

LIFE PLATFORM MEETING ON CLIMATE ACTION AND THE BUILDING SECTOR

Brussels, 17-18 June 2019



Background Paper

*[Version: 6 June 2019]*

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***Platform Meeting Venue:***

**Herman Teirlinckgebouw, Havenlaan / Avenue du Port 88**

**1000 Brussels, Belgium**

# Introduction

At the twenty-first session of the Conference of the Parties of 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 new technologies developed at the pace and scale required.

The Potential Global Action Activities covered at UNFCCC COP 23 (Bonn, November 2017) include an initial engagement for industry and energy where the implementation of ambitious building energy codes for both new buildings and renovations are a core message[[1]](#footnote-1).

Buildings are responsible for approximately 40% of energy consumption and 36% of CO2 emissions in the EU.[[2]](#footnote-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.

While ensuring 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 targets but also to meet the longer-term objectives of our climate strategy as laid down in the

low carbon economy roadmap 2050.[[3]](#footnote-3)

# Mitigation and adaptation in the building sector

In order to achieve the goals mentioned before, 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 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 and include the relevant elements at an early stage, such as the design and architectural conception of a building in order to ensure that it is a green or bioclimatic building.

In this sense, bioclimatic architecture mixes building design, constructive details, architectural spaces and exterior elements. Some of the most relevant elements are the study of the way solar radiation affects the building, means of heat transmission or the shape and orientation of the building among others.

It must be highlighted that building retrofitting has a high potential, as the know-how which has been recently developed shows that it is possible to build and retrofit buildings to achieve 60 – 90% savings as compared to standard practice in all climate zones (providing similar or increased service levels). In that sense, the revised *Energy Performance of Buildings Directive (EPBD)* requires that EU Member States take the necessary measures to ensure that buildings are upgraded, aiming at meeting minimum energy performance requirements so far as this is technically, functionally and economically feasible [[4]](#footnote-4).

The EU’s Effort Sharing legislation that establishes binding annual greenhouse gas emission targets for Member States for the periods 2013–2020 and 2021–2030 also concerns emission reductions from buildings, along with other sectors not included in the EU Emissions Trading System ([EU ETS](https://ec.europa.eu/clima/policies/ets_en)), such as transport, agriculture and waste. Achieving the targets is aided by measures to improve the energy performance of buildings, eco-design requirements for energy-related products, and energy labelling systems to inform consumers.

In terms of *adaptation* strategies, they are closely related to the specific context in which the buildings are located so specific measures would be taken in that sense. Buildings can be vulnerable to climate change due to the increase in the risk of collapse, declining state and significant loss of value as a result of more storms, snow or subsidence damage, water encroachment, deteriorating indoor climate and reduced building lifetime. For example, in a context where water is a scarce resource, and/or projections indicate desertification processes, buildings can use strategies that promote efficient water use, water reduction, and / or water treatment, as the installation of a system of collection and treatment of grey or black water for use, for example, in irrigation or discharges of toilets, the installation of showers and low-flow taps for kitchens, toilets and bathrooms, double-flush toilets, etc.

Besides, the integration of green infrastructures in building designing projects (such as green terraces, roofs or walls) can enhance the resilience of the urban environment, provided its ecosystems are in a healthy condition. Some environmental benefits provided by green infrastructure are the increase of rainwater retention (with a flood alleviation) or the mitigation of the Urban Heat Island (UHI) effect. Nevertheless, the environment is not the only one benefiting from these technologies. They also have a deep impact on the societal side, 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[[5]](#footnote-5).

# LIFE Climate Action

LIFE Climate Action is a sub-programme of the LIFE Programme for Environment and Climate Action for 2014-2020, with a share of 25% of the total LIFE Programme budget of 3.4 billion euros for this period. LIFE Climate Action is the only EU programme dedicated to developing innovative responses to the challenges of climate change across the EU. It supports the implementation of the strategic priorities of EU climate policy within the Union and is therefore also an important element of the overall mainstreaming of climate action within the EU-budget.

