there are two main types of strategies that can be applied to the building sector: mitigation and adaptation to climate change. The mitigation measures are aimed at reducing GHG emissions while adaptation measures focus on reducing the vulnerability

¹ https://unfccc.int/sites/default/files/gca_draft_workprogramme.pdf

² <https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings>

³ See <https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition> and later in this report.

⁴ https://ec.europa.eu/clima/policies/strategies/2050_en



and risks generated by climate change and, for the specific case of the building infrastructure, are aimed at strengthening the resilience of buildings.

Mitigation strategies for climate change in buildings are mainly focused on promoting energy saving, the use of renewable energies, the implementation of bioclimatic architecture, the proper management of waste, and incorporation of elements that facilitate a green mobility (the use of non-motorized transport such as the bicycle and electric vehicles by installing parking lots and charging stations), among others. These mitigation strategies are applicable in different measures both in existing buildings (retrofit) and in new buildings. It is necessary to contemplate their inclusion at an early stage, such as the design and architectural conception. Green or bioclimatic buildings bring together building design, construction details, architectural spaces and exterior elements. Some of the most relevant elements are the study of the way solar radiation affects a building, means of heat transmission or the shape and orientation of the building, among others.

It must be highlighted that building retrofitting has the potential to reduce the EU's total energy consumption by 5-6% and lower CO₂ emissions by about 5%. Moreover, investments in energy efficiency also stimulate the economy, especially the construction industry, which generates about 9% of Europe's GDP and directly accounts for 18 million jobs. With SMEs contributing more than 70% of the value added in the EU building sector, a boosted renovation market is expected to bring increased benefits to them. In this context, in the 2018 amendment of the EU's *Energy Performance of Buildings Directive (EPBD)* (DIRECTIVE (EU) 2018/844), Member States are requested to take the necessary measures to ensure that buildings are renovated, aiming at meeting minimum energy performance requirements so far as this is technically, functionally and economically feasible.⁵ The Directive also foresees that all new buildings must be NZEB after the end of 2020. The corresponding deadline for public buildings was end of 2018.

In terms of *adaptation* strategies, they are closely related to the specific context in which the buildings are located, so specific measures should be taken in each case. Buildings can be vulnerable to climate change due to declining state and significantly lose their value because they are more and more exposed to unpredictable and extreme weather conditions. However, in recent years, the knowledge of how to improve building resilience vis-a-vis climate change has significantly increased and suitable adaptation strategies or technologies are already available.

The integration of green infrastructures in buildings (such as green terraces, roofs or walls) can enhance the resilience and improve the conditions of the urban environment. Some well-known environmental benefits produced by green infrastructures are increased rainwater retention (allowing to reduce the risk of flooding) and reduced Urban Heat Island (UHI) effect. There is also a profound social impact, with the creation of more attractive and greener cities, the improvement of human health, the diversification of the local economy and other co-benefits such as carbon sequestration.⁶

b. FOCUS OF THE PLATFORM MEETING

The aim of the platform meeting was to enhance exchanges of knowledge and experiences between projects, policy makers, industry and other stakeholders from the building sector, with a view to disseminating good practices, fostering synergies and informing the policy-making process on the basis of the results of efforts made on the ground. About eighty participants, including representatives of some 25 LIFE and H2020 projects and more than ten expert speakers made this two-day meeting a lively and fruitful event.

⁵ <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-performance-of-buildings>

⁶ http://ec.europa.eu/environment/nature/ecosystems/docs/green_infrastructure_broc.pdf



The meeting included three main parts:

- Plenary sessions on policy context, technological solutions and strategies to enable climate action in the building sector. At the end of each plenary session, an interactive part involved LIFE projects and other stakeholders.
- Thematic workshops led by external experts / plenary session key-note speakers and focusing on key issues of shared concern and possible synergies among the participating projects.
- Visits to relevant projects in relative proximity to the platform meeting venue.

The detailed platform meeting agenda is given in Annex 1.



PART I – SUMMARY FOR POLICY MAKERS

The platform meeting illustrated that European policies are ambitious enough but their implementation is still not sufficiently effective. Additional strategies are thus required to achieve the EU target of Nearly Zero Energy Buildings (NZEB) and to increase resilience to climate change in the building sector.

European Commission representatives illustrated the EU policy context for climate action, highlighted the new strategies of implementation to achieve the 2050 target, and stressed the **necessity to deal with both the mitigation and adaptation aspects as a dual challenge in the building sector**. This is the case at EU level, where, on the one hand, the EU Climate Change Adaptation Strategy promotes resilient buildings in response to the inevitable effects of climate change, and on the other hand the Energy Performance of Buildings Directive (EPBD) deals with mitigation aspects and fosters renovation. However, at national level, the two areas of work are often not addressed in an integrated way, neither in retrofitting existing buildings nor in constructing new ones.

The technical understanding and good practices are there, expert speakers and project representatives said. A key challenge that remains, though, is the fact that there are different methodologies of building energy performance measurement depending on country and region. The lack of coherence limits the possibility to compare the energy performance of buildings between regions and hinders the business uptake of renovation work across borders. This situation underlines the need for **aligning building certification schemes**. Moreover, the **actual performance of building** and the impact on residents should be measured to ensure effective compliance also after the construction / renovation certification process.

The NZEB pathway towards the 2050 target requires a market transformation with the **tripling of the current yearly building renovation rate** of between 1 and 1.5% around Europe. New policies/strategies for deep retrofitting of existing buildings should be developed in order to activate the renovation market.

The **financial sector is crucial** for achieving a substantial increase of the renovation rate, through the introduction of new principles for the financing of sustainable real estate renovation. The sector's switch from financing ownership towards financing functionalities and the introduction of specific green, sustainable, positive-impact bonds would have an even greater impact.

Key points raised at the platform meeting can be grouped under four major headings:

Some shortcomings of the current institutional framework

- Article 9 of the EPBD requires each EU Member State (MS) to set a national **NZEB definition**, something that leads to lack of clarity and inconsistent protocols among MS in the achievement of NZEBs.
- There is a lack of coherence among the numerous **certification schemes** (national, regional, BREEAM, LEED, etc.), which makes it difficult to transparently compare the performance of buildings, to assess the effectiveness of retrofitting measures and ensure market uptake across borders.
- **Roofs** are key to increasing energy efficiency and enhancing resilience in buildings. However, the focus of the EPBD is mostly on the energy performance of the building envelope and does not fully exploit all the roof top potential.



Range of actions implemented by LIFE projects (indicative, non exhaustive list)

- The choice of building materials should be made not only on the basis of their direct performance but also through a **life cycle analysis**, to have a more comprehensive assessment of the actual benefits. The [LIFE Cycle Habitation](#) project aims to demonstrate innovative building concepts that significantly reduce CO₂ emissions and contain a minimum of grey energy (energy from fossil fuels) over their entire life cycle. It designs and builds prototypes for carbon-neutral and 'LIFE cycle'-oriented residential buildings using a modular prefabrication system, fully produced at regional level, with local materials.
- **Schools, colleges and social centres** must especially adapt to climate change given the vulnerability of young people and the elderly to heat waves and other likely climatic impacts. The project [LIFE-myBUILDINGisGREEN](#) addresses this need through cost-effective measures such as extending green areas, collecting rainfall and reducing greenhouse gas emissions by adding nature-based solutions to three such buildings in Spain.
- Projects like [LIFE@Urban Roofs](#) show that optimization of **roof spaces** in cities for social, environmental and technological applications puts to good use unused spaces, increasing energy efficiency / mitigation, urban resilience, social inclusion and economic value.
- The installation of **ventilated tiles** can result in significant reductions in energy use. The project [LIFE HEROTILE](#) has achieved 50% reduction of energy use in cooling mode through reduction of the demand for summer air conditioning. This technology, if widely applied, could also help cope with the heat island effect, thus increasing urban resilience.
- **Deep renovations** do not necessarily need to be arduous and time-consuming. The “plug and play” panels tested by the [LIFE CONIPHER](#) project provide a high-performance insulation photovoltaic envelope that improves the energy efficiency and resilience of housing stock. The panels, made from 85% recycled material, are expected to reduce primary energy use by 60% and GHG emissions by 75%, thanks also to the integration of PV systems in the building envelope.

Enabling factors that come into play (indicative project references)

- Achieving nearly zero energy and climate resilient buildings is easier if owners are supported by a **renovation coach** with social and technical skills to advise on an efficient renovation, a role introduced by the [Horizon 2020 Refurb](#) project as part of an 11-step methodology for implementing the holistic Refurb approach. Such coaches could be provided by the public sector at no or low cost to the home owners, or could be privately operating consultants.
- A **holistic implementation of renovation** and retrofitting policies that vastly improve energy efficiency in a country or region requires a package of measures such as capacity building and training for administrators and stakeholders, guidelines for the construction sector, innovative techniques and new financial instruments. [LIFE BE REEL!](#) is at the forefront of such action in Belgium, with more than 8,500 homes in Ghent, Antwerp, Mechelen, Mouscron and La Louvière to be fully renovated, giving a practical demonstration of energy efficiency strategies and putting Belgium on the path to renovating all existing housing and achieving a 75-80% reduction in greenhouse gas emissions and energy use by 2050.
- **Vulnerability assessments** are key drivers for greater resilience. Taking into account that the exponential increase of extreme weather events has special impact on small and medium-sized enterprises (SMEs), these companies need to assess and manage the related risks to their office buildings and production sites. The project [LIFE DERRIS](#) has created a tool called CRAM



– Climate Risk Assessment and Management – that analyzes seven of the main climate-related perils, which strike or could strike a significant number of businesses in various areas of Italy and helps them develop an action plan. The plan foresees investments to improve the resilience but also allows for the reduction of insurance costs.

- A clear demonstration of the **societal and economic value** created by building renovations helps persuade people to embark on such renovations. For example, the project [LIFE ClimAct](#) aims to contribute to EU targets on climate protection by empowering low-income households to take action. Often overlooked in climate action, these households are particularly vulnerable to the consequences of climate change, since they spend a high percentage of their income on energy and mobility.
- Tax breaks and other incentives should be studied to promote building renovations. The **banking sector** is moving to a new business model, where sustainable business means creating more value and less risk than a traditional business. The value created can be both societal (reducing negative impact and improving positive impact) and economic (new markets, new solutions and services).

Challenges that still need to be addressed

- **EU strategies** for retrofitting existing buildings should be further sharpened to stimulate the combined application of energy efficiency and renewable energy use measures, as well as measures to enhance resilience.
- The objective of achieving carbon neutral buildings should evolve towards **carbon negative buildings** by means of a massive integration of renewable production systems within the building stock.
- Prioritize **actual performance** versus theoretical design of buildings through feedback to architects and engineers during the operation phase, with realistic parameters and data about energy efficiency, comfort, etc.
- More effective and **harmonised standards** are needed for financial institutions to be able to better assess green funding opportunities. Moreover, the financial sector needs clarity on who pays for building renovations (owners, public sector, etc.).
- In order to achieve NZEB objectives the yearly **renovation rate** should be increased by a factor of 3 from the current average of 1,2% of the building stock in the EU.



PART II – SESSION SUMMARIES

Welcoming session

The Platform Meeting started with an official welcome by Mr. **Roel Vermeiren**, Social Energy Policy Officer and Coordinator, Long-term Strategy for Home Renovation, **Flemish Energy Agency (VEA)**, who opened the meeting sharing the building renovation strategy of the Flemish Region and new regional policies. He was followed by Mr. **Angelo Salsi**, Head of the LIFE and CIP Eco-innovation Unit at the **Executive Agency for Small and Medium-sized Enterprises (EASME)**, who pointed to three pillars for building a better society on, namely circular economy, biodiversity and energy efficiency. About energy efficiency, he highlighted the necessity of a unified building labeling in the EU, technical skills improvement and better work conditions in the construction sector. Mr. **Vincent Berrutto**, Head of the H2020 Energy Efficiency Unit at **EASME**, focused on the importance of such an event, which includes both climate change mitigation and adaptation in a key sector. He also emphasized the main objectives of EASME in this regard, which include legislation facilitation, skills improvement of renovation technicians and mobilization of large-scale investments.

Finally, Mr. **Eddy Deruwe**, former director of the Brussels Region’s Energy Agency and coordinator of the **LIFE BE REEL! project**, after a brief introduction of the EU context in energy efficiency, presented the 2050 goals for domestic energy use in the regions of Flanders and Wallonia, which are supported by the LIFE BE REEL! project. Energy consumption should be reduced by 75% in processes such as heating, hot water, cooling and lighting. This would achieve 80-95% GHG emission reduction by developing strategies of decarbonisation of the energy sector and tripling the current renovation rate of around 1%. To achieve these goals, the building renovation strategy of Flanders would require to mobilise € 120 billion of investment and Wallonia’s strategy € 66 billion. The BE REEL! project and the partnership built around it would contribute to the regional strategies by the development of new policy instruments (e.g. renovation advice, quickscan tool, building passport), innovative business models (e.g. ‘one-stop-shops’, which offer renovation advice and guidance), demonstration of deep renovation (comprehensive renovation of 8,500 very diverse homes) and capacity building (for more on the LIFE BE REEL! project see Annex 4).

