Deliverable 3.6

Outcomes of Funding Institutions Meetings (Task 3.5)

Sofia, 15 July 2024

Contacts:

Borislav Ivanov
Center for Energy Efficiency EnEffect
bivanov@eneffect.bg

Jan Steiger
Passive House Institute
jan.steiger@passiv.de

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957175. The presented contents are the author's sole responsibility and do not necessarily reflect the views of the European Union. Neither the CINEA nor the European Commission are responsible for any use that may be made of the information contained therein.

Table of Contents

1. INTRODUCTION

This comprehensive report unfolds as a testament to the extensive and collaborative endeavours undertaken in a series of strategic engagements with funding institutions across partner countries. The overarching goal of these collaborative efforts and workshops is to establish robust connections between funding institutions, industry experts, and policymakers, with a particular emphasis on innovative financial models proposed by the SMARTER Finance for Families initiatives and the active participation of the project partners involved in the OutPHit project.

This report gives an outline of the EU Taxonomy, providing historical context, present status, and a detailed focus on its objectives and scope, especially concerning buildings. The report then delves into the intersection of renovation and green mortgages. Additionally, it sheds light on round table discussions dedicated to sustainable energy financing, with a primary focus on renovation and certification themes.

The final section synthesizes the diverse outcomes and key takeaways from each engagement, providing a holistic summary that contributes to a deeper understanding of the financial landscape surrounding highly efficient building renovations across Europe. In essence, this report serves as a valuable resource for stakeholders, policymakers, and practitioners navigating the dynamic realm of funding for sustainable building initiatives.

However, this report extends beyond mere meeting summaries. It encapsulates the essence of several discussions, reflections, and actionable insights garnered from various pertinent meetings and events, including those facilitated by the OutPHit project partners. These gatherings serve as critical junctures where professionals, policymakers, and industry leaders converge to discuss and shape the trajectory of sustainable building initiatives. Each section unfolds a narrative that, collectively, contributes to a richer and more nuanced understanding of the financial landscape surrounding highly efficient building renovations across Europe, integrating the perspectives and contributions of OutPHit project partners.

In conclusion, this report stands as a testament to collaborative efforts, critical discussions, and emerging strategies in the realm of sustainable building financing. As a valuable resource, it is poised to guide stakeholders, policymakers, and practitioners through the dynamic and evolving terrain of funding mechanisms for sustainable building initiatives.

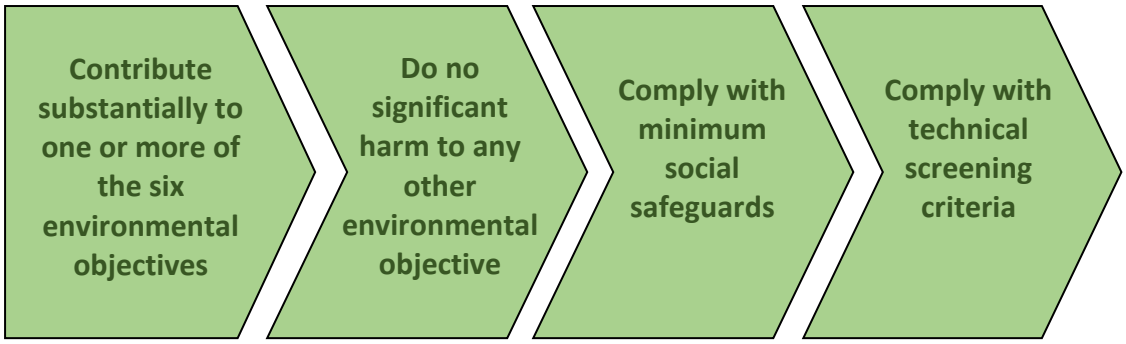
2. EU TAXONOMY

2.1. ENVIRONMENTAL OBJECTIVES

The EU Taxonomy for Sustainable Activities[1,2,3] ('EU Taxonomy') is a classification system designed to define environmentally sustainable activities, aiding investors, companies, issuers, and project promoters in transitioning to a low-carbon, resilient, resource-efficient, and sustainable economy. This taxonomy establishes performance thresholds, known as 'Technical Screening Criteria,' for economic activities that significantly contribute to one of six environmental objectives, including:

- Climate Change Mitigation;
- Climate Change Adaptation;
- Sustainable Use and Protection of Water and Marine Resources;
- Transition to a Circular Economy;
- Pollution Prevention and Control;
- Protection and Restoration of Biodiversity and Ecosystems.

These economic activities must ensure that they Do No Significant Harm ('DNSH') to the other five environmental objectives, where applicable, and also comply with minimum safeguards, such as OECD guidelines on Multinational Enterprises and UN Guiding Principles on Business and Human Rights. The steps that an economic activity must undergo to be considered EU Taxonomy-aligned are summarized below [Kronmiller 2022]:



2.2. ACTIVITIES IN THE BUILDING SECTOR

The EU Taxonomy identifies four economic activities in the building sector: construction of new buildings, renovation of existing buildings, individual renovation measures, and

[1] Official Journal of the European Union (22 June 2020). Taxonomy Regulation. EU Taxonomy on Sustainable Activities. Available here.

[2] EU Technical Expert Group on Sustainable Finance (13 March 2020). Taxonomy Tools. Available here.