The sub-programme for Climate Action has three priority areas:

(a) Climate Change Mitigation;

(b) Climate Change Adaptation;

(c) Climate Governance and Information.

The LIFE Programme has supported climate action even before the latter’s elevation to a distinct sub-programme, as evidenced through relevant projects funded before 2014.

# Focus of the platform meeting

This platform meeting will bring together LIFE and Horizon 2020 projects dealing with climate action in the buildings sector along with policy makers, administrators at European, national and regional level, representatives of related industrial sectors, funding agencies and NGOs, with the aim to foster networking and partnerships. The objective of the meeting is to provide feedback to policymakers on best practices and challenges of the building sector.

The meeting will include three main parts:

* Three plenary sessions on the policy context, technological solutions and strategies to enable climate action in the building sector. At the end of each plenary session, an interactive part will involve LIFE projects and other stakeholders. The interactive parts will be based on pre-set questions, which are given below at the end of each session description.
* 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 Brussels and other parts of Belgium.

The detailed agenda is given in Annex 1, background for each of the three main sessions and for the Thematic Workshops is provided in Annex 2, and details on the field visits in Annex 3.

The platform meeting is hosted by the LIFE BE REEL! Project, information on which can be found in Annex 4. It is 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. Participating projects are presented in Annex 5.

# Connection to EUSEW 2019 and Outlook

The main outcomes of the platform meeting, in terms of policy, standards and good practices will be communicated by the Host Project, LIFE BE REEL!, to the Policy Conference of the EU Sustainable Energy Week (EUSEW), which will take place in Brussels on 18-20 June 2019, through an [Energy Talk](https://eusew.eu/energy-talk-guidelines) scheduled to take place on 20 June 2019. The platform meeting has already been registered as an EUSEW-associated [Energy Day](https://eusew.eu/about-energy-days). A more detailed presentation of the platform meeting discussions and conclusions will be included in the Final Report of the meeting, which will also contain a summary for further dissemination to policy-makers.

# ANNEX 1: Draft Agenda with speakers

LIFE Platform Meeting on

**Climate Action and the Building Sector**

**Brussels, 17-18 June 2019**

**Venue: Herman Teirlinckgebouw, Havenlaan / Avenue du Port 88, 1000 Brussels, Belgium**

**Draft Agenda**

***(as of 30 May 2019)***

|  |
| --- |
| **Monday, 17 june 2019** |
| 10:30 - 11:00 | **Registration of participants and coffee / Poster placement on panels by participants** |
| 11:00 - 11:30 | **Welcome statements & brief host project presentation****Moderation: Roel Vermeiren, Renovation Pact of Flemish Region, Flemish Energy Agency** * **Keynote speaker**

Lydia Peeters, Energy Minister, Flemish Government, Belgium * **From the LIFE Programme / EASME**

Angelo Salsi, Head of Unit, LIFE and CIP Eco-innovation Unit (B3) and Vincent Berrutto, Head of Unit, Energy Unit (B1), EASME* **Host project presentation**

Eddy Deruwe, Coordinator, LIFE BE REEL! |
| 11:30 - 13:00 | **Session 1. EU, national and regional policies on GHG emission reduction, energy efficiency and climate resilience in the building sector****Moderation: Astrid Geiger, EASME Unit B.3.2 LIFE Climate Action - Head of Sector*** **Climate change mitigation and adaptation in the building sector – the EU policy context**

European Commission, DG CLIMA (speaker tbc)* **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**
* José Fermoso Domínguez, Project manager, LIFE-myBUILDINGisGREEN (LIFE17 CCA/ES/000088)
* Eddy Deruwe, Coordinator, LIFE BE REEL!
* Laura Saikku, Project manager, LIFE-IP CANEMURE-FINLAND (LIFE17 IPC/FI/000002)
* Emilio Miguel Mitre, Director de Relaciones Internacionales, Green Building Council España, H2020 BUILD UPON
 |
| 13:00 - 13:15 | **Lunch box and departure for field visits**  |
| 13:15 - 18:00 | **Field Visits****Three options** are offered by the host project, respectively in:* **Brussels** (on foot)
* **Mechelen** (by bus)
* **Antwerp** (by bus – may end at 19:00 hrs instead of 18:00 hrs, depending on road traffic)