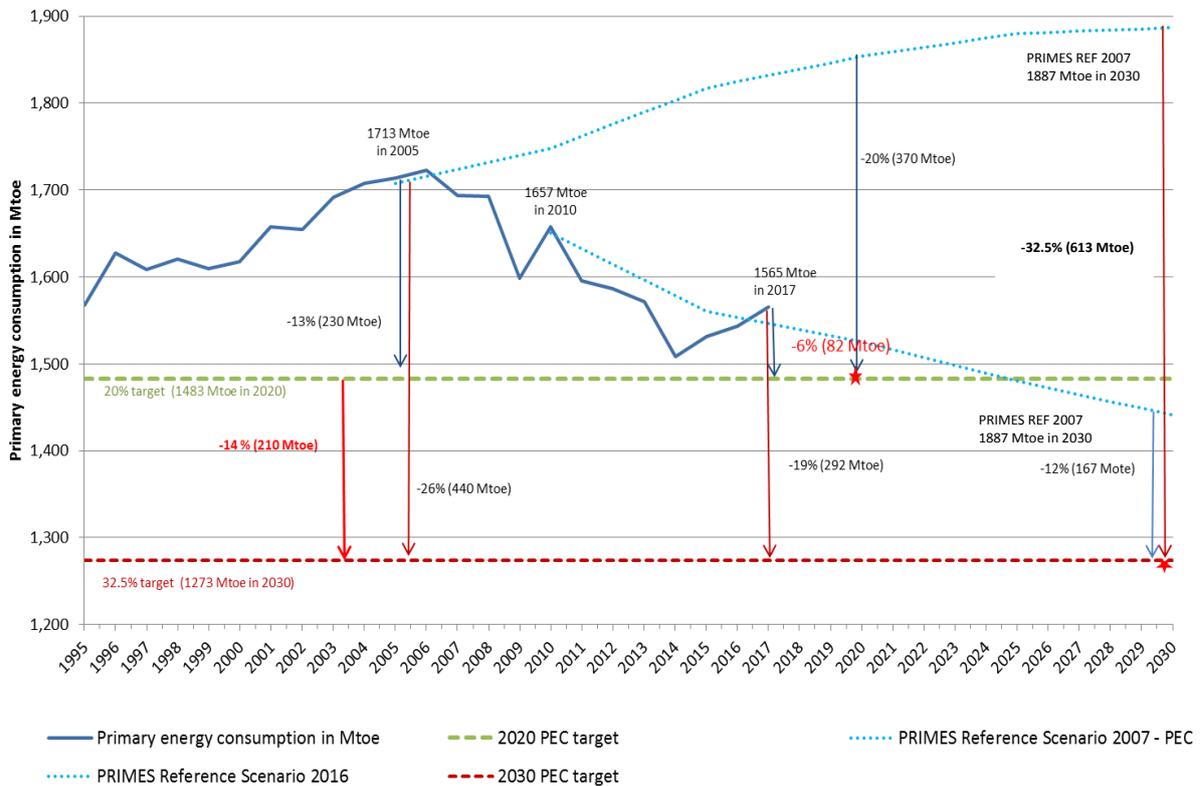
SESSION 1 – EU, NATIONAL AND REGIONAL POLICIES ON GHG EMISSION REDUCTION, ENERGY EFFICIENCY AND CLIMATE RESILIENCE IN THE BUILDING SECTOR

This first session was moderated by Ms **Astrid Geiger**, Head of Sector LIFE Climate Action, **EASME**, and consisted of a first section, where EU and national/regional policies were presented, followed by feedback provided by projects, from their own implementation experiences, and an interactive discussion.

After a brief introduction to the EU policy framework meant to facilitate the transition away from fossil fuels towards cleaner energy (Clean Energy for all Europeans package), Mr. **Dimitrios Athanasiou**,



Policy Officer, Building Team, Unit C3 of the **Directorate-General for Energy**, European Commission, presented different European strategies related to energy efficiency and consumption. Mr. Athanasiou explained to the audience that energy consumption has been rising since 2014, following an extended period of declining or flat consumption. Besides, the distance to the EU 2020 energy efficiency target has been increasing.



The necessity to reverse this tendency through targeted policies is becoming urgent. 'A Clean Planet for All' is a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy. It was approved in November 2018 and encompasses three main objectives and seven building blocks. The objectives pursued by this strategy are:

- To keep the temperature increase below 2° C and pursue efforts to limit it to 1,5° C (Paris Agreement);
- For the EU, to achieve net-zero greenhouse gas emissions by 2050;
- To transform the economy.

In the long run, all sectors have to contribute towards achieving these objectives. The building blocks include energy efficiency and the deployment of renewables. The current building sector situation shows a lack of energy efficiency as at least 75% of the housing stock is rather inefficient. Mr. Athanasiou pointed out some data which reflect the necessity to increase activity in the sector:

- Low demolition rates (0.1-0.2% per year)
- Limited new construction activities(0.4-1.1% per year)
- Very low refurbishment rates (0.4-1.2% per year)



The [revised Energy Performance of Buildings Directive](#) contributes, inter alia, to the reinforcement of long-term renovation strategies for the EU Member States, aiming at decarbonization by 2050; e-mobility infrastructure deployment; higher thresholds for inspections of heating and air conditioning systems. One of the key provisions of the Directive is the requirement for the Member States to establish comprehensive strategies aiming at a highly efficient and decarbonised building stock by 2050 and at a cost-effective transformation of existing buildings into NZEB.

Mr. Athanasiou referred to the “Smart Finance for Smart Building” initiative, which tries to unlock investments and private financing through effective use of public funding, technical assistance and aggregation of projects, as well as de-risking. He ended his presentation showing the proposed budgets for the next years for the LIFE and Horizon Europe programmes and their sub-programmes, which will include a strong energy component.



Increased mainstreaming across EU budget (25%)

- Cohesion Funds
- Invest EU
- **Horizon Europe**
 - €15 bn to Climate, Energy, Mobility
- **LIFE**
 - € 1 bn to Clean Energy Transition
 - Connecting Europe Facility
 - Innovation Fund

Mr. **Andras Toth**, Policy Officer, Unit A3 – Adaptation, **Directorate General for Climate Action**, European Commission, focused on EU climate change adaptation policy. He pointed to the increasing economic loss due to climate change impacts, like hail storms which, for example, in just two months in the summer of 2013 caused € 4,2 billion euros damage in buildings, vehicles, infrastructure and agriculture in Germany. The effects of climate change could also be observed through trends such as the increase of warm days across Europe, river flooding in urban areas and changes in extreme wind speed. The European Commission has developed complementary policies for both mitigation of and adaptation to climate change, through the: “2030 Climate and Energy Package” and the “European Adaptation Strategy” respectively. The latter focuses on three main objectives: to promote action by all the Member States, better inform decision-making and make EU-level action “climate-proof”.

Among the specific actions carried out under the European Adaptation Strategy is the provision of LIFE funding to support capacity building and step up adaptation action in Europe. Other actions include adaptation in the context of the Covenant of Mayors for Climate and Energy, bridging the knowledge gap, further developing the [Climate-Adapt online platform](#), mainstreaming adaptation in the Common Agricultural Policy (CAP) and the EU structural and investment funds, ensuring more resilient infrastructure, and promoting insurance and other financial products for resilient investment and business decisions. Further actions are under way or foreseen, as a result of the findings of the recent evaluation of the European Adaptation Strategy. Two out of three LIFE projects that Mr. Toth mentioned in his presentation as best examples for the implementation of adaptation strategies on buildings were actually among the projects that presented in the platform meeting plenary sessions (LIFE-myBUILDINGisGREEN and LIFE@Urban Roofs).

Ms. **Lore Stevens** (**Flemish Region**), speaking also on behalf of Ms. Isabelle Rolin (**Brussels Region**) and Mr. Ronald Gilot (**Walloon Region**), presented the efforts made by the three regions of Belgium towards implementation of the EPBD. Regulations already in place in the three regions set the requirements for the energy performance of buildings, with special provisions for thermal insulation, overheating, energy performance, ventilation and share of renewable energy (the latter only in Flanders) for new buildings. The three regions collaborate in the development of calculation methodologies for the energy performance (EP) of residential and non-residential buildings but use somewhat different measurements. Energy Performance Certificates (EPCs) are required for renting





or selling a building. Every two years there is a re-evaluation of the energy performance regulations in order to adjust them to actual data.

Interactive panel session with Q&A involving LIFE projects and other stakeholders

Mr. **José Feroso Domínguez**, Researcher, Natural Resources and Climate Area, CARTIF Technology Centre, presented the LIFE project “Application of Nature-Based Solutions for local adaptation of educational and social buildings to Climate Change” ([LIFE-myBUILDINGisGREEN – LIFE17 CCA/ES/000088](#)). Mr. Feroso started his presentation introducing the problems that affect urban environments, such as heat waves and extreme cold spells. That is why adaptation measures should be taken especially in buildings where vulnerable population groups spend time. The objective of the ‘LIFE My building is green’ project is to contribute to increasing the resilience of these buildings by implementing Nature-Based Solutions (NBS) as prototypes of climate adaptation and improved well-being. The innovative NBS proposed by the project included green roofs installation, use of green shadow structures for walls, as well as green pavements. As the project progressed, the NBS impact would be measured in terms of climate change adaptation and mitigation, water management, green space management, air quality and urban regeneration, among others.

Ms. **Laura Saikku**, Project Manager, [LIFE-IP CANEMURE-FINLAND \(LIFE17 IPC/FI/000002\)](#), explained that her project, “Towards Carbon Neutral Municipalities and Regions”, aimed at making a major contribution to the implementation of the Finnish climate change policy. It would work with seven Finnish regions and 39 municipalities that, among them, cover one-third of Finnish territory and more than two-thirds of its population. The concrete actions about energy efficiency of buildings include the retrofitting of buildings in the City of Lahti, low carbon construction in Lohja City building fair 2021 and supporting energy efficiency of public buildings in the City of Turku. Other actions included digital solutions to improve energy-efficiency and the use of renewable energy in buildings in the City of Porvoo, implementation of pilot energy-efficient and low-temperature bidirectional district heating in the City of Turku, and carbon-neutral urban planning in the City of Hyvinkää.

Mr. **Eddy Deruwe** did not present the [LIFE BE REEL! project](#), which was already presented in detail during the Welcoming Session, but participated in the interactive discussion.

One of the issues that came up in the discussion was the existence of different energy performance measurements across Europe and even among regions of the same country. This was seen by some as a hindrance to the operation of businesses, fair competition and the achievement of economies of scale throughout Europe. The lack of skilled technicians was also brought up as a major sticking point in efforts to accelerate the renovation rate and achieve the 2050 NZEB target.

- ✓ **The EU’s Energy Performance of Buildings Directive has been instrumental to the launch of comprehensive strategies by Member States aiming at a highly efficient and decarbonised building stock by 2050 and at a cost-effective transformation of existing buildings into nearly zero-energy buildings (NZEB).**
- ✓ **Climate action in buildings requires both mitigation (including energy efficiency) and adaptation measures, with EU policies supporting both.**
- ✓ **To achieve the NZEB target by 2050 requires a market transformation that would more than double the current renovation rate of existing building stock, which remains between 1 and 1,5% around the EU.**

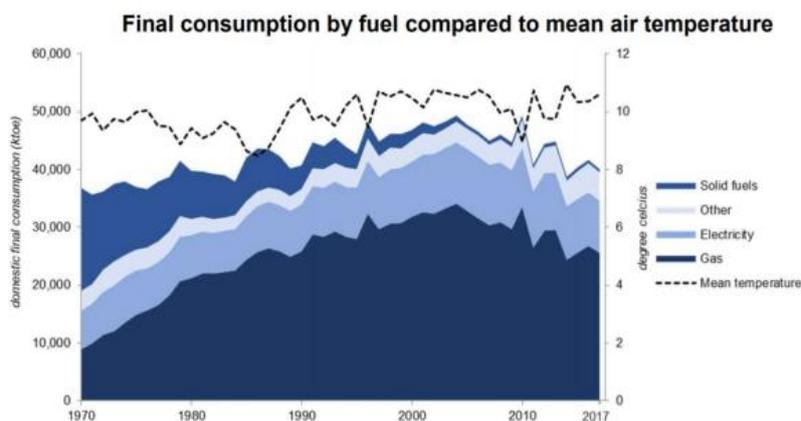


✓ The use of different energy performance measurements around Europe can be understood by the different socio-economic and political contexts but can also hinder the market uptake and successful implementation of building decarbonisation strategies.

SESSION 2 – FOCUS ON THE TECHNOLOGIES FOR ACHIEVING NEARLY ZERO ENERGY AND CLIMATE RESILIENT BUILDINGS

The second session was moderated by Ms. **Margot Pinault**, Policy officer, **Directorate-General for Energy**, European Commission, and focused on the next decade challenges in renovation and building decarbonization. The objective of this session was to get a better understanding of the state of the art in terms of technological solutions for improving energy efficiency and climate resilience in the building sector.

Ms. **Paula Cadima**, Co-director, MSc+ March Sustainable Environmental Design, **Architectural Association Graduate School**, London, started by saying that the residential use of energy increases every year in the city of London, independently from mean air temperature. In order to study the



Note: "Other" includes petroleum, bioenergy, and heat sold. Source: BEIS ECUK

relationship between climate, building design, and occupants, she is working on collective design research in collaboration with London-based architectural and engineering postgraduate students. The methodology developed was based on both on-site observations and environmental measurements using advanced computational tools. During the research, 50

residential spaces were studied around London with the help of over 200 postgraduate students specialized in sustainable environmental design. These 50 spaces were divided into four groups namely: modernist estates, terrace, prototypes, and contemporary block.