[3] EU Technical Expert Group on Sustainable Finance. (9 March 2020). Technical Report. Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance. Available here.

acquisition and ownership of buildings. The financial metrics associated with these activities and their alignment with the Taxonomy are described below [Kronmiller 2022]:

- Construction of New Buildings: Development capex and equity/revenues of Investor/Developers
- Renovation of Existing Buildings: 30% vs Baseline Relative Improvement. Comprehensive Renovation: capex and equity/revenues of Investor/Developers
- Individual Renovation Measures: Single Technical Interventions: capex and equity/revenues of GHIP. Services Functional to Building Performance Improvement: capex and equities/revenues of GHIP
- Acquisition and Ownership of Buildings: Purchase of buildings, building ownership and improvement from an asset perspective: acquisition capex and equity/revenues of the Investor/Owner

2.3. TECHNICAL SCREEENING CRITERIA

The European Commission (EC) on 22 April 2021 implemented a Delegated Act to implement the Technical Screening Criteria (TSC) for Climate Change Mitigation and Adaptation Objectives of the EU Taxonomy [4,5,6]. The EUT is a science-based transparency tool for companies and investors which creates a common language that investors can use when investing in projects and economic activities that have a substantial positive impact on the climate and the environment.

The EU Taxonomy TSC defines the 'Metrics and Thresholds' for building activities to be considered Taxonomy-aligned. A comparison of the Final Technical Screening Criteria implemented on 22 April 2021 relative to the draft published on 22 June 2020 is provided below in detailed form:

The Technical Screening Criteria for the construction of new buildings evaluates whether this economic activity significantly contributes to climate change mitigation and adaptation. It establishes principles, metrics, and thresholds that must be met in conjunction with DNSH criteria for a real estate project to be considered 'EU Taxonomy-aligned.' The criteria, including the principle, metric, threshold, and rationale for the construction of **new buildings**, are outlined below:

- **Principle:** The construction of new buildings aimed at minimizing energy use and carbon emissions throughout the lifecycle can significantly contribute to climate

[4] European Commission. (22 April 2021). EU Taxonomy. Delegated Act. Provisional Version. Available here.

[5] European Commission. (22 April 2021). EU Taxonomy. Delegated Act. Annex I. Provisional Version. Available here.

[6] European Commission. (22 April 2021). EU Taxonomy. Delegated Act. Annex II. Provisional Version. Available here.

change mitigation by reducing a substantial portion of the carbon emissions typically associated with conventionally designed buildings.

- **Metric and Thresholds:**
    - **Metric:** Primary Energy Demand (PED): This refers to the annual primary energy demand linked to regulated energy use during the operational phase of the building life cycle (referred to as 'module B6' according to EN15978). It is calculated ex-ante according to national methodologies for asset design assessment or as defined in the set of standards ISO 52000 and expressed as kWh/m^2 per year.
    - **Threshold:** The threshold is based on 'near-zero energy building' (NZEB) requirements, which are defined in national regulations implementing the EPBD and are obligatory across EU Member States from 2021. To be eligible, the net primary energy demand of the new construction must be at least 10% lower than the primary energy demand resulting from the relevant NZEB requirements. This reduction can be achieved through a direct decrease of the primary energy demand via a more efficient design or by offsetting with on-site and off-site renewable generation, or a combination of both strategies. Off-site energy generation must be limited to district heating, cooling systems, and local renewable energy sources. The methodology used for the measurement of floor area must be declared by referring to the categories established by the International Property Measurement Standards [Kronmiller 2022].
- **Rationale:** The implementation of a relative threshold in the form of a percentage improvement on NZEB requirements is warranted due to the mandate for new constructions to adhere to NZEB requirements as of 2021, as stipulated by national/regional building regulations. This necessitates that the taxonomy demands higher levels of performance than NZEB, as otherwise, all new constructions would automatically qualify, at least in terms of energy performance. This would fail to steer financing towards more sustainable solutions and could risk diverting funds from the renovation of existing buildings. Additionally, since NZEB requirements vary across EU Member States in terms of performance levels, the use of a percentage improvement, rather than absolute figures, allows for a degree of proportionality. In Member States where NZEB requirements result in a relatively low primary energy demand, the energy reduction needed to achieve the 10% improvement is smaller compared to Member States where NZEB requirements lead to a comparatively high primary energy demand.

The criteria, including the principle, metric, threshold, and rationale for the renovation of **existing buildings**, are outlined below:

- **Principle:** Renovating existing buildings is cantered on the profound reduction of energy consumption and carbon emissions throughout the building's lifecycle. This strategic focus aligns with the core objective of climate change mitigation, seeking to minimize the environmental impact associated with the operational phase and promoting sustainable practices in the renovation sector.

- **Metric and Thresholds:**
    - **Metric:** Primary Energy Demand (PED): The annual primary energy demand linked to regulated energy use during the operational phase, following 'module B6' per EN15978. Calculated ex-ante based on national methodologies for asset design assessment or as specified in ISO 52000 standards, expressed as kWh/m^2 per year.
    - **Threshold:** To qualify, the net primary energy demand of the renovation must be at least 30% lower than the primary energy demand before renovation. This reduction can be achieved through a direct decrease in primary energy demand via enhanced design efficiency or by compensating with on-site and off-site renewable generation, or a combination of both strategies. Off-site energy generation is restricted to district heating, cooling systems, and local renewable energy sources. The floor area measurement methodology should adhere to categories established by the International Property Measurement Standards.
- **Rationale:** A critical rationale for setting a stringent threshold for renovated buildings lies in the urgent need to address the energy inefficiency prevalent in existing structures. By necessitating a minimum 30% reduction of primary energy demand, taxonomy ensures that renovation projects significantly enhance energy efficiency and contribute meaningfully to environmental goals. This stringent criterion promotes a transformative approach to renovation, moving beyond mere compliance to actively encouraging comprehensive energy-efficient upgrades. In a broader context, it aims to channel financial resources into projects that bring about substantial environmental gains and drive a paradigm shift in the way existing buildings are revitalized, laying the foundation for a more sustainable built environment [Kronmiller 2022].