Participants to choose one of the above options upon registration on 17 June 2019 |
| **19:00 – 21:00** | **Networking reception @ Halles de St. Gery, Central Brussels***(open bar till 21:00 hrs, finger food)* |

|  |
| --- |
| **tuesday, 18 june 2019** |
| 9:00 – 10:45 | **Session 2. Focus on the technologies for achieving nearly zero energy and climate resilient buildings****Moderation: Sylvain Robert, European Commission, DG ENERGY*** **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**

Thomas Nowak, Secretary General, European Heat Pump Association (EHPA) (tbc)* **Interactive part involving LIFE projects and other stakeholders**
* 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, Energy Manager, Intercommunale Leiedal, Project Manager, Horizon 2020 REFURB
* Jeroen Baets, Project Coordinator, Energent and “BUURZAME STROOM” project
 |
| 10:45 - 11:15 | **Coffee-Break** |
| 11:15 - 13:00 | **Session 3. Strategies and mechanisms, including funding, to enable climate action in the building sector****Moderation: Bernd Decker, EASME Unit B.3.2 LIFE Climate Action – Senior Project Adviser*** **Innovate and Internationalise with the support of the Enterprise Europe Network**

Katerina Tzitzinou, Sustainable Construction Sector Group, Enterprise Europe Network (EEN)* **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  * **Interactive part involving LIFE projects and other stakeholders**
* 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 SAI, LIFE DERRIS - DisastEr Risk Reduction InSurance (LIFE14 CCA/IT/000650)
* Annette Jahn, Head of Sector, Energy Unit (B1), EASME to provide overview of relevant H2020 projects and expected future priorities for funding in the building sector
 |
| 13:00 - 14:00 | **Lunch Break** |
| 14:00 – 15:30 | **Session 4. Thematic Workshops****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*** *Building performance – passive and active energy efficiency solutions for new and retrofitted buildings – with Ms Paula Cadima (tbc)*
* *Renewable energy generation in buildings, storage and smart grids*

*- with Mr Thomas Nowak (tbc)** *How to qualify for sustainable financing – with Guy Pollentier (tbc)*
* *Sustainable / Green Building Certification and how to go about getting it – James Drinkwater (tbc)*
 |
| 15:30 – 16:00 | **Closing session** |
| 16:00 - 17:30 | **Goodbye coffee and informal networking** |

# ANNEX 2: Background on Plenary Sessions and Workshops

## Session 1: EU, national and regional policies on GHG emission reduction, energy efficiency and climate resilience in the building sector

As stated before, on the one hand, buildings are responsible for approximately 40% of energy consumption and 36% of greenhouse gas emissions in the EU. While ensuring 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.

The EU’s Effort Sharing legislation that establishes binding annual greenhouse gas emission targets for Member States for the periods 2013–2020 and 2021–2030 also concerns emission reductions from buildings, along with other sectors not included in the EU Emissions Trading System ([EU ETS](https://ec.europa.eu/clima/policies/ets_en)), such as transport, agriculture and waste. Achieving the targets is aided by measures to improve the energy performance of buildings, eco-design requirements for energy-related products, and energy labelling systems to inform consumers.

Improving the energy performance of Europe's building stock is crucial, not only to achieve the EU's Emission reduction targets but also to meet the longer-term climate strategy objectives, as laid down in the low carbon economy roadmap 2050.[[6]](#footnote-6) The EU Energy Performance of Buildings Directive (EPBD) requires all new buildings in the EU to be nearly zero-energy (nZEB) by the end of 2020, while this target has to be reached by all new public buildings already by 2018. Besides, with the 2018/844 update, the nZEB definition has made a step forward with the definition of an energy accountancy methodology ISO 52000.