After explaining the methodology developed to analyse each case study, Ms. Cadima shared a summary showing the thermal properties and performance of 16 prioritized buildings and discussed more in-depth the results obtained in five of them. The conclusion of the analysis is that the increased risk of overheating appears to become endemic, even during winter months. This is probably due to highly insulated envelopes stipulated by regulations, and the nature of contemporary dwelling design following current socioeconomic trends.

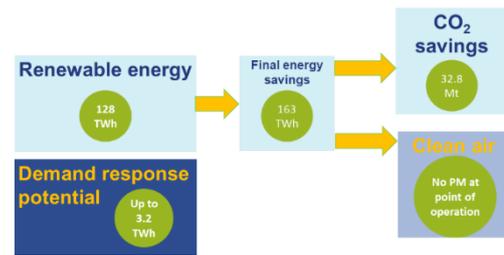
Mr. **Dan Stefanica**, Project Manager at the **European Heat Pump Association (EHPA)**, started by sharing a brief introduction about EHPA and its mission. He pointed out that EHPA is a forward-looking association aiming at putting **heat pumps** at the centre of the energy system by communicating their benefits, providing relevant technical information and serving as a reference point and integrator for all stakeholders.



Mr. Stefanica continued by introducing the overarching concept of Smart & Renewable Energy System', which includes renewable energy systems, energy storage and smart grids as a unique system. Treating the three components as a system allows increasing the overall efficiency. Mr. Stefanica highlighted the necessity to achieve smart cities by deploying this integrated system. In consequence, each household and business will no longer be separated but act in unison, adapt and utilize the resources in its vicinity, with energy storage and (decentralized) smart grids for NZEB.

Currently, the energy demand for heating processes is responsible for a significant part of the global GHGs emissions, it is therefore important to decarbonize it. Mr. Stefanica enumerated alternatives to achieve a decarbonized energy system, such as renewable sources of energy generation, energy storage and heat pump deployment. These alternatives could replace the share of fossil fuels used for heating and cooling, but the pace of adoption for heat pumps has to accelerate dramatically, as the technology represents only 17% of the space heating generators and 1.7% of hot water heaters. Mr. Stefanica finally pointed to the actual benefits of using heat pumps to reduce GHGs emissions (32,8 Mt of CO₂eq based on 11,8 million heat pumps installed in 2018).

Heat pump benefits 2018
Based on 11.8 million heat pumps installed



Interactive panel session with Q&A involving LIFE projects and other stakeholders

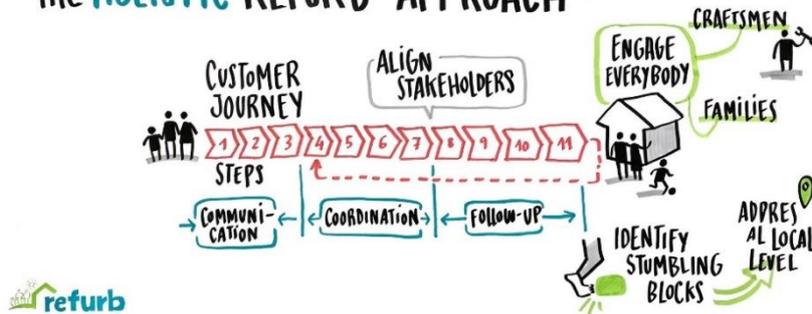
Mr. **Arnaud Jay**, Research Engineer in Energy efficient buildings, CEA LITEN @ INES, French National Institute for Solar Energy, shared his experience in innovative solutions for renovated buildings integrating renewable systems through his project named **CONIPHER**, Concrete Insulating Photovoltaic Envelop for deep Renovation ([LIFE CONIPHER, LIFE14 CCM/FR/000954](#)). According to Mr. Jay the product developed shows better building insulation using durable and high-performance materials, an innovative technology of installation and renewable energy production through photovoltaic modules. The main advantages of using this product are greenhouse gas emissions reduction (75%), high thermal resistivity (5 m² K/W), electrical self-consumption (60%), primary energy use reduction (60%), lower installation time (50%) and recyclability (85%).

Mr. **Robert Wimmer**, Chairman and Chief Executive, Center for Appropriate Technology, Vienna University for Technology, started his presentation by underlining that the **LIFE Cycle Habitation** ([LIFE13 ENV/AT/000741](#)) project is the third LIFE project in a row dealing with sustainable building he is in charge of. The project's objective is to demonstrate innovative building concepts that significantly reduce CO₂ emissions and contain a minimum of grey energy (energy from fossil fuels) over their entire life cycle. The ultimate goal is to design and build prototypes for carbon-neutral and 'LIFE cycle'-oriented residential buildings. Also, the project aims at making energy-efficient settlements a standard approach for the building sector, in line with EU 2020 objectives. In order to achieve these goals, the project team is building using a modular prefabrication system, fully produced at regional level, with local materials. The sustainability of buildings has been assessed through a life cycle analysis (LCA) and carbon footprint tools. Finally, Mr. Wimmer highlighted the main challenges that still need to be overcome such as availability of financing, legal procedures for innovative parts or prototypes and bidding processes.



Mr. Dominiek Vandewiele, is the project manager of the **Horizon 2020 Refurb** project and represents the intermunicipal association of Leiedal. The aim of Refurb project is to stimulate homeowners to

The HOLISTIC REFURB APPROACH



implement deep energy renovation. Currently, according to Mr. Vandewiele, there is a gap between what the construction companies offer and what the building owners want in terms of energy renovation. Basically, the owners prefer passive

solutions rather than active solutions (i.e. better insulation than bigger heat pump systems) but the market is not always prepared to provide such services. He shared an eleven-step methodology that the project team has created to achieve the holistic Refurb approach and introduced the role of **renovation coach**, a person who can support homeowners in making decisions on efficient renovation. (Check: www.go-refurb.eu)

The above presentations were followed by an interactive discussion involving Mr. Arnold Jay, Mr. Robert Wimmer, Ms. Paula Cadima, Mr. Dan Stefanica and Mr. Dominiek Vandewiele. The proposal about renovation coaches attracted attention, with speakers stressing the importance of their having social and technical skills, so that building owners could rely on them. On the question whether such coaches should be financed by private or public funds, it was mentioned that with private coaches there could be a risk of conflict of interest, because they could be paid by materials/products brands to increase their sales. It was also mentioned that architects who work independently can also be suitable renovation coaches but this only applies in cases of deep renovation, where normally architects are more involved.

Regarding heat pumps systems, it was mentioned that energy degradation is a fact that affects every single energy system, not only heat pumps, therefore this cannot be taken as a weak point. Heat pump technology could be further improved in order to cope with very low-temperature situations where other systems could not work. Some key points to keep from Session 2 are summarised below:

- ✓ According to EUROSTAT data, in 2016 the main energy carrier in the residential sector was gas consumption.
- ✓ Achieving nearly zero-energy and climate resilient buildings would be easier if owners were supported by a renovation coach with social and technical skills to advise on an efficient renovation. Such coaches could be provided by the public sector at no or low cost to the home owners, or could be privately operating consultants.
- ✓ A holistic approach is needed to activate building renovation, by bringing closer the homeowners' needs and what the builders have to offer.
- ✓ Heat pump systems' technology has the potential to cope with the demand for space heating and domestic hot water production with higher efficiency and lower carbon footprint.
- ✓ According to recent studies, the level of insulation set by current Regulations generates an increased risk of overheating. That risk must be prevented in the design of the future climate and energy efficient buildings.



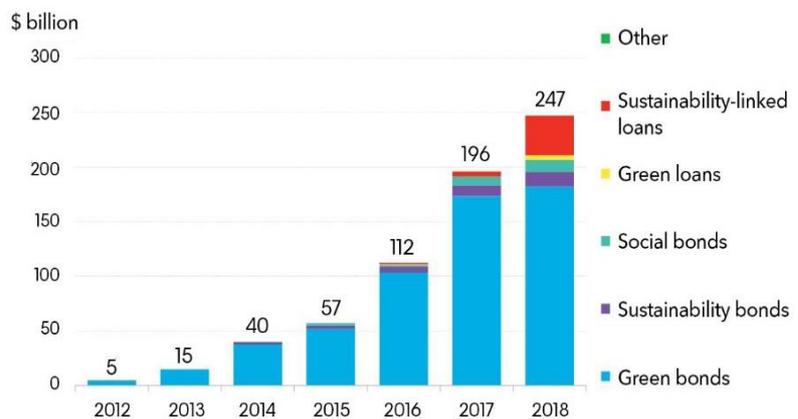
✓ The concept of smart cities could be achieved also through the implementation of smart energy grids that facilitate matching building energy demand and local renewable energy production, paving the way for implementing the concept of local energy communities.

SESSION 3. STRATEGIES AND MECHANISMS, INCLUDING FUNDING, TO ENABLE CLIMATE ACTION IN THE BUILDING SECTOR

The third session was moderated by Mr. **Bernd Decker**, Senior Project Adviser, Unit B. 3. 2 – LIFE Climate Action, **EASME** and focused on the role of financing and standard setting to achieve the target of sustainable buildings.

Mr. **Guy Pollentier**, Head of Sustainable Business Desk, **BNP Paribas Fortis**, shared his expertise in sustainable buildings finance. He highlighted the opportunities created by including the concept of climate change in building finance. The building sector has to move from being part of the problem to being part of the solution.

According to Mr. Pollentier, this business framework started in 2015-2016 with the adoption of the 17 Sustainable Development Goals, the Paris Agreement on climate change, and the Fourth Industrial Revolution. Because of this, green financing has increased exponentially since 2015 (see figure).



Sustainable business means creating more value and less risk than a traditional business. The value created can be both societal (reducing negative impact and improving positive impact) and economic (new markets, new solutions and services).

Mr. Pollentier presented the 'new principles' to create Real Estate Financing that encompasses social, environmental and economic principles. Bankers should support their clients in the ongoing transition from non-sustainable activities towards sustainable ones.

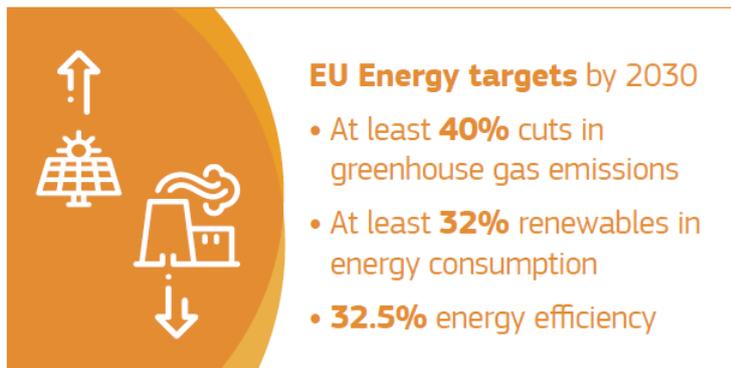
Mr. **James Drinkwater**, Director of Europe Network, **World Green Building Council**, stressed that green buildings provide some of the most effective means to achieve a range of global goals, such as addressing climate change, creating sustainable and thriving communities, and driving economic growth. This is the reason why the World Green Building Council (World GBC) was created, uniting nearly 70 countries and 37,000 members experts in performance certificates. Their main objective is to accelerate action towards a sustainable built environment through strategies of collaboration, innovation, communication, rating, education, and advocating. Mr. Drinkwater went on to share with the audience the GBC main programs, which are climate action, resource efficiency, and health & wellbeing.



Inside the program of climate change, GBC have started a global campaign – '[Advancing Net Zero](#)' – to accelerate the uptake of Net Zero Carbon Buildings to 100% by 2050, where targets pursued are: increasing awareness and education, achieving alignment and commonality between GBC approaches and certification schemes, and to expedite in global markets by sharing market leadership examples.

Also, GBC is developing a '**Call to Action**' report targeted at public and private sector leaders to establish a broadly accepted definition of Net Zero Embodied Carbon (Advancing Net Zero is WorldGBC's global project which aims to promote and support the acceleration of net zero carbon buildings to 100% by 2050) and to communicate globally the urgency and deadlines.

Ms. **Annette Jahn**, Head of Sector, Public Authorities, Finance, Energy Services, Unit B.1. – H2020



EU Energy targets by 2030

- At least **40%** cuts in greenhouse gas emissions
- At least **32%** renewables in energy consumption
- **32.5%** energy efficiency

Energy, **EASME**, shared her experience working on H2020 - Energy Efficiency. She explained that the energy efficiency framework in Europe currently includes the '2030 Clean Energy Package' (see figure with targets) and the long-term vision (2050) 'Clean Planet for all' for a prosperous, modern, competitive and climate neutral economy. Right now,

only 1-1.5% of the stock is renovated each year and € 177billion per year of additional investment would be needed. Mr. Jahn presented the EU approach to help make energy efficiency a robust business:

- Strong(er) and more holistic EU policies have been put in place, however, the renovation pace is still not sufficiently fast;
- The market 'fundamentals' must be transformed by:
 - Getting more demand and supporting champions;
 - Helping the financial sector invest;
 - Delivering data, evidence and other trust-building measures.

Ms. Jahn finished her presentation by highlighting that there are scaling-up solutions which are driven by the private as much as by the public sector but many of the consumer-trust-based models are in the public sphere. However, there is still too little evidence on how to factor in multiple benefits. The establishment of Energy Efficiency Finance Ambassadors, promoting the 'Sustainable Energy Investment (SEI) Forums', is a positive initiative to support the financial sector, however, a lot more effort is needed.