2.4. BANKING AND FINANCIAL SECTOR

2.4.1. ROLE OF BANKS IN GREEN FINANCING

The EU Taxonomy sets the stage for a paradigm shift in how banks evaluate and categorize their lending activities, particularly those related to green mortgages. The regulation delineates six environmental objectives, ranging from climate change mitigation to biodiversity preservation, providing a comprehensive framework for assessing the environmental sustainability of economic activities. While the Taxonomy directly addresses economic activities, it is expected to have a cascading effect on financial products, prompting the development of criteria for green financing.

In the context of banks and green credits, the Taxonomy Regulation can influence lending practices by requiring banks to align their financing activities with the defined environmental objectives. Green mortgages, typically aimed at financing environmentally sustainable projects, may now be subject to stringent criteria outlined in the Taxonomy. Banks offering green mortgages may need to ensure that the projects they finance make a substantial contribution to one or more of the environmental objectives specified in the Taxonomy. Additionally, these projects must avoid causing significant harm to other environmental

objectives, and they must comply with minimum social and governance safeguards, as defined by international guidelines.

The EU Taxonomy, therefore, acts as a guide for banks to determine the eligibility of projects for green mortgages. It provides a common language and set of criteria to assess the environmental sustainability of economic activities, ensuring that funds are directed toward activities that contribute to the EU's sustainability objectives. This regulatory framework not only promotes transparency but also aims to reorient capital flows towards sustainable investments, addressing climate change, environmental degradation, and social issues [OECD 2020].

2.4.2. GREEN ASSET RATIO RULES

The introduction of Green Asset Ratio (GAR) rules marks a significant step in enhancing comparability and accountability within the banking sector. Specifically targeting EU banks with more than 500 employees, these rules provide a standardized metric for assessing the environmental impact of banks' financing activities. By excluding trading books from main indicators, the GAR rules ensure a more accurate reflection of banks' commitment to environmentally friendly financing.

One notable aspect of GAR rules is the adoption of a flow indicator based on net new loans. This departure from changes in outstanding loans over time reflects a more dynamic measure. Focusing on the net new loans emphasizes the forward-looking commitment of banks in financing environmentally friendly projects, promoting a trajectory of sustainability rather than a static assessment.

While GAR rules enhance transparency, they are not without challenges. Some asset types remain excluded from the numerator even if they might qualify as 'green,' potentially creating gaps in the assessment. Notably, certain exposures like sovereign, supranational, and central bank exposures, not covered by an applicable taxonomy, are also excluded. [OECD 2020].

2.5. PASSIVE HOUSE AND ENERPHIT STANDARDS CONNECTION

The Passive House and EnerPHit standards emerge as cornerstones in aligning building practices with the EU Taxonomy criteria, offering a robust framework for companies, entities, and financial institutions to shape their green portfolios. These standards epitomize a tangible pathway to meet and exceed the taxonomy's stringent environmental sustainability benchmarks.

2.5.1. PASSIVE HOUSE STANDARD FOR NEW BUILDINGS

The Passive House standard, designed for new constructions, operates in harmony with the EU Taxonomy's goal of fostering nearly zero-energy buildings. These structures minimize energy consumption by employing advanced insulation, airtight envelopes, and efficient ventilation systems. By exceeding regulatory requirements, Passive House standards ensure that new buildings not only meet current sustainability norms but are well-prepared for future, more stringent criteria set by the EU Taxonomy.

The EU Taxonomy, with its focus on mitigating climate change and promoting resource efficiency, finds resonance in Passive House principles. These standards address key taxonomy criteria by significantly reducing greenhouse gas emissions, optimizing energy use, and emphasizing life-cycle sustainability. As companies and entities embrace Passive House designs for new constructions, they inherently position themselves as contributors to the broader EU Taxonomy objectives.

2.5.1. ENERPHIT STADARDS FOR BUILDING RENOVATIONS

EnerPHit, tailored for building renovations, seamlessly integrates with the EU Taxonomy's emphasis on sustainable finance and circular economy principles. This standard recognizes the carbon footprint embedded in existing buildings and offers a systematic approach to enhance energy efficiency during renovations. It ensures that the revitalized structures not only align with contemporary sustainability standards but also contribute to the taxonomy's overarching objectives.

The EU Taxonomy encourages investments that lead to significant energy savings and reduced environmental impact. EnerPHit, by setting rigorous criteria for energy retrofits, supports these aspirations. Companies and financial institutions incorporating EnerPHit principles into their portfolios can confidently demonstrate adherence to taxonomy criteria related to energy efficiency, thereby enhancing the overall sustainability of their investments.

2.5.1. CONNECTING THE DOTS

The OutPHit project, by advocating for Passive House and EnerPHit standards, establishes a clear link between these building practices and the EU Taxonomy. Companies and entities adopting these standards for new constructions or renovations inherently align with taxonomy criteria related to climate change mitigation, circular economy principles, and resource efficiency. Financial institutions, when including projects adhering to Passive House and EnerPHit standards in their green portfolios, not only fulfil taxonomy requirements but also contribute to the paradigm shift towards sustainable and energy-efficient building practices outlined by the EU Taxonomy.