On the other hand, for the existing building stock, which is extensive in the EU, retrofitting / deep renovation with modern elements is the way to go for reducing the carbon footprint and contributing to the achievement of climate and energy targets. To help EU countries properly implement the Energy Performance of Buildings Directive and to achieve energy efficiency targets, the European Commission has established practical support initiatives such as The Energy Performance of Buildings standards (EPB standards). As a result, schemes for the inspection of heating and air-conditioning systems or equivalent measures for energy savings are put in place by all EU countries. The introduction of renewable energy sources (RES) and the related EU legislation also constitute a critical factor for the ultimate achievement of nearly zero-energy buildings through both the construction of new buildings and building renovation.

In terms of resilience of buildings to adverse climate change impacts, the EU Adaptation Strategy promotes Member State action, inter alia by supporting adaptation in cities through the [Covenant of Mayors for Climate and Energy](http://www.covenantofmayors.eu/about/covenant-of-mayors_en.html) initiative. Moreover, 'climate-proofing' action at EU level includes ensuring that Europe's infrastructure is made more resilient, and promoting the use of insurance against natural and man-made disasters.

The current session brings together policy makers and standard setters at various levels, along with projects that actually strive to implement the relevant policies in practice, with a view to exchanging perspectives and identifying synergies for the way forward.

**General discussion questions for the interactive part**

* What are the elements that need to come together to achieve the nZEB goal by 2050 and is the EPBD sufficient as legal framework to achieve that?
* How are stakeholders integrated into the policy-making process at all levels?
* What policy lessons have emerged or are emerging from relevant LIFE and other EU-funded projects, and how are they fed into the policy-making process?

## Session 2: Focus on the technologies for achieving nearly zero energy and climate resilient buildings

The technology for achieving nearly zero-energy and climate resilient buildings is already available and proven, nevertheless, the large-scale uptake of nZEB construction and renovation is a big challenge for all market actors and stakeholders involved. This includes the availability (or not) of qualified personnel to implement the prescribed measures in the set period of time.

In order to have a realistic energy consumption target and a timeframe to achieve it, there should be information available on the real energy consumption of buildings by climate, country or typology. The nZEBs are being measured in many countries by simplified energy simulations, however, the energy sub-metering should be the basis for achieving the nZEB label. In this sense, new working methodologies are required, where multidisciplinary teams (architecture, engineering, cost and management) must work together from early design stages to reach the cost-optimal nZEB.

Additionally, an integral change in the building development should occur, with new energy efficient technologies and solutions, taking into consideration both passive and active measures. Passive design is often related to architecture to allow a building to use the environment around it for heating and ventilation purposes. On the other hand, the active design is a structure or system that either uses or is able to produce energy itself. Both strategies are essential to meet the European goals. Besides, compulsory certificates issued by authorised technicians play a key role in providing information on the energy performance of buildings to be purchased or rented.

On the other hand, the Member States must increase their renewable energy share, and, with this new scenario, the energy grids and the buildings must work together, dealing with the energy production/consumption and the net energy balance.

Finally, climate impacts such as high temperatures or flood events should be also considered to achieve resilient buildings. In this unfavourably changing environment, a substantial rethinking of the existing mitigation of climate change strategies is required, in order to cope with future impacts of climate change in an adequate way.

In conclusion, this session provides an overview of working methodologies as well as technologies that are being implemented at this time, for achieving zero energy and climate resilient buildings.

**General discussion questions for the interactive part**

* Do we have a full set of technical solutions for EPBD and resilient building implementation, for both new and old buildings? If not, what is missing and how could the gap be filled?
* How new nZEB and resilient building techniques reach experts / technicians and the broader public; how this could be improved?
* What is the role of decentralised energy generation in minimising the carbon footprint of building stock?