Interactive panel session with Q&A involving LIFE projects and other stakeholders

Mr. **Paul van Roosmalen**, Project & Programme Manager, Department of Sustainability, Municipality of Rotterdam, presented his **Urban Roofs** project ([LIFE Urban Roofs](#), [LIFE16, CCA/NL/000096](#)). First, he highlighted that in Rotterdam there are more than 18 km² of flat roofs, of which 1.000.000 m² are in the centre of the town. This shows the broad potential that exists if this space would be used for sustainable, social and technical functions. The project will trial the use of multifunctional roofs that have greater benefits for property owners than traditional green roofs. These roofs will combine



several types of infrastructure: green (to reduce the urban heat island effect and support biodiversity), blue (water storage), yellow (energy generation) and red (social use). The functions proposed by the Urban Roofs project are detailed below:

-  **Green roofs** provide greening and add biodiversity to the city.
-  **Blue roofs** store water and provide delayed drainage.
-  **Yellow roofs** generate sustainable energy.
-  **Red roofs** lodge social functions and provide social cohesion.
-  **Orange roofs** are used for mobility.
-  **Purple roofs** are being lived upon.
-  **Grey roofs** provide technical functions.

To boost innovation, the project will provide roof space for experimental technologies, and will organise a design contest for multifunctional roofs. It will also carry out a social cost benefit analysis (SCBA) of each site. This will allow the designs for each multifunctional roof to be optimised. The adaptation measures will then be implemented.

The effects of the adaptation measures will be monitored. Data will be used to evaluate and validate the demonstration cases. This will lead to the development of a transferrable and replicable blueprint of the approach to stimulate private investment.

Ms. **Marjorie Breyton**, Project Manager, Unipol Group, presented the project named **DERRIS** ([LIFE DERRIS, LIFE14, CCA/IT/000650](#)). Taking into account that the exponential increase of climate events has special impacts on small and medium enterprises (SMEs), the main objective of DERRIS is to know, assess and manage those risks, and also, manage emergencies and residual risks. As a result, the SMEs would obtain an increase in its business resilience. For the application of the DERRIS model, they have created a tool called CRAM – Climate Risk Assessment and Management.

DERRIS model analyzes seven of the main climate perils that strike or could strike a significant number of businesses in various areas of Italy. After analyzing the perils for a company, they help them to assess them and implement interventions. Finally, each company develops an action plan which foresees investments to improve the resilience but allows reducing the insurance costs.

Ms. **Kata Kreft-Burman**, Project Coordinator, WWF Finland, **LIFE EconomisE**, presented her project, the full name of which is: “Value for Money: unlocking the investment potential for resilient low carbon Finnish building stock” (LIFE EconomisE, LIFE16 GIC/FI/000072). The project aims to overcome the deficiencies in energy efficiency investments in Finland, focusing on the following three main pillars:

- Enable multi-stakeholders to develop new projects and business ideas;
- Challenge owners to meet solution providers cooperating with institutional investors;
- Empowering decision-makers and civil servants through carbon-neutral municipalities.



The above presentations were followed by an interactive discussion involving Mr. Paul Van Roosmalen, Ms. Marjorie Breyton, Ms. Kata Kreft-Burman, Mr. James Drinkwater, Mr. Guy Pollentier and Ms. Annette Jahn. It was pointed out that often climate resilience efforts are focused on new buildings but renovation of existing buildings should be as much of a priority. The lack of sufficient state and region level incentives to encourage building owners to act does not help to advance building retrofitting for sustainability to the extent that it is needed. It was mentioned that the target set to achieve decarbonisation by 2050 is ambitious but also necessary. In fact, becoming “carbon negative” by absorbing carbon should be a suitable option for newly retrofitted buildings by 2050.

Another issue that came up was that the sustainable building market is growing and is opening up opportunities for investment. However, while new buildings are sustainable by definition, retrofitted ones need a higher investment. Investors do not understand the importance of renovations in existing buildings and it seems that they are waiting for prices to get lower.

As for the previous sessions, some key points to keep from Session 3 are summarised as follows:

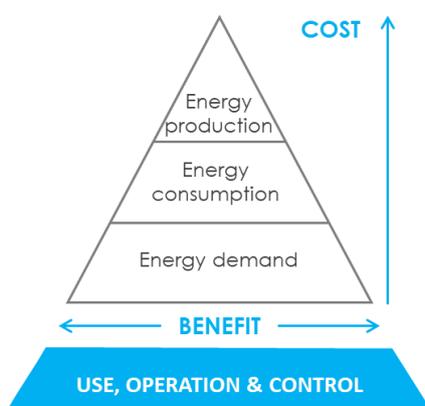
- ✓ **The financial sector plays a key role in the increase of the buildings renovation rate, which at the current pace will take roughly 100 years to have low carbon building stock.**
- ✓ **To enable a new era of sustainable buildings it is necessary to reform real estate finance bringing in technological, social and organisational elements that can eventually prompt societal and economic growth.**
- ✓ **The current state and regional incentives are not sufficient to encourage buildings owners but also funders to advance with building retrofitting for sustainability.**
- ✓ **The actual demand for sustainable buildings is growing and, clearly, this establishes a market niche for buildings finance.**
- ✓ **NZEB should become carbon negative buildings, from cost centres to income centres, which means that buildings should generate energy through renewable energy systems and put the excess onto the local or national grid.**



SESSION 4. THEMATIC WORKSHOPS

In an introductory presentation before the start of the parallel thematic workshops, Mr. **Blas Beristain**, Sustainable Building Team Leader, **IDOM Consulting, Engineering and Architecture** / NEEMO external associate, recapped the discussions held in previous sessions and offered some thoughts from his own experience.

The EPBD states that by 2020 all new buildings should be NZEB. The scenarios proposed by the market regarding the transition to NZEB show ambitious rates of energy demand reduction. In Belgium, the energy demand should be reduced by almost 42% according to Zebra 2020 scenarios (<https://eeg.tuwien.ac.at/zebra/>). That is why both architecture and engineering perspectives should pull together to pursue the NZEB objective by 2020.



Currently, the cost-benefit analysis of a building prioritises three phases in the following order (see figure):

1. Energy demand: Passive strategies
2. Energy consumption: Active strategies
3. Energy production: Renewable energy

However, there is another phase: Use, operation & control, which rarely appears in the cost-benefit analysis.

Mr. Beristain introduced the audience to the concept of 'Cost Optimal NZEB' and its methodology. The cost-optimal level is the level that brings the lowest cost over the estimated useful life. This analysis does take into account the energy maintenance and operating costs, unlike traditional analysis. The application of this methodology is based on developing parametric dynamic simulations and choosing the alternative with the lowest cost rate and energy consumption. This brings in project and cost management perspectives, in addition to the architecture and engineering perspectives previously identified.

Mr. Beristain ended his presentation sharing his vision of future smart cities, where residential and service buildings should become active producers of energy from renewable sources and exchange it with the (smart) grid.

The main points that emerged from the thematic workshops that followed can be found in Annex 2 below.



One of the key messages coming out of the meeting was that the Nearly Zero Energy Building pathway towards 2050 requires a market transformation with a significant increase in the current rate of building renovation. EU level, national and regional legislation are actually driving the demand for sustainable buildings higher, establishing a market niche that has to be expanded.

Nevertheless, platform meeting participants were aware that currently there are not enough state and region-level incentives to encourage buildings owners, but also funders, to advance building retrofiting. To enable a new era of sustainable buildings it is necessary to reform real estate finance bringing in new technologies and strategies that can eventually prompt societal and economic growth. Moreover, achieving nearly zero-energy and climate resilient buildings would be easier if owners were supported by a renovation coach with social and technical skills to advise on efficient renovation.

One of the key challenges is to standardise the NZEB definition and energy certificates across the EU, and to develop common methodologies that also include a life cycle perspective for long-term sustainability. Moreover, the actual performance of buildings should be measured over time and not just through the initial specifications. Participants urged the EU to be more ambitious in advancing all this.

The role of LIFE and Horizon 2020 funding was considered significant in the effort to develop technologies and strategies for sustainable buildings in Europe, for achieving climate resilience and reaching the 2050 NZEB objective.

The detailed agenda of the platform meeting is given in Annex 1, the list of speakers and facilitators is provided in Annex 5, and details on the workshop discussions in Annex 2. The platform meeting, hosted by the LIFE BE REEL! Project (information on which can be found in Annex 4), was organised by the Executive Agency for Small and Medium-sized Enterprises (EASME) and the Directorate-General for Climate Action (DG CLIMA) of the European Commission with the support of NEEMO. Participating projects are presented in Annex 6 and a full list of participants can be found in Annex 7.



ANNEX 1 – AGENDA OF THE MEETING

MONDAY, 17 JUNE 2019	
10:30 - 11:00	Registration of participants and coffee / Poster placement on panels by participants
11:00 - 11:30	<p>Opening session</p> <hr/> <ul style="list-style-type: none"> • Welcome statement and session moderation Roel Vermeiren, Renovation Pact of Flemish Region, Flemish Energy Agency • From the LIFE Programme / EASME -Angelo Salsi, Head of LIFE and CIP Eco-innovation Unit (B3), EASME -Vincent Berrutto, Head of H2020 Energy Efficiency Unit (B1), EASME • Host project presentation Eddy Deruwe, Coordinator, LIFE BE REEL!
11:30 - 13:00	<p>Session 1. EU, national and regional policies on GHG emission reduction, energy efficiency and climate resilience in the building sector</p> <hr/> <p>Moderation: Astrid Geiger, Head of Sector, Unit B.3.2 – LIFE Climate Action, EASME</p> <ul style="list-style-type: none"> • Climate change mitigation and adaptation in the building sector – the EU policy context - Dimitrios Athanasiou, Policy Officer, Unit C3 - Energy Efficiency, Directorate-General for Energy, European Commission - Andras Toth, Policy Officer, Unit A3 – Adaptation, Directorate-General for Climate Action, European Commission • A national perspective on the implementation of the Energy Performance of Buildings Directive (EPBD) Lore Stevens (Flemish Region), speaking also on behalf of Isabelle Rolin (Brussels Region) and Ronald Gilot (Walloon Region) – representing the competent authorities of the three regions of Belgium • Interactive part involving LIFE projects and other stakeholders <ul style="list-style-type: none"> ○ José Feroso Domínguez, Researcher, Natural Resources and Climate Area, CARTIF Technology Centre / LIFE-myBUILDINGisGREEN (LIFE17CCA/ES/000088) Eddy Deruwe, Coordinator, LIFE BE REEL! ○ Eddy Deruwe, Coordinator, LIFE BE REEL!



	<ul style="list-style-type: none"> ○ Laura Saikku, Project manager, LIFE-IP CANEMURE-FINLAND (LIFE17 IPC/FI/000002)
13:00 - 13:15	Lunch box and departure for field visits
13:15 - 18:00	<p>Field Visits</p> <p>Three options offered by the host project, respectively in:*</p> <ul style="list-style-type: none"> ○ Brussels ○ Mechelen ○ Antwerp <p>Participants to choose one of the above options upon registration on 17 June 2019</p> <p><i>*See separate visit descriptions</i></p>
19:00 – 21:00	<p>Networking reception @ Halles de St. Gery, Central Brussels</p> <p><i>(open bar till 21:00 hrs, finger food)</i></p>

TUESDAY, 18 JUNE 2019	
9:00 – 10:45	<p>Session 2. Focus on the technologies for achieving nearly zero energy and climate resilient buildings</p> <hr/> <p>Moderation: Margot Pinault, Policy Officer, Unit C3 - Energy Efficiency, Directorate-General for Energy, European Commission</p> <ul style="list-style-type: none"> • Passive and active energy efficiency solutions for new and retrofitted buildings Paula Cadima, Co-Director, MSc + MArch Sustainable Environmental Design, Architectural Association Graduate School, London • Renewable energy systems, energy storage and (decentralised) smart grids for nZEB Dan Stefanica, Project Manager, European Heat Pump Association (EHPA)) • Interactive part involving LIFE projects and other stakeholders <ul style="list-style-type: none"> ○ Arnaud Jay, Commissariat à l'énergie atomique et aux énergies alternatives (CEA) / LIFE CONIPHER (LIFE14 CCM/FR/000954) ○ Robert Wimmer, Project Manager, LCH / LIFE Cycle Habitation (LIFE13 ENV/AT/000741) ○ Dominiek Vandewiele, Project Manager, Leiedal / Horizon 2020 REFURB
10:45 - 11:15	Coffee-Break



11:15 - 13:00	<p>Session 3. Strategies and mechanisms, including funding, to enable climate action in the building sector</p> <hr/> <p>Moderation: Bernd Decker, Senior Project Adviser, Unit B.3.2 – LIFE Climate Action, EASME</p> <ul style="list-style-type: none"> • R.E. Business is business² - Financing shared value creation Guy Pollentier, Head, Sustainable Business Desk and Film Finance, BNP Paribas Bank • Green Building Councils and the use of sustainable certification schemes for advancing climate action in the building sector James Drinkwater, Director, Europe Regional Network, World Green Building Council • Financing (deep) energy efficiency renovation - experience from H2020 projects Annette Jahn, Head of Sector - Public Authorities, Finance, Energy Services, Unit B.1. - H2020 Energy, EASME • Interactive part involving LIFE projects and other stakeholders <ul style="list-style-type: none"> ○ Paul van Roosmalen, Project & Programme Manager, Sustainable Public Real Estate - Rooftop Development, Municipality of Rotterdam / LIFE@Urban Roofs (LIFE16 CCA/NL/000096) ○ Marjorie Breyton, Project Manager, Unipol Group / LIFE DERRIS - DisastEr Risk Reduction InSurance (LIFE14 CCA/IT/000650) ○ Kata Kreft-Burman, Project Coordinator, WWF Finland / LIFE EconomisE (LIFE16 GIC/FI/000072)
13:00 - 14:00	Lunch Break
14:00 – 15:30	<p>Session 4. Thematic Workshops</p> <ul style="list-style-type: none"> • Introduction Blas Beristain, Sustainable Building Team Leader, IDOM Consulting, Engineering and Architecture, NEEMO external associate • Thematic workshops led by some of the earlier keynote speakers, to be held in parallel <ul style="list-style-type: none"> ○ <i>W1: Building performance – passive and active energy efficiency solutions for new and retrofitted buildings and renewable energy generation in buildings, storage and smart grids - with Blas Beristain and Dan Stefanica</i> ○ <i>W2: How to qualify for sustainable financing and how to mainstream Green Building assessment: challenges across Europe – with Guy Pollentier and James Drinkwater</i>



15:30 – 16:00	<p>Closing session</p> <p>Moderation: Georgios Kostakos, Climate Action Thematic Coordinator, NEEMO</p> <ul style="list-style-type: none"> • Conclusions of W1 Blas Beristain, Sustainable Building Team Leader, IDOM Consulting, Engineering and Architecture, NEEMO external associate • Conclusions of W2 Han Van Gellecum, LIFE Monitoring Expert, NEEMO • Conclusions of the Platform Meeting -Georgios Kostakos, Climate Action Thematic Coordinator, NEEMO -Asier Rodríguez, LIFE Monitoring Expert, NEEMO
16:00 - 17:30	Goodbye coffee and informal networking



ANNEX 2 – WORKSHOPS (SESSION 4 ON THE AGENDA)

Overview

Two Workshops were held in the afternoon of the second day of the platform meeting to discuss the topics indicated below before reporting to the plenary. The platform meeting participants were divided between the two Workshops according to their preferences and the relevance of the Workshop topics to their project or organisation.