In summary, the adoption of Passive House and EnerPHit standards becomes a strategic move for entities and financial institutions looking to navigate and excel within the EU Taxonomy framework. These standards not only answer the criteria set by the taxonomy but also pave the way for a future where green portfolios are synonymous with energy efficiency, sustainability, and environmental responsibility.

3. THE SMARTER INITIATIVE

The SMARTER Finance for Families (SMARTER) Initiative supports the development of Green Home Green Mortgage programs by commercial banks in 12 European partner countries to serve and benefit homebuyers, homeowners or occupants who would like to live in high-quality homes which are built well for lower monthly costs. The initiative creates a partnership between a bank, an investor/entrepreneur, and a home buyer and certification organization in support of the construction of "Green Homes". Through the "Greens" mortgage loans are helping the market to better appreciate the benefits of being used wisely loan funds in order to invest properly at the beginning of the construction process. The benefits are mutual: the buyer receives a property with a higher value and lower combined monthly payments costs, the construction contractor is interested in offering better conditions for its product by the bank, and because of the lower risk and higher values of assets, the bank retains a profit margin at reduced interest rates.

To verify and certify the fulfilment of high energy efficiency criteria and environmental responsibility in "green" housing projects that lead to guaranteed financial, social, and environmental benefits compared to standard residential buildings, a special certification scheme applies right from the design stage. Through certification it is evaluated the significant reduction in energy, repair, and health costs for buyers of "Green homes”.

The much lower energy costs and other financial benefits (such as improving the health of occupants and lower home repair costs) significantly reduce the bank's risk for the servicing of the mortgage loan, which allows to reduce the monthly interest rates, while maintaining profit margins. The lower total monthly cost of ownership formed by operating costs and maintenance of the home and the costs of servicing the mortgage loan, provide the buyer of housing greater purchasing power to invest in improved quality of construction and much higher comfort.

SMARTER aims to support commercial banks in participating countries to launch and communicate their Green Mortgage programs to create awareness of citizens and business communities about benefits their programs. Experience from more developed European markets confirms that demand for participation in Green Home & Green Mortgage programs increases significantly once awareness is created about well-built, healthy homes at a lower monthly cost that are environmentally friendly [Kronmiller 2022].

3.1. LEGAL BASIS

The introduction of such a financial product is very timely in the context of the European directives requiring all new buildings from 2021 to be nearly zero energy (Nearly Zero Energy Buildings), as well as a significant reduction in construction waste and reduced toxicity of building materials, mandatory for all new and existing housing buildings. In a more distant plan, the European Climate Law foresees up to 2050 all buildings will have zero carbon emissions from heating and cooling [EU 2021].

Specialized financial mechanisms, such as the "Green Homes and Green Mortgages" program prepare the construction and real estate sector for the challenges associated with these legal changes, which will ensure that the pioneers of "green" construction will have financial instruments to offer today or in the near future the homes on the market of interest to all interested parties. All EU countries require the issuance of Energy Performance Certificates for buildings - new and in service. Therefore, the costs of certification are no longer additional, but are mandatory costs of the construction contractor [Green Homes & Mortgages 2019].

3.2. WHAT ARE GREEN HOMES?

There are many valid approaches to creating a Green Home, but all are thoughtful in their design, construction and operation and minimize or eliminate the environmental impact of the creation and operation of the home. Below are some of the main components of Green Homes.

3.2.1. ENERGY EFFICIENCY AND GREEN ENERGY

Using “Bio-Climatic Design” principles (explained further below), a superior “Building Envelope” with significantly improved insulation and better doors and windows, and more efficient Heating, Ventilating, and Air Conditioning (HVAC) or natural ventilation and “Passive House” approaches; a Green Home minimizes energy use. Introduction of Green Energy – either on the home itself or through specifying contractually the delivery of Green Energy through Energy Suppliers ensures the reduction or elimination of fossil fuel derived energy [Green Homes & Mortgages 2019].

3.2.2. LOCATION

The construction of a green home does not utilize land with important contributions to biodiversity or a city’s green space. The location reduces transportation impacts by having access to public transportation or rail or bus terminals and/or is in a “walk-able” community with the homeowner’s needs for shopping, dining, schools, etc. nearby [Green Homes & Mortgages 2019].

3.2.3. SUSTAINABLE AND HEALTHY MATERIALS

Green Homes utilize materials that are nontoxic to the home’s occupants and safe in their production. Heavy construction materials are chosen that are manufactured close to the construction site to minimize transportation impact. Materials that contained recycled materials or, better, creatively “up-cycle” or “re-purpose” items that might otherwise end us as waste should be included. Durable materials mean less repair costs, less construction waste, and reduced environmental impact over time [Green Homes & Mortgages 2019].

3.2.4. INDOOR AIR QUALITY

Technology solutions or natural ventilation (or both) are employed to ensure air is both healthy and pleasant. Paints, other coatings, and adhesives are chosen that do not introduce toxins into the home [Green Homes & Mortgages 2019].

3.2.5. BIOCLIMATIC DESIGN: LIGHTING AND SHADING

Green Homes use “bioclimatic design” principles that include shading from the summer sun and collecting the winter sun with thoughtful orientation of the building and placement of the windows and skylights. Deciduous trees drop their leaves in winter to allow in sun and evergreen trees keep their leaves to protect against harsh winter winds and “solar gains” from summer sunshine. Indoor lighting is designed to ensure a safe, productive, and warm environment with a minimum amount of energy use. Designs that ensure natural daylight enters the building without solar gains in summer contribute to a Green Home [Green Homes & Mortgages 2019].