## Session 3: Strategies and mechanisms, including funding, to enable climate action in the building sector

The Energy Performance of Buildings Directive sets ambitious targets both for the new construction and the existing building stock. According to the Directive, Member States are requested to take the necessary measures to ensure that buildings are upgraded in order to meet minimum energy performance requirements so far as this is technically, functionally and economically feasible. However, the renovation of existing buildings, with particular reference to their envelopes, still entails high investments having medium-long payback period. The economic feasibility often represents the main barrier preventing the improvement of the energy performance of buildings.

In this sense, Small and medium-sized enterprises (SMEs) represent 99% of all businesses in the EU and are often confronted with a lack of expertise on new processes, technologies and materials necessary to reach higher resource efficiency. This underlines the importance to improve ways and opportunities for SME to participate in knowledge transfer and learning about best practices to mainstream climate change into their internal procedures thorough sustainable finance.

Dedicated instruments and support measures to overcome this barrier have been defined by the Member States during the last years. Private investors, financial institutions and energy service companies play also a crucial role in the implementation of the strategies defined at national level, and can successfully contribute to the achievement of the energy performance targets. Beyond energy performance, climate action in the building sector includes strengthening the resilience of building vis-à-vis climate impacts like very high

 temperatures and natural disasters, through some of the same or additional measures that also need to be supported. Finally, the broader notion of green or sustainable buildings is also gaining ground.

The aim of this session is to provide an overview of the existing methods for enabling climate action in the building sector, report about best practices implemented at Member State level and involve the relevant stakeholders of the private sector to discuss challenges and opportunities from their perspective. Pros and cons of the existing financing mechanisms will be considered to stimulate the debate and identify the way forward. The use of sustainable building certification schemes, their contribution to climate action in the building sector and their role in de-risking building projects will also be considered. These tools are fundamental to raise the level of awareness of building owners and managers and encourage the necessary investments.

**General discussion questions for the interactive part**

* Do we have a full set of financial solutions for nZEB and resilient building / green building implementation, both for new and old buildings? If not, what is missing and how could the gap be filled?
* How do relevant sectors build synergies in practice towards achieving the nZEB goal and resilient buildings / green buildings, and how could this be strengthened?
* Is energy labelling stimulating the demand for energy efficient buildings; if not, how this tool can be made more effective?

## Thematic Workshops

Following the three plenary sessions, a set of parallel thematic workshops will allow participants to hold further, in-depth discussions with external experts / plenary session key-note speakers, focusing on issues of particular relevance to their respective projects. Depending also on the interests of the participants, as will be expressed upon registration, the following thematic workshops are envisaged:

* Building performance: passive and active energy efficiency solutions for new and retrofitted buildings – *with Paula Cadima*
* Renewable energy generation in buildings, storage and smart grids

– *with Thomas Nowak*

* How to qualify for sustainable financing

– *with Guy Pollentier*

* Sustainable / Green Building Certification and how to go about getting it

– *with James Drinkwater*

# ANNEX 3: Field Visits

**Program of Field Visits – 17th of June 2019 from 13:00 – 18:00.**

The field visits will get the participants to a range of new and existing projects related to building and climate challenges in Brussels, Antwerp and Mechelen. The multiple topics of the visits are sustainable old building reconversions, circular economy, new residential and office building and neighborhood development, climate neutral development strategies and possibilities of inner-city food farming. Take the opportunity to visit some interesting projects, meet their stakeholders and get inspired.

The start of every field visit is at 13:00 in the conference main venue Herman Teirlinckgebouw, Havenlaan / Avenue du Port 88, 1000 Brussels, Belgium. Lunch boxes will be provided. All transfers, train-ride, boat-trip or bicycles (if relevant) will be provided free of charge.

**Participants to choose upon registration on 17 June 2019 one of three visit options per their preference:**

**Visit 1-Brussels or Visit 2-Antwerp or Visit 3-Mechelen**

Because there is large panel of projects to visit, please choose upon your interest a specific touring visit in Brussels or Antwerp or Mechelen and these are due to the availability of places (first subscribed into tour gets priority).