W1 – Building performance – passive and active energy efficiency solutions for new and retrofitted buildings & Renewable energy generation in buildings, storage and smart grids

The workshop focused on the energy performance of buildings and the attendees represented a variety of stakeholders, such as research institutes, private companies, public authorities, architects.

The **primary role of architecture** in ensuring energy efficient buildings was highlighted. It was noted that the renovation market for dwellings is moving towards increasingly **complex methodologies to measure energetic performance**. If those become too complex, the involvement of the average owner could not be guaranteed.

The role of **local energy communities** or **decentralised grids**, where a building owner/producer may sell their excess electricity to the neighbourhood (to be made possible by 2021, after the adoption of EU legislation by Member States) was discussed. This opens wide opportunities for the electricity market. Energy performance might then no longer be measured at the building level, but rather at the level of the energy community (some buildings become energy producers, while others remain net consumers).

It was mentioned the existence of cases of **classified buildings** where renovation is often very limited (forbidden by law and/or technically not feasible). Anyway, whatever renovation is done, the comfort level would be lower than for non-classified buildings.

Regarding the **functionality** of these buildings, change from a warm living place to colder storage place, the role of the decentralised energy communities might help. As an example, the owner of the classified building might invest in solar panels on some other buildings within the community. The produced electricity is then injected to heat up the badly insulated classified building.

The discussion leads shortly to the different ways to produce electricity at local level and switch from the natural gas to electricity to fulfil the thermal needs of buildings. The **heat pumps** are playing a crucial role in the electrification of the system, although some technological improvements are suitable in colder regions, but alternative technologies should also be considered (i.e. **hydrogen** produced from renewable sources).

Finally, the participants agreed on keeping also the broader perspective in mind. The climate, environment, social and economic impacts must be further integrated into informed decisions towards **decarbonisation**, Life Cycle Assessment (**LCA**) on materials, health issues and the urban context (a new way of living together, increase movability of people, smaller houses, more shared spaces).



W2 – How to qualify for sustainable financing & How to mainstream green building assessment: challenges across Europe

For any decision on whether to provide funds the majority of financial institutions rely for the most part on their clients' credibility and the return on investment, rather than on the sustainability factors of the investment - including energy efficiency or energy performance-related factors within the renovation sector or new constructions.

A lack of national regulatory frameworks and the low-level of compliance with the EU policy recommendations and guidance remain the main barriers to risk assessment. **National building codes should be more aligned with European guidelines** to better orient the market and support the pioneering technologies and materials that the building renovation sector and new constructions need.

Moreover, with the existing lack of standardised energy efficiency labels and lack of scale, where EU-level measurements are not harmonised, and methodologies and business models not properly established, Member States are struggling to make the shift towards sustainability. In that sense, the banking sector requires **business models that entail sensitivity analyses** along with a strong credibility background, so they can assess, reduce or eliminate investment risk.

In view of the above, **governance** is one of the key drivers to show **clear market direction and perspective** that would allow the economic system to build trust and give more support to sustainable and energy efficient solutions in the building sector.

More **fiscal benefits by the state, like subsidies or rewarding tax credits**, could also significantly trigger the market and motivate investors to improve the energy performance of houses. **Tax credits and a partial reduction in investors' net tax liability have so far shown very positive effects** wherever they have been tested in Europe and abroad. This is because they can relieve building owners of costs that would be otherwise anticipated as part of their budget planning.

Another critical factor to unlock energy efficiency financing depends closely on official directions derived by **credit rating agencies (e.g Moody's) or other high-profile financial institutions/centres**. Such centres can create new markets and orient more integrated, better supported sustainable and low-carbon industrial processes, products and materials. For instance, banks could issue **new green loans and bonds** if they had recommendations based on certain criteria e.g. cost efficiency, low-emissions, market uptake etc., that determine which energy-efficient products, technologies and processes should be eligible for financial support or other banking products.

On the demand/investors' side, **Energy Service Companies (ESCOs)** can play an important role in unlocking investments by supporting some of the costs with **complementary funding** and by providing the **necessary tools, feasibility studies and proven business models**. These clarify the return on investment and other critical factors to support financing within the renovation sector.

In addition, models can be found in successful initiatives in the building sector undertaken by **local public bodies** such as cities, municipalities and councils (some reference ones are committed to the Covenant of Mayors initiative too), where new **business models** have successfully been **tested at a local scale** with the engagement of local actors. These demonstrate the feasibility of upgraded solutions and are a key vehicle for scaling up and establishing the market perspective.





Another point underlined was the need - for the majority of EU funded projects - to support more **Close2Market applications/proposals**, so that when projects conclude successfully these applications become part of the regulatory framework at the national level. If this happens, investors would be by default qualified and have easier access to financial aid for technologies and state-of-the-art, energy efficient solutions that are recognised by enacted laws and regulations.

Finally, the Workshop discussed how **systematic engagement of citizens** with local actors who deal with the energy performance of buildings or new energy efficient solutions, enables concepts to be matured, holistic approaches identified, and new business models built. Such steps bring citizens/ investors/owners around the same table, thinking collectively, and subsequently attract funds which unlock systemic or/and regulatory gaps.



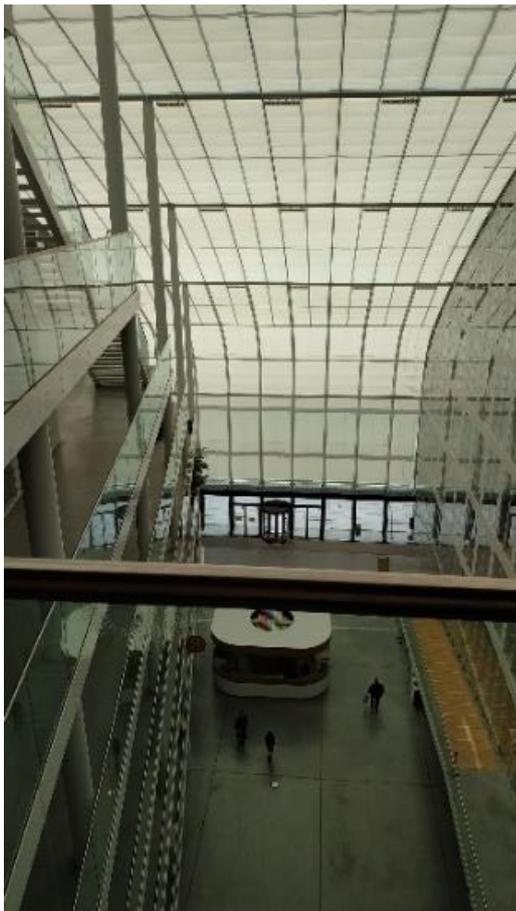
ANNEX 3 - FIELD VISITS

The host project offered the platform meeting participants offered three main visit options, respectively in:

- Brussels
- Mechelen
- Antwerp

Visiting tour Brussels:

The Brussels visiting tour's aim was to acquaint participants with actual sustainable buildings, residential NZEB neighbourhood development, sustainable heritage refurbishment, green business breeding and circular economy initiatives. It included a visit of the platform meeting venue, the Hermann Teirlinck Building of the Flemish Government, the largest passive building in Belgium, and the nearby Bruxelles-Environment Building of the Region of Brussels, The Tivoli Green Garden sustainable residential neighbourhood, the Green business incubator "Greenbizz" building, the Gare Maritime office and retail space, and the Circular Economy Food Centre.





Visiting tour Antwerp:

Partly done by bicycle, the Antwerp tour included a visit to the Mundo A eco-office building and meeting with experts advising on eco and energy zero buildings; an introduction to the ambitious city CO2 neutral

development planning; visit to a converted old industrial inner city site used as a sky city farm (“t DAK van ‘t PAKT”).



Visiting tour Mechelen:

The Mechelen tour included a look at the environmental impact of building materials through a presentation of the Totem-tool by OVAM (Public Waste Agency of Flanders); visit of a refurbishment project used as a centre for circular economy with former serious soil depollution issues (De Potterij project by OVAM); an inner city boat trip on the river Dijle to demonstrate climate mitigation measures.



ANNEX 4 – HOST PROJECT – LIFE BE REEL!

The energy consumption of Belgian houses is 70% above the EU average. This represents an enormous potential for energy savings and for the reduction of greenhouse gas emissions. The Flemish and Walloon 2050 renovation strategies for residential buildings have been approved by the Flemish and Walloon governments respectively.

The LIFE-integrated project, BE REEL!, aims to give a considerable boost to the realisation of the ambitious Flemish and Wallonian renovation strategies for 2050 by means of the following five levers:

1. New policy instruments: BE REEL! will develop, test and improve new policy instruments: renovation advice, Woningpas (Dwelling ID), quickscan tool, road map, building passport and global dossier. It will also set up pilot projects in different segments of the housing market.
2. Innovative business models for renovation: BE REEL! will test ‘one-stop-shops’, which offer renovation advice and guidance. In addition, BE REEL! will develop and test innovative business models for such things as the private rental market, district and group renovation, turnkey homes and large apartment buildings with co-owners.
3. Comprehensive renovation of 8,500 very diverse homes: The partner cities will demonstrate the technical and financial feasibility of in-depth renovations. The focus here is on a collective approach. Good practices will again be translated into guidelines, roadmaps and training courses that will be distributed among the stakeholders on a large scale.
4. Capacity-building: With intensive knowledge-building and training among regional and local authorities and stakeholders (construction sector, social housing, education, renovation consultants, financial sector), the new policy instruments, innovative business models and good practices will be implemented in society.
5. Communication: Target-group communication will encourage local authorities, building and renovation professionals and citizens to renovate more and better. It will be a lever for the comprehensive renovation of more than 4 million homes in the Flemish and the Walloon Regions.

LIFE IP CA 2016 BE REEL! is being realised with support from the European Union funding instrument, LIFE. LIFE-integrated project was created to implement the environmental and climate legislation and objectives on a larger scale and to increase the impact of the LIFE programme in the EU.

The project partners are the Flemish Energy Agency (coordinating partner), Service Public de Wallonie, DGO4, Département de l'Energy et du Bâtiment durable, Government of Flanders – Environment Department, The City of Gent, The City of Antwerp, The City of Mechelen, The City of Mouscron, The City of La Louvière, the Scientific and Technical Centre for the Construction Sector and the Flemish Cities Knowledge Centre.