3.2.6. CONSTRUCTION SITE AND PROPERTY MANAGEMENT

The construction process of a green home takes important steps to ensure the building does not damage or destroy the surrounding environment (reducing/eliminating erosion, protecting existing trees and biodiversity on the site). In addition, residents receive information and have facilities (e.g. Composting area, Recycling Collection area, etc.) to operate their homes in an environmentally responsible manner to ensure the home over time has a neutral to positive impact on the planet. Landscaping is created using creativity and indigenous plants to minimize “Urban Heat Islands”, reduce the need for pesticides, fertilizers, and irrigation systems [Green Homes & Mortgages 2019].

3.2.7. OTHER GREEN DESIGN PRINCIPLES

Green Homes are designed to be durable to minimize repairs and heavy construction work if future needs changes. Smart design allows for different uses of the home as a family’s needs change or new owners arrive with different needs. Green building principles demand better planning efforts and “Integrated Design” of the different disciplines to ensure optimal results, maximizes the use of space, avoid costly construction mistakes, and minimize waste [Green Homes & Mortgages 2019].

3.3. HOW DOES THE GREEN HOMES CERTIFICATION PROGRAM WORK?

The advisory and certification process works successfully meets the program’s criteria. The process includes a close collaboration between the Certifier, the investor/developer seeking certification or their project, and the project team and solution providers who will undertake the necessary actions. The Steps include:

3.3.1. PLANNING A GREEN RESIDENTIAL PROJECT – PRELIMINARY REVIEW

An Investor/Developer considering certifying their project can request a “Pre- Certification Review” in a no cost or low-cost manner – quickly assess the feasibility of obtaining a Green Homes certification. The investor/developer meets to discuss the project (site location, building approach, energy performance, pricing target, etc.) they intend to pursue. The process includes an estimated 2-hour meeting from which the Certifier will produce an initial indication of the feasibility in a point-by-point comparison with the established criteria [Green Homes & Mortgages 2019].

3.3.2. REGISTRATION AND SIGNING THE "PRE-CERTIFICATION AGREEMENTS"

The Investor/Developer wishing to proceed with the Green Homes certification register the project and pays the registration fee. The Certifier, working with the project team and the information already collected at the Pre-Certification Review further defines the achievable criteria. The investor/developer and the Certifier agree upon which criteria will be achieved that provide the minimum score necessary and all mandatory requirements to satisfy the established criteria of a Green Homes certified project [Green Homes & Mortgages 2019].

A "Pre-Certification agreement" is signed by the Investor/Developer indicating the actions to be taken and the method upon which they will be assessed. Upon the signing of this document, the developer/investor can begin to market their project as "Pre-Certified or Green Homes" informing potential buyers about the program and the green criteria they are pursuing. For those projects eligible for Green Mortgage program offered with a partner bank; this is also an indicator that this potential financial benefit can be mentioned [Green Homes & Mortgages 2019].

3.3.3. GUIDANCE TOWARD A GREEN HOMES CERTIFIED RESIDENTIAL PROJECT

The Certifier and a qualified energy auditor meet and advise the project's design team throughout the design, construction, and commissioning process to guide the project to successful achievement of Green Homes criteria. Using the criteria agreed to be pursued as listed in the Pre-Certification Agreement and encouraging "Integrated Design", the process is designed to ensure projects meet or exceed compliance with the program's requirements and produce no negative surprises at the conclusion of the project. Through the "Green Homes Approved Solution Provider" program, project teams can readily identify companies with the technology, materials, other products, and services that will contribute to achieving the necessary green criteria for the project. It is not mandatory to choose Green Homes Approved Solution Providers as contributors to a project, but the designation is intended to help project teams quickly identify qualified companies with proven results in delivering Green Homes meeting the certification required [Green Homes & Mortgages 2019].

3.3.4. DESIGNATION OF THE RESIDENTIAL PROJECT AS A "GREEN HOMES CERTIFIED PROJECT"

Upon project completion, the Certifier and a qualified energy auditor review the project as constructed to confirm the criteria as agreed in the Pre-Certification agreement have been achieved. The Certifier will check that the new owners are provided adequate information to operate their home in an energy efficient and green manner. The project team is provided the final scorecard and either a notification of successful certification of the project or indications of remaining corrective actions to be taken [Green Homes & Mortgages 2019].

3.3.5. OFFER A GREEN MORTGAGE TO HOME BUYERS

Projects pursuing the Green Homes certified designation should discuss early in the process with participating banks who agree to underwrite Green Mortgages that receive discounted

financing costs based on the green performance and reduced operating costs of the homes (see “What is a ‘Green Mortgage’?” in the next section). Recipients of Green Homes certification Monitoring of the Program agree to share energy cost data of their homes and to operate the units as advised upon purchasing the home. The data will be useful to inform the various stakeholders of the environmental and financial outcomes of the program and contribute to future improvements [Green Homes & Mortgages 2019].

3.3.6. MONITORING OF THE PROGRAM

Recipients of Green Homes certification agree to share energy cost data of their homes and to operate the units as advised upon purchasing the home. The data will be useful to inform the various stakeholders of the environmental and financial outcomes of the program and contribute to future improvements [Green Homes & Mortgages 2019].