**VISIT 1 Brussels:** The Brussels Visiting tour will get an overview of an approach to sustainable buildings, residential NZEB neighbourhoud development, sustainable heritage refurbishment, green business breeding and circular economy initiatives. The field site visit will be near the conference center on foot (max 3 km).

**Characteristic of visiting tour 1 - Brussels:**

* Visit on foot (max 3 km) in a few groups (+-12 pers) on and around the Tour and Taxis site
* Sustainable NZEB office building of Hermann-Teirlinck and Bruxelles-Environment
* New covered sustainable historical retail mixed neighborhood: Gare Maritime
* Green business incubator: Greenbizz
* Sustainable residential neighborhood: Tivoli Green garden
* Circular Economy Food Centre: Be Here
* Due to time constraints each visiting group will not be able to visit every project.



Photo: Gare Maritime, Neutelings Riedijk architecten

Photo: Tivoli Green City, CityDef

**VISIT 2 Antwerp:** The Antwerp bicycling visiting tour gets you to an eco-office building encountering experts of two advice groups in eco and energy zero buildings. Antwerp is 50 km for Brussels and we will get there by train. This tour will further look at how eco or sustainable buildings can used in an ambitious city CO2 neutral development planning. Reconversion of an old industrial inner city site that is been used as a sky city farm will conclude the visit. The travel will be by train and bicycle (max 12 km cycling – train tickets and bicycles provided). Places for this visit are limited so subscribe fast.

**Characteristic of visiting tour 2 - Antwerp:**

* Travel by train and bicycle (in small group of +-12 pers and max 15 km bicycling – train tickets and bicycles provided)
* Visit Mundo A building, with introduction of advice organisations Vibe and Pixii
* City bicycle tour through Antwerp center
* Visit Antwerp New South development, a large sustainable zero carbon and energy development
* Visit Sky Farm ‘t DAK van ’t PAKT, or how to include farming into city centers



Photo: PAKT

Photo: Mundo A

**VISIT 3 – Mechelen:** This Mechelen tour will start by looking at the environmental impact of building materials by an introduction of the Totem-tool by OVAM (Public Waste Agency of Flanders). OVAM will show us a refurbishment project as a center for circular economy with former serious soil depollution issues. By an inner city river boat trip the climate mitigation measures will be visited. Places for this visit are limited so subscribe fast. Travel by train (20 km from Brussels), on foot (max 6 km) and by boat (train and boat tickets provided)

**Characteristic of visiting tour 3 – Mechelen:**

* Travel by train, on foot (max 6 km) and by boat (in small group of +-12 pers, train tickets provided)
* Presentation TOTEM tool and visit project De Potterij by OVAM (Public Waste Agency of Flanders )
* Walking tour Mechelen center
* Boat trip Dijle river (Haverwerf to Zandpoortvest) looking at climate mitigation measures
* Reception representative City council



Photo: Dijle river, City of Mechelen

Photo: De Potterij, OVAM

# ANNEX 4: LIFE BE REEL! – Our Host Project

## 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:

## **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.

## **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.

## **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.

## **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 as a whole.

## **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 were 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](http://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: Participating Projects at a Glance

**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 will build capacity and strengthen 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 will carry 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 will establish a near-real time web-based system for sharing air quality and emissions data and air quality models. Measures will 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.

1. <https://unfccc.int/sites/default/files/gca_draft_workprogramme.pdf> [↑](#footnote-ref-1)
2. https://ec.europa.eu/energy/en/topics/energy-efficiency/buildings [↑](#footnote-ref-2)
3. COM (2011) 112 [↑](#footnote-ref-3)
4. <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-performance-of-buildings> [↑](#footnote-ref-4)
5. <http://ec.europa.eu/environment/nature/ecosystems/docs/green_infrastructure_broc.pdf> [↑](#footnote-ref-5)
6. COM (2011) 112 [↑](#footnote-ref-6)