For more information visit the LIFE BE REEL! website: www.be-reel.be or contact the BE REEL! co-ordination team: Graaf de Ferraris building, Koning Albert I-laan 20, bus 8, 1000 Brussels. Tel: +32(0)2 553 15 98 – E-

mail: info@be-reel.be



ANNEX 5 – LIST OF SPEAKERS AND FACILITATORS

Dimitrios ATHANASIOU	
<i>Organisation</i>	European Commission
<i>Job title</i>	Policy Officer
	<p>Dimitrios Athanasiou is a Civil Engineer with a Master’s Degree in International Construction Management. He has also graduated the National School of Public administration in Greece.</p> <p>He joined the European Commission 3 years ago as a policy officer in the Buildings Team of the Energy Efficiency Unit in DG Energy. His work is focusing on the proper implementation of the Energy Performance of Buildings Directive, in particular on the monitoring of calculation methodologies and the nearly zero-energy buildings uptake within the EU.</p> <p>Prior to joining the European Commission he worked as a Minister’s Consultant for almost 8 years in the area of energy efficiency in the Hellenic Ministry of Environment and Energy. He also worked for several years in different positions in the public sector and in the private sector where he practiced civil engineering.</p>
Raphael BEQUET	
<i>Organisation</i>	NEEMO EEIG
<i>Job title</i>	Climate Change Monitoring Expert – NEEMO LIFE TEAM
	<p>Raphael Bequet holds an MSc in Bio-engineer from the Free University of Brussels and a PhD in Sciences from the University of Antwerp, Belgium. He has researched the environmental impact on forests’ productivity and is familiar with climate modelling. From 2011 until 2015, he worked as a Project Engineer in site pollution investigation and remediation at ARCADIS Belgium. Raphael joined Prospect’s Climate Action thematic group as Project Manager, where he manages projects developing climate-change strategies and monitors LIFE Environmental and Climate Mitigation projects in the Benelux. In 2015-2016 he acted as moderator for the kick-off of new LIFE ENV and CC projects. Raphael is the main technical monitor of the hosting Integrated Project BE-REEL.</p>
Blas BERISTAIN DE LA RICA	
<i>Organisation</i>	IDOM
<i>Job title</i>	Responsible for Energy Efficiency and Sustainable Buildings
	<p>Blas Beristain de la Rica, Architect (EHU 2009), MSc. in Environment and Bioclimatic Architecture (UPM 2010), and PhD. in Engineering (EHU 2017) on Zero Energy Buildings. He joined Idom in 2011 and is now Head of Sustainable Buildings. Blas specializes in bioclimatic architecture and Zero Energy Buildings, participating in international projects where he works on the quantification of energy efficiency and sustainable building strategies.</p> <p>Since 2014, Blas has taken on the role of project manager in projects developed by the Architecture and Building Area of the firm.</p>



Vicent BERRUTO	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME), H2020 Energy Unit
<i>Job title</i>	Head of Unit
	<p>Vicent Berrutto is the Head of the H2020 Energy Efficiency Unit at the European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME). He is responsible for the energy efficiency priorities under the Energy Challenge of Horizon 2020, the EU Programme for Research and Innovation (2014-2020). Prior to joining EASME, Vincent Berrutto was dealing with sustainable energy issues in other services of the European Commission, as well as in the French government. He holds a PhD in science and more than 25 years of professional experience.</p>
Marjorie BREYTON	
<i>Organisation</i>	Unipol Group
<i>Job title</i>	Project Manager
	<p>Graduated in political science at the Institute of Political Studies in Lyon (France) and in a Master in human rights and democratization at the European Inter-University Centre for Human Rights and Democratisation. Worked with several international NGOs and for different international organisations. From 2010 to 2016, coordinator of Impronta Etica, a network of companies that aim at promoting corporate social responsibility (CSR). Since 2016, project manager in the sustainability department of Unipol Group, holding company of a group that operates in the insurance and banking sectors in Italy.</p>
Paula CADIMA	
<i>Organisation</i>	Co-director
<i>Job title</i>	Architectural Association School of Architecture
	<p>Paula Cadima is co-director of the MArch+MSc Sustainable Environmental Design at the Architectural Association School of Architecture (AA) in London.</p> <p>She has been in architectural practice and environmental research for more than twenty-five years. She has taught at the Faculty of Architecture at the University of Lisbon, where she was Founding Director of the Bioclimatic Architecture MPhil Programme.</p> <p>Her PhD was obtained at the AA and focused on Transitional Spaces, but her current research interests extend to themes related to refurbishing the city, urban microclimates, affordable housing, sustainable working & creative environments, energy efficiency and passive cooling design. She published over 40 papers in conferences and journals in these topics and has given invited lectures and keynote speeches, worldwide.</p> <p>She has worked for the European Commission in Brussels for five years, where she was involved in the management of projects promoting energy efficiency, renewable energy sources and world-class research in emerging fields. She chaired the Environment & Sustainable Architecture working group of the Architect's Council of Europe in 2009 and was the president of the International PLEA Network (Passive Low Energy Architecture) from 2011-2017, where she continues as an advisor to the Board of Directors.</p>



Bernd DECKER	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME), LIFE Unit
<i>Job title</i>	Senior Project Adviser
	<p>Since 2014 Bernd has been working as Senior Project Adviser in EASME's LIFE unit. He coordinates the sub-programme climate action of LIFE. He also manages a portfolio of projects particularly on urban adaptation and mitigation strategies within the sub-programme. Before joining EASME, Bernd managed urban transport projects at Rupprecht Consult and worked on urban environmental management programmes at UN-HABITAT.</p>
Eddy DERUWE	
<i>Organisation</i>	Flemish Energy Agency
<i>Job title</i>	Coordinator, LIFE BE REEL!
	<p>Eddy Deruwe is the current coordinator of the BE REEL project, an EU LIFE IP project setup by both Belgian regions, Flanders and Wallonia for supporting the EU climate-neutral renovation strategies. His actual interest is on sustainable innovation strategies, business development and citizens involvement in the building renovation sector. Previously he was active for many years in several EU energy learning projects. Eddy led various programs on energy advice and neighborhood development in the Brussels region. He has expertise in sustainability building assessments, environmental economics and adult learning.</p>
James DRINKWATER	
<i>Organisation</i>	World Green Building Council
<i>Job title</i>	Director
	<p>James leads the work of WorldGBC's Europe Network; a community of over 20 national Green Building Councils, 9 Regional Partners, and over 4,500 members from across the buildings sector – and is a regular adviser to international organisations on sustainable built environment issues. He has spearheaded ground-breaking initiatives that have seen major banks agree an EU-wide definition for green mortgages, over 2,000 organisations come together to establish ambitious building renovation strategies across over half of Europe, and is now taking on the challenge of mainstreaming life cycle assessment and circular construction. Before WorldGBC James was an energy and environmental lawyer specialising in finance and M&A with a global top 10 law firm and has an MA from Cambridge University.</p>



José FERMOSE DOMÍNGUEZ	
<i>Organisation</i>	CARTIF Technology Centre
<i>Job title</i>	Researcher
	<p>Jose Fermoso is Chemical Engineer from the University of Salamanca and has a DEA (Diploma of Advanced Studies) from the Industrial Engineering Program of the University of Valladolid, both in Spain. He is researcher in CARTIF since 2000 where he started in the photocatalysis field. He has been responsible for numerous national and international projects and his main experience lies in the application of Advanced Oxidation Processes both in liquid and gas phase. Since 2016, he has move to the Nature-Based Solutions field, researching for applications to improve urban air quality and low cost solutions for building adaptation to climate change. He is member of several platforms for collaborative work and scientific dissemination, such as the Spanish Photocatalysis association or the Working Group in NBS of the CONAMA (The National Environmental Congress in Spain).</p> <p>CARTIF is a horizontal, private and non-profit technology centre. Its mission is to offer innovative solutions to companies to improve their processes, systems and products, improving their competitiveness and creating new business opportunities.</p>
Panos FETSIS	
<i>Organisation</i>	NEEMO EEIG - AEIDL
<i>Job title</i>	Climate Change Expert, LIFE Communications
	<p>Working as a Climate Change Expert in the LIFE Communications team, Panos is responsible for the active analysis and dissemination of the results of the LIFE Programme. Due to his concern over environmental degradation, he sought to combine his background in economics and 4 years of work experience at Ernst&Young with environmental and sustainable energy generation projects.</p> <p>At Piraeus Bank, as a coordinator in the first “Green Banking branch” in South-Eastern Europe, he provided consulting services in the field of environmental technologies, including economic, technical and policy advisory.</p> <p>Panos has actively participated in the elaboration of various EU environmental projects, mainly focused on three areas: socio-economic impact of natural resource management; climate change economic risks and opportunities; climate change mitigation technologies.</p> <p>Panos holds a Master’s degree in Economics for Natural Resource and Environmental Management. He speaks Greek, English and French.</p>



Astrid GEIGER	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME), LIFE Unit
<i>Job title</i>	Head of Sector, LIFE Climate Action
	<p>Astrid has been with EASME since 2005 and has been instrumental in designing and implementing the EU programme on CIP Eco-innovation, funding SMEs to bring their eco-innovative solutions to the market. She is currently leading the Climate Action team within EASME's LIFE Unit. Previous positions included Mobility Manager at the Mobility Research Society in Austria and Research Officer at the IVT Institut for Transportation and Tourism Research in Germany. She has a Master's degree in Psychology, with a specialisation in Environmental Psychology.</p>
Laura GIAPPICHELLI	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME), LIFE Unit
<i>Job title</i>	Project Adviser, LIFE Climate Action
	<p>Laura Giappichelli is a Project Advisor at the LIFE Unit of the Executive Agency for Small and Medium-sized Enterprises (EASME) in charge of climate projects and integrated projects. Prior to this assignment, Laura has been working at the European Commission as a Policy Officer and a Programme Manager on environmental and climate projects for developing and neighbourhood countries. Before joining the European Commission, she has been working with the United Nations (UNDP and UNESCO) for four years managing and evaluating environmental and climate projects. Laura Giappichelli holds Bachelor and Master's degrees on Development Economics and a specialisation on evaluation of environmental programmes.</p>
Claudia GUERRINI	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME), LIFE Unit
<i>Job title</i>	Project Adviser
	<p>Claudia graduated in Political Science and Strategic Studies at the University of Florence. She has been working at EASME since 2007, first in the Energy Unit then in 2018 she joined the LIFE Unit, where she is in charge of climate projects. She is also part of the Evaluation Coordination Team and she is managing the Framework Contract related to the evaluation of the LIFE proposals.</p> <p>Previously Claudia spent ten years in the private sector working in a consultancy dealing with projects in the energy sector, as well as e-commerce and tourism. She was in charge of the Brussels' office.</p>



Anette JAHN	
<i>Organisation</i>	Executive Agency for Small and Medium-sized Enterprises (EASME)
<i>Job title</i>	Head of Sector
	<p>Anette Jahn is Head of Sector in the H2020 Energy Efficiency Unit at the European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME). She is responsible for the energy efficiency priorities for Cities & Regions, Energy Efficiency Finance and Energy Services under the Energy Challenge of <i>Horizon 2020</i>, the EU Programme for Research and Innovation (2014-2020). Prior to joining EASME, Anette Jahn was dealing with sustainable energy issues in other services of the European Commission. She holds a Master in Political Science and Economics.</p>
Arnaud JAY	
<i>Organisation</i>	Frech National Institute for Solar Energy
<i>Job title</i>	Research Engineer in Energy Efficient Buildings
	<p>Arnaud JAY graduated his engineer diploma in 2003 from MATMECA in mechanical and mathematical modelling. He has been working for 6 years at the ANSYS company in the CFD domain in a wide range of industries (Energy, HVAC, Chemical, Pharmaceutical). He joined CEA LITEN as a research engineer at INES (French National Institute for Solar Energy), in the French Alps in 2009. He is specialized in thermal transfer and fluid mechanics modelling, Energy efficiency in Buildings. He has been leading a team during 5 years in Building Energy Management and in parallel a project in partnership with VICAT, a cementery company, dealing with thermal inertia, thermal and hydric transfer in hemp concrete and solar technology integration in concrete.</p>
Kata KREFT-BURMAN	
<i>Organisation</i>	WWF Finland
<i>Job title</i>	Project Coordinator
	<p>Kata Kreft-Burman currently works as the coordinator of the LIFE EconomisE project (Value for money: unlocking the investment potential for resilient low-carbon Finnish building stock) in WWF Finland. She has more than 15 years of multi-disciplinary work history that combines experiences from the public and private sector, research and international organizations. Her field of expertise embraces issues such as energy efficiency, environmental awareness, innovation and creative sector, waste minimization and legal issues concerning various waste streams, landfills, utilization of industrial wastes and by-products in construction and cooperation in the Baltic Sea area.</p>



Georgios KOSTAKOS	
<i>Organisation</i>	NEEMO EEIG - Central Team
<i>Job title</i>	LIFE Climate Action Sector Coordinator
	<p>Georgios Kostakos holds MA and PhD degrees in International Relations (Kent, UK), and a Mechanical Engineering degree (NTUA, Greece). He served on various positions at the United Nations, including as Senior Adviser and Acting Deputy Executive Secretary of the UN Global Sustainability Panel (GSP), as climate change focal point in the Secretariat of the UN System Chief Executives Board for Coordination (CEB), and on UN field missions. He has also worked with the UN Framework Convention on Climate Change (UNFCCC) Secretariat, the University of Athens and the University of Kent, among others. He is currently Climate Action Thematic Coordinator at NEEMO EEIG.</p>
Margot PINAULT	
<i>Organisation</i>	European Commission, Directorate General for Energy
<i>Job title</i>	Policy Officer in charge of Horizon 2020 funding for Energy Efficiency
	<p>Margot Pinault holds Master's degrees in Economics and in European and International Business Law. She has 7 years of experience in the private sector in France, as Key Accounts Manager in charge of industrial clients in the field of energy management systems for buildings, smart home systems, automation, heating and cooling regulation and control. Over the last 5 years she has been with the European Commission and is now Policy Officer in charge of Horizon 2020 funding for Energy Efficiency (Societal Challenge 3) in the Buildings and Finance team of the Directorate General for Energy, inter alia providing feedback from funded projects to policy.</p>
Guy POLLENTIER	
<i>Organisation</i>	BNP Paribas Fortis
<i>Job title</i>	Head of Sustainable Business Desk
	<p>Guy Pollentier heads the Sustainable Business Desk at BNP Paribas Fortis, a team of engineers and experts in sustainable technologies, - innovation and - business models. He is also director of Fortis Film Finance, the film and performing arts financing entity of BNP Paribas Fortis. Guy holds a licentiate in law from the Catholic University of Louvain and a master degree in European Law from the Center Européen Universitaire de Nancy. Guy has been in the past branch manager and business centre manager, and business development manager of the international network of Fortis.</p>