3.4. SMARTER IN THE CONTEXT OF EU TAXONOMY

The integration of the EU taxonomy, the SMARTER initiative, and the Passive House Standards marks a strategic convergence that not only aligns with regulatory imperatives but also propels sustainable building practices to the forefront of the European construction landscape. The EU taxonomy, as a regulatory cornerstone, sets the standards for what constitutes environmentally sustainable economic activities. It acts as a crucial guide, influencing financial institutions to adopt rigorous criteria in their investment decisions, particularly in sectors downstream, such as real estate and construction.

The SMARTER initiative, born in response to the EU taxonomy, serves as a dynamic catalyst in this paradigm shift. By leveraging the taxonomy's guidelines, SMARTER focuses on two key elements: credible, evidence-based green home certifications and tailored green finance products. The aim is not only to meet regulatory compliance but to pioneer innovative financial models that resonate with the environmental goals outlined in the European Green Deal. The consortium's commitment to refining green home certification systems ensures that they seamlessly align with the EU taxonomy, providing a robust framework for sustainability in the construction sector.

As the SMARTER initiative aims to facilitate the uptake of credible green home certifications, the Passive House Standards stand out as a beacon of environmental performance in building design and construction. These standards, focused on promoting energy efficiency, comfort, and sustainability, directly address the criteria set by the EU taxonomy. Buildings adhering to Passive House Standards inherently meet the taxonomy's benchmarks for environmental sustainability, providing a solid foundation for the SMARTER initiative's objectives.

In this holistic integration, the Passive House Standards become more than just a set of construction guidelines; they are a tangible manifestation of compliance with the EU taxonomy's vision for sustainable activities. Their inclusion in the SMARTER initiative reinforces the notion that achieving financial and environmental sustainability is not a trade-off but a synergistic endeavour.

Currently, the SMARTER Finance for Families project has concluded, marking the end of a transformative chapter. However, a new initiative has recently begun, aptly named SMARTER Finance for EU (SMARTER4EU), representing a continuation and evolution of the impactful work initiated by its predecessor. Building on the success achieved in 12 European countries, SMARTER4EU propels forward, targeting the implementation of operational and sustainable GHGM programs in Portugal, Spain, and Ukraine. Noteworthy is the project's commitment to sharing tools, training, and guidance with countries like the Republic of Moldova, the Republic of Georgia, and Croatia, fostering the expansion of green finance partnerships. Aligned with the EU Taxonomy on Sustainable Activities, SMARTER4EU stands as a beacon, demonstrating the robust compatibility of its partners' green homes certification systems with the evolving standards. As it navigates the landscape shaped by climate-conscious financial institutions and regulatory directives, the initiative not only meets but exceeds the planned EU Taxonomy requirements for energy performance in the built environment. The commitment to the "Do No Significant Harm" mandate further positions SMARTER4EU as a frontrunner in ensuring that energy performance improvements do not compromise other vital green criteria. This forward-looking initiative sets the stage for a new era in sustainable financing, illustrating that green finance and credible certification systems can be powerful allies in the quest for environmentally responsible building practices. The next steps involve strategic implementations, partnerships, and knowledge dissemination, catalysing a broader adoption of green finance principles across diverse European landscapes.

4. ROUNDTABLES AND MEETINGS ON SUSTAINABLE ENERGY FINANCING

The convergence of the EU Taxonomy, the SMARTER Finance for Families initiative, and the series of roundtables and events reflects a comprehensive and forward-thinking approach to drive sustainable building initiatives across Europe. At the heart of this nexus is a shared commitment to innovative financial models that not only align with EU Taxonomy objectives but also foster tangible outcomes in the realm of sustainable building practices. The OutPHit project partners, actively engaged in these events, bring a practical dimension to these discussions, contributing hands-on expertise to the evolving landscape.

The EU Taxonomy, a foundational element, acts as a guiding framework. It focuses on categorizing economic activities based on their environmental sustainability aligns seamlessly with the SMARTER Finance for Families initiative's goal of creating Green Home Green Mortgage programs. These programs, propelled by commercial banks across European partner countries, signify a strategic alliance between financial institutions, investors, and homebuyers, all working towards constructing and certifying "Green Homes."

The roundtable discussions and events become critical junctions where theory transforms into actionable strategies. The SMARTER initiative's emphasis on partnerships with banks, investors, and certification organizations resonates with the EU Taxonomy's call for sustainable finance. The active participation of OutPHit project partners infuses real-world experiences into these conversations, aligning theoretical frameworks with on-the-ground challenges and solutions.

One key linkage is the recognition of the economic benefits of sustainable buildings. The SMARTER initiative, by advocating for Green Mortgages, aligns financial interests with environmental and social responsibility. This not only reduces risks for banks but also enhances the purchasing power of homeowners, creating a symbiotic relationship. The EU Taxonomy's push for nearly zero-energy buildings and reduced toxicity in materials dovetails with SMARTER's focus on energy-efficient and environmentally responsible Green Homes.

Furthermore, the OutPHit project partners, by actively participating in these discussions, bring a nuanced understanding of the practical challenges and opportunities in sustainable building renovations. Their involvement adds depth to the discourse, ensuring that the strategies and models devised are not just theoretically sound but also practically feasible and adaptable to diverse contexts.

In essence, this trilateral connection between the EU Taxonomy, SMARTER Finance for Families, and the active participation of OutPHit project partners in roundtables creates a holistic approach. It propels theoretical frameworks into actionable items, emphasizing collaboration, innovation, and adaptability. As Europe charts its course toward sustainable building practices, this synergy stands as a beacon, guiding stakeholders, policymakers, and practitioners towards a future where financial instruments seamlessly blend with environmental responsibility.

4.1. BULGARIA

4.1.1. SECOND NATIONAL ROUNDTABLE FOR FINANCING ENERGY EFFICIENCY INVESTMENTS IN BULGARIA

Main Topic of the Roundtable:
The role of the financial institutions for the green energy transition: do national policies promote new business opportunities or impede market developments?

Date: 29 November 2021

Location: Velingrad, Bulgaria

Time: 09:00 – 13:00

95 participants	10 speakers
	20 delegates in person
	70 online participants

Discussion pillars:

- Existing financial instruments for EE and RES projects
- Quality assurance for EE project financing

Key takeaways:

Unicredit Bulbank:

- "Green Mortgage" incentivizes home purchases in highly efficient buildings with preferential loan terms.
- Buyers enjoy exemptions from local property taxes for up to seven years.
- Extends lending products to SMEs and corporate clients, emphasizing a holistic approach to sustainable development.

United Bulgarian Bank (UBB):

- Offers an EE product targeting single-family residential buildings, aiming for a minimum energy class of C.
- Low collateral requirements and unsecured loans provide attractive terms.
- Links loan approval to prescribed EE measures in an energy audit report.

ProCredit Bank:

- Supports electric vehicles (EVs) through the "EcoMobility" product since 2016.
- Invested in the renovation and certification of its own buildings, demonstrating commitment.
- Equips loan and risk officers with insights into the risks associated with EE investments.

Overall:

- Banks play a transformative role in communicating market opportunities for EE improvements.
- Branch networks position banks as information hubs and trusted partners.
- Trust in banks compensates for scepticism in construction companies and government institutions.
- Necessity emphasized for a national information campaign to elucidate the benefits of EE and boost citizen confidence.

Complete information about the event can be found at:

https://www.besmartproject.net/uploads/1/3/8/4/138414569/factsheet_2nd_roundtable_besmart_eng.pdf

4.1.2. FIFTH NATIONAL ROUNDTABLE FOR FINANCING ENERGY EFFICIENCY INVESTMENTS IN BULGARIA

Main Topic of the Roundtable:
Financial instruments for energy efficiency in the industry

Date: 29 November 2022

Location: Sofia, Bulgaria

161 participants	10 speakers

	76 delegates in person
	75 online participants

Discussion pillars:

- Available financial instruments in support of energy efficiency and RES in the industry and SMEs
- Energy management systems in the industry and SMEs

Key takeaways:

- Clients accelerated decision-making during recent crises, seeking sustainable energy solutions.
- Banks are adapting their offerings to support industries with growth potential and sustainable development.
- Financial institutions view reasonable grants as opportunities, but high grant intensity can be detrimental.
- Ms. Galia Vasileva (Executive Director of EERSF) provides comprehensive products, including technical advice.
- Healthy competition between financial institutions benefits clients and the market.
- Increased market activity from clients seeking solar PV installations and energy efficiency investments.
- Suggestions for subsidies to support EE/RES investments rather than aiding energy bill payments.

- Calls for improved subsidy program design considering real importance assessment indicators.

Complete information about the event can be found at:

https://www.besmartproject.net/uploads/1/3/8/4/138414569/factsheet_5th_roundtable_besmart_en.pdf

4.1.3. SIXTH NATIONAL ROUNDTABLE FOR FINANCING ENERGY EFFICIENCY INVESTMENTS IN BULGARIA

Main Topic of the Roundtable:
Financing for zero-energy buildings and building renovations

Date: 1-2 June 2023

Location: Burgas, Bulgaria

120 participants	16 speakers
	42 delegates in person
	62 online participants

Discussion pillars:

- The transition towards co-financing by the owners for the implementation of the national renovation programmes
- Financing instruments in support of new energy efficient buildings

Key takeaways:

- Co-financing explored with local financial institutions, including potential participation from Energy Service Companies (ESCOs).
- Proposal to use the National Development Fund (NDF) as a key financial mechanism for a balanced approach to financing, transitioning away from 100% grants.
- Concerns about insufficient funding for local authorities and the lack of financial instruments for the 20% co-financing requirement.
- ProCredit Bank imposes high environmental and social standards on funded companies, with preferential financing for buildings with a minimum energy class of B.
- Introduction of "Smart Finance for Smart Families" considers not only mortgage payments but also energy, health, and repair costs to optimize the total cost of monthly ownership.
- Increasing importance of sustainability reporting for banks and corporations, with mandatory requirements for green taxonomy-aligned investments and socially responsible activities.

Complete information about the event can be found at:

https://www.besmartproject.net/uploads/1/3/8/4/138414569/factsheet_6th_roundtable_besmart_bg.pdf

4.2. GERMANY

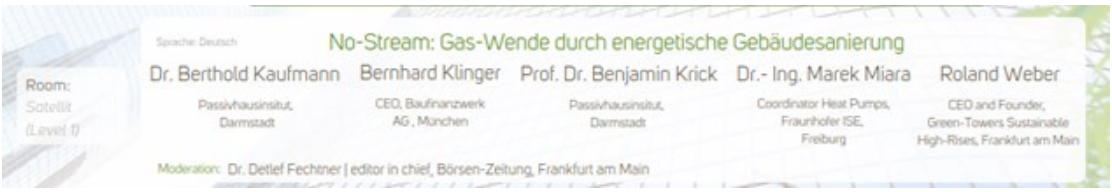
4.2.1 GREEN FINANCE FORUM HELD IN FRANKFURT/MAIN

Date: November 28, 2022

40 participants	5 speakers
	online participants

One session with three presentations and a panel discussion dealt with the opportunities to save natural gas by energy efficient building design for renovation according to the OutPHit projects approach. Stakeholders at this forum were therefore particularly interested in the financial aspects of savings and how these can lead to investment opportunities in sustainable technologies such as the EnerPHit standard.