Asier RODRIGUEZ	
<i>Organisation</i>	NEEMO EEIG - IDOM
<i>Job title</i>	Climate Change Monitoring Expert - NEEMO LIFE TEAM
	<p>Asier holds BEng in Civil Engineering and MEng in Environmental Engineering at the University of the Basque Country and the University of Cantabria.</p> <p>He has focused his professional career in the field of climate change consulting acquiring experience in carbon accounting (certified by the City Climate Planner as Urban GHG Inventory Specialist), as well as strategic planning for adaptation to climate change such as vulnerability and climate risk assessments.</p> <p>Asier joined the NEEMO EEIG team in 2017 to monitor EU LIFE Climate Change adaptation and mitigation projects implemented in Spain and Portugal.</p>
Laura SAIKKU	
<i>Organisation</i>	Centre for Sustainable Consumption and Production, Finnish Environment Institute
<i>Job title</i>	Senior Researcher and Project Manager
	<p>Laura Saikku is a senior researcher at the Finnish Environment Institute, in the Centre for Sustainable Consumption and Production. She works as a full-time project manager in the EU Life funded project Canemure – Towards carbon neutral municipalities and regions in Finland (2018-2024). The project implements concrete measures to mitigate climate change, supports regional action in climate change mitigation and supplies new information and tools through an expert platform. The project is implemented with 22 partners from municipal organizations, businesses and expert organizations. Laura Saikku is a doctor of Philosophy and holds a title of docent in Environmental Sciences. Her expertise is related to e.g. material-flow analyses and land use indicators.</p>
Angelo SALSI	
<i>Organisation</i>	European Commission - Executive Agency for Small and Medium Sized Enterprises (EASME)
<i>Job title</i>	Head, LIFE and CIP Eco-innovation Unit (B3)
	<p>Angelo Salsi studied agricultural sciences at the university of Bologna and started his career as an agro-meteorologist. In 1994 he began working for the Nature Conservation department of the Directorate General for Environment at the European Commission, where in 2000 he was appointed deputy head of the LIFE Unit. In 2005 Mr Salsi moved to a management responsibility as head of a new finance unit. After several years dealing with contracts and invoices he returned to his passion for nature conservation and biodiversity as the responsible person for the LIFE Nature Unit, before moving to his current position at EASME.</p>



Dan STEFANICA	
<i>Organisation</i>	European Heat Pump Association (EHPA)
<i>Job title</i>	Project Manager
	<p>Dan Stefanica has a bachelor's degree in European Public Administration and was awarded an Erasmus Mundus scholarship for his master degree in Lifelong Learning - Policy and Project Management. He previously worked for the Executive Management Division of the NATO Headquarters, dealing with Transition and Transformation management. Before that, working on European projects in Romania, Bulgaria, Spain, Turkey, Denmark, France, Belgium and acting as the Executive Manager of the Austrian Center for Lifelong Learning. He is managing several Horizon2020 and Intereg projects related to Renewable Heating and Cooling as well as in Research and Innovation of the Heat Pump sector.</p>
Lore STEVENS	
<i>Organisation</i>	Flemish Energy Agency, Energy Efficiency Cluster
<i>Job title</i>	Coordinator, Methodologies Team
	<p>Lore Stevens works as an engineer at the Flemish Energy Agency in the Energy Efficiency cluster. She coordinates the Methodologies Team that works on the calculation methods for determining the energy performance of new and existing buildings.</p> <p>She follows the developments of the EPB platform, a consultative body between the three Belgian Regions and scientific partners on method changes for the calculation of the energy performance of new and existing constructions.</p> <p>She also follows the European consultation moments of Concerted Action to exchange experiences with the other member states on the implementation of the European EPBD directive.</p>
Ludovico SUSANI	
<i>Organisation</i>	NEEMO EEIG -TIMESIS
<i>Job title</i>	Climate Change Monitoring Expert – NEEMO LIFE TEAM
	<p>Ludovico Susani graduated in Environmental Chemistry at the University of Siena he took a PhD in Chemistry at the same University. The PhD, focusing on LCA and innovative energy analysis, allowed him developing a specific expertise on climate change mitigation measures.</p> <p>Since then, he works as consultant in the field of energy efficiency and energy production from renewable sources both for building and industrial sectors. Since 2006, he is certified professional energy manager and Climahouse expert.</p> <p>Ludovico joined the Astrale EEIG consortium in 2011 (and then the NEEMO EEIG in 2015) to monitor EU LIFE projects implemented in Italy in the field of Climate change adaptation, mitigation and Environment</p>



Andras TOTH	
<i>Organisation</i>	European Commission
<i>Job title</i>	Policy Officer
	<p>Since 2016, Andras Toth is a policy officer in the European Commission’s Directorate-General for Climate Action, dealing with adaptation to climate change in water policy, standardisation, and a number of horizontal aspects. Prior to that, he spent 11 years on the Ecodesign and Energy Labelling Directives and also implementing them for different product groups (e.g. lighting, refrigeration....) in the Directorate-General for Energy. Before joining the Commission, he was coordinator of EU affairs in the Hungarian National Office of Research and Technology, and previously, in various Hungarian environmental NGOs. He holds a PhD in French literature.</p>
Dominiek VANDEWIELE	
<i>Organisation</i>	Leidedal
<i>Job title</i>	Energy Manager
	<p>Dominiek Vandewiele enabled the establishment of the sustainable energy and climate policy for 13 cities and municipalities within the “Covenant of Mayors”-framework. He is project manager of strategic and innovative EU-projects about deep energy renovation of dwellings, sustainable energy solutions for SME’s, low carbon district heating, urban low-carbon policy, shared and sustainable mobility, etc. He represents the H2020-REFURB-project, in which 6 regions developed innovative housing renovation schemes by introducing the “customer journey concept” to improve activate homeowners to carry out deep renovations.</p>
Han VAN GELLECUM	
<i>Organisation</i>	NEEMO EEIG
<i>Job title</i>	Climate Change Monitoring Expert - NEEMO LIFE TEAM
	<p>Han van Gellecum holds an LLB in International and European Law from the Hague University and an LLM in Global Climate Change and Environmental Law from the University of Edinburgh. He has worked as environmental consultant advising multinational companies and evaluating business impacts related to regulatory, policy and public affairs developments, mainly at EU level. He has also worked as Area Manager for an Environmental Health and Safety consultancy (Enhesa). Currently, he works for NEEMO as a Climate Change and Environmental Monitoring expert.</p>



Paul VAN ROOSMALEN	
<i>Organisation</i>	Municipality of Rotterdam, Department of Sustainability
<i>Job title</i>	Project & Programme Manager
	<p>Paul is currently working as a project and programme manager for the Department of Sustainability at the Municipality of Rotterdam in the Netherlands. My work focuses on two main topics. Firstly, I am the programme manager of the Rotterdam rooftops programme, in which we approach rooftops as additional space in the city to accommodate a wide variety of functions. We call this multi-functional rooftop development. Secondly, I coordinate the provision of information regarding sustainability towards the citizens of Rotterdam, local businesses and (inter)national stakeholders. Goal is to provide them with a hands-on perspective to undertake climate action. We organize this from the Rotterdam Information Point on Sustainability</p>
Roel VERMEIREN	
<i>Organisation</i>	Flemish Energy Agency (VEA)
<i>Job title</i>	Social Energy Policy Officer and Coordinator, Long-term Strategy for Home Renovation
	<p>Roel Vermeiren holds postgraduate degrees in clinical psychology and public administration, and started working for the Flemish Energy Agency (VEA) in 2008, after 10 years of work in labour market and vocational training policy. He worked on both social energy policy and on energy efficiency for the residential sector. Since the middle of 2015 he is the project leader for the Flemish long-term renovation strategy 2050 for the residential sector.</p>
Robert WIMMER	
<i>Organisation</i>	Vienna University for Technology
<i>Job title</i>	Chairman and Chief Executive of Center for Appropriate Technology
	<p>Dr. Robert Wimmer has been the chairman of the independent research association GrAT (Center for Appropriate Technology) since 1996. The association is based at the Vienna University of Technology. The mission of GrAT is to initiate und realize examples of sustainable technology applications. Dr. Wimmer has been devoted to transforming the ethical challenge of sustainable development into operational steps, and to initiating und realizing examples of sustainable technology applications in different regions in the world. With his knowledge and skills in a broad range of topics, such as process- and mechanical-engineering, resource efficiency and cleaner production, design, and biological and chemical applications, he develops and implements innovative technical solutions. He has an extensive experience as a consultant, trainer, lecturer and speaker.</p>



LIFE projects

LIFE09 ENV/FI/000573 - INSULATE

The project focused on the assessment of national programmes to improve the energy performance of the existing housing stock, such as government-supported improvements in thermal insulation. It developed a common protocol for assessing the impacts of a building's energy performance on indoor environmental quality and health and establish an integrated approach for the assessment of environmental and health information.

LIFE12 ENV/ES/000138 - LIFE STARS (+20)

This project aimed to reduce the potential impact of climate change on tourism. It successfully demonstrate the potential for reducing GHG emissions by more than 20% in SMEs active in the European tourism sector by means of a pilot action carried out in five lodging houses located in five Spanish regions. The innovative approach was designed to be replicable across the European rural tourism sector.

LIFE13 ENV/AT/000741 - LIFE Cycle Habitation

The overall objective of this project is to demonstrate innovative building concepts that significantly reduce CO₂ emissions and contain a minimum of grey energy (i.e. energy from fossil fuels) over their entire lifecycle. The ultimate goal is to design and build prototypes for carbon-neutral and 'LIFE cycle'-oriented residential buildings, and to make energy-efficient settlements the standard, in line with EU 2020 objectives.

LIFE14CCA/IT/000939 - LIFE HEROTILE

The project aimed to design and produce two types of roof tiles (Marseille and Portuguese roof tiles, covering more than 60% of pitched roofs in Europe) with a shape characterised by higher air permeability through the overlap of the tiles and improved energy performance through under-tile ventilation. The new tiles were tested on real-scale buildings with seven different roof types located in different Mediterranean regions. The project managed to demonstrate that the tiles can help save up to 50% of the energy for cooling buildings and reduce cooling-related GHG emissions by 10%.

LIFE14 CCA/IT/000650 - LIFE DERRIS

The project aimed to transfer knowledge from insurance companies to public administrations and SMEs in terms of risk assessment and risk management for catastrophic weather events in order to create 'resilient companies'. It managed to disseminate evaluation tools and skills for risk prevention developed by the insurance industry among public administration bodies and SMEs in Turin, and implement innovative forms of public-private governance for climate catastrophes.

LIFE14 CCM/FR/000954 - LIFE CONIPHER

The project aims to demonstrate a high-performance insulation photovoltaic envelope that improves the retrofitting of housing stock to improve energy efficiency and increase the resilience of buildings to climate change. It will develop the first ready-to-use and 'plug and play' panels for simple and rapid 'deep renovations'. The panels, made from 85% recycled material, are expected to reduce primary energy use by 60% and GHG emissions by 75%.





[LIFE14 CCA/E8/000489 - LIFE Lugo+Biodinámico](#)

The project's objective is to implement an innovative urban planning strategy by applying a set of actions in the city of Lugo, which is based on the promotion of the local timber industry and the sustainable management of forests, the identification and valorisation of the Linear River Park, formed by the Miño, Rato and Fervedoira basins, as a Green Climatic Protection infrastructure and the improvement of the environmental connectivity of the action plan area by implementing a multifunctional open-air space system. The project will showcase an integrated design and planning of resilient bioclimatic neighbourhoods that consume practically no energy and are largely planned with local wood systems along with a resilient urban landscape prepared to face and to minimise the effects of climate change.

[LIFE15 GIC/AT/000092 - LIFE ClimAct](#)

The project aims to contribute to EU targets on climate protection by targeting low-income households. Often overlooked in climate protection actions, these households are particularly vulnerable to the consequences of climate change, since they spend a high percentage of their income on energy and mobility. The project will increase knowledge about possibilities to actively engage in climate protection and empower low-income households to take action. Since various factors influence climate-friendly behaviour, the project will target different stakeholders, such as electric utility companies and decision-makers. Urban climate action meets nature conservation and biodiversity.

[LIFE15 IPC/DE/000005 - LIFE-IP ZENAPA](#)

The project aims to work on the nexus between climate change mitigation and biodiversity protection and to establish viable economic solutions in nature protection areas and surrounding regions to reduce greenhouse gas emissions in line with national and pan-European climate protection targets (CAP 2020 and CPP 2050). As well as seeking to achieve CO₂ neutrality in the participating protected areas, the project aims to develop the potential of regions as incubators for wider uptake of the climate change mitigation and energy production measures and new financing mechanisms demonstrated. The project beneficiary works with 11 partners from Germany and Luxembourg. Some 90 model districts or villages expect to showcase the feasibility of the project which, in addition to its budget, will mobilise some €304.1 million in complementary funding.

[LIFE15 IPE/IT/000013 - LIFE IP PREPAIR](#)

To comply with the Air Quality Directive, National Emissions Ceiling Reduction Commitments and the EU's Clean Air for Europe strategy, LIFE-IP PREPAIR builds capacity and strengthens coordination among public authorities and private operators, including through a new permanent networking structure that involves the environmental agencies of the Po Valley and of the eastern border regions and Northern Adriatic basin, such as Slovenia. It carries out pilot actions to improve air quality and assess the effectiveness and transferability of those measures in the project area and other EU regions. The project aims to establish a near-real time web-based system for sharing air quality and emissions data and air quality models. Measures focus on four main sectors: biomass burning, energy efficiency, transport and agriculture.

[LIFE15 CCA/ES/000058 - LIFE SUSTAINHUTS](#)

The project aims to reduce the environmental footprint and improve the energy efficiency of mountain huts and other isolated buildings in off-grid locations that often rely on diesel generators for heating and electricity. This will involve the promotion of clean, renewable energy and improved insulation in the huts, saving energy and reducing emissions of greenhouse gases.



[LIFE16 IPC/BE/000005 - LIFE IP CA 2016 BE-REEL](#)

Belgian homes use 70% more energy than the European average, mainly because much of the housing stock is old. By supporting regional cooperation between Flanders and Wallonia, this project will help to implement renovation and retrofitting policies that vastly improve energy efficiency. Measures will include capacity building and training for administrators and stakeholders, guidelines for the construction sector, innovative techniques and new financial instruments. More than 8 500 homes in Ghent, Antwerp, Mechelen, Mouscron and La Louvière will be fully renovated, giving a practical demonstration of the energy efficiency strategies. This project will put Belgium on the path to renovating all existing housing and achieving a 75-80% reduction in greenhouse gas emissions and energy use by 2050.

[LIFE16 CCA/IT/000090 - VENETO ADAPT](#)

A major flood in 2010 in north-east Italy highlighted the increased risk of catastrophic flooding provoked by climate change. This LIFE project will devise integrated approaches for flood management throughout the Veneto region. Mapping of risks, vulnerabilities and resilience will provide a baseline for comprehensive and sustainable adaptation measures. These action plans will be aligned with urban planning policies to mitigate the expected increase in major flood events in the coming decades. More than 1.7 million citizens will benefit from improved resilience to flooding.

[LIFE16 CCM/BE/000120 - LIFE BIPV](#)

Integrating solar panels into the glass facades of buildings could improve their energy performance in line with EU targets, as well as becoming a significant new source of renewable energy. This demonstration project will generate clean energy through building integrated photovoltaic facades fitted on refurbished and new buildings in Belgium and Spain, the final stage before market launch of the technology. LIFE BIPV expects to reduce the buildings' carbon dioxide emissions by 34% on average.

[LIFE16 CCM/BE/000054 - LIFE FRONT](#)

Legislative and market barriers are limiting the uptake of climate-friendly alternative refrigerant gases. Developing a harmonised regulatory approach to the use of fluorinated gases in refrigeration, air conditioning and heat pump units is a priority of this project. It will also promote non-fluorinated alternatives, such as hydrocarbons, as a climate-smart and sustainable approach for this industry. This is expected to increase market uptake of these alternatives by up to 60% by 2023.

[LIFE16 GIC/FI/000072 - LIFE EconomisE](#)

Energy consumption in Finnish buildings could be cut by 50% by 2050 if existing structures are made more energy efficient and new buildings adhere to low carbon standards. This project is establishing a collaborative online platform for municipalities, developers and institutional investors to accelerate this process. The new platform, along with 30 investable multi-stakeholder projects and 15 to 20 new business concepts, will encourage a shift towards a low-carbon, sustainable buildings sector in which energy efficiency, life-cycle planning and climate resilience are integral. The goal is for three-quarters of institutional investors to have aligned their property portfolios with climate change targets.

[LIFE 16 CCA/NL/000096 - LIFE@Urban Roofs](#)

Multifunctional roofs have more benefits for the owners of buildings than green roofs, since they also enable water storage, energy production and social uses. The city of Rotterdam wants to stimulate the spread of these multi-purpose roofs by incentivising real estate developers and property owners. Through this LIFE project it will establish three demonstration sites on buildings with very different characteristics and demographics, including an experimental space for companies to test new technology. The project's new approach will be replicated in Vejle, Denmark.





[LIFE 16/GIC/UK/000007 - Real Alternatives 4 LIFE](#)

The EU Regulation on fluorinated greenhouse gases requires the refrigeration and air conditioning sectors to phase out the use of refrigerant gases with a high global warming potential by 2030. To achieve this, technicians need to know about and be trained to use alternative refrigerant gases. This LIFE project will use low-cost, accessible e-learning and train-the-trainer programmes to reach this goal. Modules will be available in 13 languages, making the information relevant to 85% of the 228,000 refrigeration and air conditioning technicians in the EU.

[LIFE17 CCA/ES/000088 - LIFE-myBUILDINGisGREEN](#)

Schools, colleges and social centres must especially adapt to climate change given the vulnerability of young people and the elderly to heat waves and other likely climatic impacts. LIFE-myBUILDINGisGREEN addresses this need by adding nature-based solutions to three such buildings in Spain. Cost-effective measures include extending green areas, collecting rainfall and reducing greenhouse gas emissions. The knowledge and good practice acquired by the project will be used to promote good governance among regional authorities and in the building sector. It will also help to establish common EU policy on adaptation to climate change in this area.

[LIFE17 ENV/ES/000252 - LIFE NEXUS](#)

As more and more people live in cities, the demand for water and energy continues to rise. What if water treatment networks could become a source of renewable energy? LIFE NEXUS aims to show the potential of micro-hydropower systems to recover the untapped energy deriving from abundant pressure (water head) or kinetic energy (water flow) in existing water networks. The technology will be used to meet all the energy needs of a drinking water treatment plant in León, Spain, replacing fossil fuels and contributing to a significant reduction in water loss through leakages. The project will also assess the potential for micro-hydropower across Europe, determining the minimum plant capacity with a payback time of less than 10 years in different countries.

[LIFE17 IPC/FI/000002 - LIFE-IP CANEMURE-FINLAND](#)

The project supports the implementation of Slovenia's operational plan for greenhouse gases and national action plan on energy efficiency 2014-2020. It will tackle implementation gaps and bottlenecks to enable 2030 targets in the plans to be met quicker and most cost effectively. The project will increase resources and competencies to enable measures to be well-prepared and implementation to be better coordinated. This will involve a focus on improving stakeholder capacity and involvement and on the modernisation of organisational procedures for the preparation of new legal instruments. Notably, an efficient monitoring system will be set up for the implementation of the measures foreseen in the operational plan for greenhouse gases, including monitoring of carbon dioxide emission sinks, systematic monitoring of the effectiveness of awareness-raising and training activities, and monitoring of green public procurement uptake.

[H2020 projects](#)

[REFURB – No. 649865](#)

The REFURB project focused on bridging the gap between the supply side (building construction sector) and demand side (homeowners) by developing dedicated renovation packages for different market segments within the residential sector. The overall approach was to bring together all relevant stakeholders of the supply and demand sides to a) develop a holistic methodology for the renovation process in which technology combinations trigger step-by-step deep energy renovation of existing, private residential buildings towards NZEB-standards, and b) introduce a “Compelling Offer” (i.e. an





offer you can't refuse) to residential homeowners based on a match between available technologies and their concerns.

F-PI – No. 846085

F-PI will help to reduce its transactional cost through on the promotion of Energy Efficiency projects by implementing a coherent work-plan and will execute a set of concrete actions. The concrete actions are focused on provision of technical assistance to private funds to boost their capital in energy efficiency. This technical assistance contains the design on standardized procedures to create and analyse portfolios as well as the definition of innovative financing alternatives, always having in mind the high degree of replicability.

BUILD UPON – No. 194605

The project created a renovation revolution across Europe by helping countries to deliver strategies for renovating their existing buildings. More than 1,000 key stakeholders were empowered – from governments and businesses, to NGOs and householders – across 13 countries, creating a collaborative community that enabled the design and implementation of these strengthened national renovation schemes. The adopted strategies are critical and fundamental steps to cutting Europe's energy use, reducing the impacts of climate change, and creating buildings that deliver a high quality of life for everyone.

SENSEI – No. 847066

The project SENSEI propose a solution to apply Energy Performance Contracting (EPC) model not only for single, large projects but scaling up the number of buildings that implement energy efficiency interventions. The main concept underlying the SENSEI business models is pay-for-performance (P4P), which offers an effective way to engage both energy providers and third-party investors in energy efficiency. SENSEI will first elaborate P4P schemes for financing energy efficiency that can be implemented across the EU, and then integrate these P4P schemes with the preparation and implementation stages of the EPC model, with the intention of increasing and/or financing the gains in a building's value that are produced by energy efficiency improvements.

F-PI – No. 846085

The project F-PI will help to reduce the transactional cost through the promotion of Energy Efficiency projects. This will be done by implementing a coherent work-plan and will execute a set of concrete actions focusing on provision of technical assistance to private funds to boost their capital in energy efficiency. This technical assistance contains the design on standardized procedures to create and analyse portfolios as well as the definition of innovative financing alternatives, always having in mind the high degree of replicability. By the end of the project, F-PI will trigger 30 M€ of investments into sustainable energy thanks to the successful execution of the planned actions as well as the definition of the proper standard procedures.

iBRoad – No. 754045

The project iBROAD intends to explore, design, develop and demonstrate the concept of individual building renovation roadmaps, as a tool outlining deep step-by-step renovation plans with customised recommendations for individual buildings, combined with a repository of building-related information. The iBROAD approach is an evolution of EPC and energy audit systems, aiming to become a real driver for renovation. The project will analyse and build upon relevant examples in Germany, France and Flanders, to identify the elements, develop an integrated concept, and produce modular tools, suitable for differing national conditions. The iBROAD innovative concept and tools will be tested in Bulgaria, Poland, Portugal and Germany targeting residential buildings, with a focus on single-family and small multifamily houses.



ANNEX 7 – LIST OF PARTICIPANTS

FIRST NAME	FAMILY NAME	ORGANISATION	TITLE	PROJECT
Filippos	ANAGNOSTOPOULOS	IEECP	Senior Associate	SENSEI
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Dimitrios	ATHANASIOU	EUROPEAN COMMISSION - DG ENERGY	POLICY OFFICER - BUILDINGS TEAM	
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Sanne	BERGHMANS	Vlaams Energieagentschap - BE REEL!	project officer learning networks	LIFE IP CA 2016 BE REEL!



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Alexander	DELIYANNIS	Sympraxis Team	Head of Consulting Services	iBRoad
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James	DRINKWATER	WGBC		
Francesca	ETTORRE	EASME		
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Panagiotis	FETSIS	Neemo EEIG	LIFE Communications and Events Team - Climate Action	
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Meti	GOVORI	MGA	Director	
Catherine	GRIPPA	Ville de La Louviere		Be Reel!
Claudia	GUERRINI	EASME		



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Ben	HOLBOURN	NEEMO	Editor, journalist	
Tim	HUYBRIGHS	Flemish Energy Agency	Project Officer Business Models	BE REEL!
Anette	JAHN	European Commission - EASME	Head of Sector	
Arnaud	JAY	CEA @ INES	Research Engineer	CONIPHER
Berry	JULIEN	Bruxelles Environnement	Climate and Energy Policy Advisor	
Georgios	KOSTAKOS	NEEMO	Climate Action Thematic Coordinator	
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Graziella	MARY	Competitiveness cluster S2E2	European Project Developer	



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Philippe	MOLITOR			
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Thomas	NOWAK	EHPA - Speaker tbc		
Lina	NURALI	EcoHuis city of Antwerp	project leader Triple A	
Eva	PELGEN	Johanniter		
Susana	PENEDO SOUTO	CITY COUNCIL OF LUGO	CITY COUNCIL OF LUGO ARCHITECT	LIFE LUGO+BIODINÁMICO
Margot	PINAULT	EC DG ENER	policy officer	
Guy	POLLENTIER	BNP paribas Fortis	Head of Sustainable Business Desk	
Peter	PROF. DR. HECK	Institut für angewandtes Stoffstrommanagement (IfaS)	Managing Director	LIFE-IP ZENAPA - Zero Emission Nature Protection Areas
Katerina	RAFTOPOULOU	NEEMO		



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Sylvain	ROBERT	DG ENER		
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Daphné	STASSEN	AGC Glass Europe	Researcher - Project Leader	BIPV LIFE
Dan	STEFANICA	EHPA		
Lore	STEVENS	Flemish Energy Agency	Team coordinator	
Ludovico	SUSANI	NEEMO	Technical Monitor	



Clare	TAYLOR	NEEMO	Communications coordinator	
Clare	TAYLOR	NEEMO		
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Dariusz	URBANIAK	EASME		
johan	VAN DESSEL	bbri - wtcb - cstc	Head of Division	BE Reel!
Han	VAN GELLECUM	NEEMO	NEEMO platform meeting organizing team / technical monitor	
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Dominiek	VANDEWIELE	Intercommunale Leiedal	Energiedeskundige	REFURB
bart	VANNOPPEN	Volta	technological advisor	
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Vincent	VERRUTTO	EASME		
Matthias	VERSTAPPEN	BE REEL!	project officer communication	LIFE



Christina	VOGT	DKB - Vlaamse overheid	policy advisor	
Robert	WIMMER	GrAT - Gruppe Angepasste Technologie, TU Wien	Managing Director	LCH - LIFE Cycle Habitation – Demonstration project with carbon neutral construction and innovative energy supply system
María Nieves	ZUBALEZ MARCO	FUNDACIÓN SAN VALERO	HEAD OF THE INTERNATIONAL AFFAIRS DEPARTMENT	LIFE STARS +20





ANNEX 8 – COMMUNICATION MATERIALS

<https://ec.europa.eu/easme/en/news/sustainable-buildings-europe-s-climate-neutral-future>

<https://www.be-reel.be/>