Audience: about 40 people: architects, engineers and building developers



Berthold Kaufman and Benjamin Krick from Passive House Institute explained that thermal insulation of the building envelope and ventilation with heat recovery, according to the EnerPHit standard, are one of the main preconditions for building design for a sustainable future: low power and low energy demand – Key aspects within the outPHit project.

Subsequently Marek Miara, Fraunhofer ISEFreiburg, explained the chances for greener Investments using heat pump systems in energy efficient buildings.

Followed by Roland Weber, GreenTowers Frankfurt, who showed low-energy-building development and its role in the market as energy costs are increasing. In particular, the advantages of energy efficiency over normal methods were emphasised and how these positively influence investments in the building sector.

Lastly Bernhard Klinger, Baufinanzwerk AG, München, explained the impact of financial issues which may bring a draw back with respect to energy efficient building design – such as low energy prices and high interest rates.

The panel discussion was deeply going into financial subjects and revealed, that apart from construction costs and daily energy prices a more thoroughly view such as lifecycle cost evaluation is needed, see section 5.2.

4.2.2 IMMOWORKSHOPS

Date: September 2022 Darmstadt and November 2022 Bad Homburg

230 participants	different speakers, one from OutPHit consortium

	- online participants

A presentation by Berthold Kaufmann about EnerPHit renovation and the OutPHit approach pointed out, that energy efficiency is crucial to develop and renovate buildings, to support competitiveness within the building sector, for a sustainable future with only renewable energies available. The framework of the workshops was designed for building developers doing renovation and real estate business.

The audience were about 200 people for the conference format in Darmstadt and 30 for the Workshop in Bad Homburg, respectively out of the real estate business sector.

4.2.1. CONFERENCE AND FAIR FOR PROPERTY MANAGER, CUSTODIAL ENGINEERS

Date: November 2023, Bad Vilbel

240 participants	2 speakers
	- online participants

Audience about 40 people during presentation and 200 people during personal discussions later in talks during the conference.

Berthold Kaufmann and Bernhard Klinger contributed at a conference hosting property managers. The presentation and discussions were mainly about the chances and financial challenges for energy efficient building design. Financial draw backs going for climate neutral and sustainable building design were identified, as energy prices are low again in 2023 after the crisis in 2022 and thus strict economic calculations do not support enhanced energy efficient building design. EnerPHit renovation standard and the OutPHit consortiums approach were communicated implicitly only, as the reluctance in real estate business players is omnipresent. But the awareness of sustainable and energy efficiency chances and financial challenges in the market is growing as many market players realize that ESG scheme and EU taxonomy and CO2 pricing cannot longer be ignored.

4.3. SPAIN

4.3.1. MADRID CONFEDERATION OF EMPLOYERS ROUNDTABLE: AN OPPORTUNITY TO REDUCE ENERGY COST AND EMISSIONS, INCREASING THE VALUE OF THE HOUSING

Main Topic of the Roundtable:
Presentation of the new subvention programs for energy rehabilitation of buildings in Madrid

Date: 13 June 2022

Location: Madrid, Spain

284 participants	17 speakers
	60 delegates in person
	207 online participants

Discussion pillars:

- European fund management: Presentation of the new subvention programs for energy rehabilitation and social housing in Madrid
- How to address the avalanche of retrofits, once aid is granted and licenses obtained
- How to accelerate the reduction of fossil fuel consumption in our buildings
- Development of a new agent called "retrofit agent or manager", who carries out turnkey projects.

Key takeaways:

- New subsidies represent an incentive to carry out retrofits, but it is not enough. Co-financing explored with local financial institutions, including potential participation from Energy Service Companies (ESCOs).

- Companies and professionals are not ready to meet this great demand for services in such a short period of time

- From a technical point of view, there are no difficulties in successfully carrying out the rehabilitation of the real estate stock.

Complete information about the event can be found at:

CEIM - Rehabilitación integral: Una oportunidad para reducir costes energéticos y emisiones aumentando el valor de la vivienda

4.3.2. MADRID CONFEDERATION OF EMPLOYERS ROUNDTABLE: BUILDING DECARBONIZATION SUCCESS STORIES

Main Topic of the Roundtable:

Conclusions, success stories and new steps after two years of subsidies for energy rehabilitations

Date: 27 February 2024

Location: Madrid, Spain

146 participants	15 speakers
	75 delegates in person
	56 online participants

Discussion pillars:

- Success stories presentations, including outPHit case study 17.
- Barriers for carrying out energy efficiency retrofits in residential buildings
- End of the subsidies NextGenerationEU. What happens now?
- How a national energy efficiency policy promotes new business opportunities and accelerate decision-making process of clients.
- Next steps to continue with the reduction of consumption of our building stock.

Key takeaways:

- Co-financing explored with local financial institutions, including potential participation from Energy Service Companies (ESCOs).
- Deduction of Personal Income Tax for energy rehabilitation works as an effective incentive.
- A national energy efficiency policy contribute to promote and attract the attention of homeowners to make energy efficiency improvements in their buildings. Otherwise, it is very difficult for works to be carried out without being necessary (retrofit works are usually done only when there is no other option). It helps open doors to explain benefits and financial alternatives for clients.
- Benefits of including in the grant the cost of technical reports of the Building Quality Control Entity, tests and EnerPHit certifications related to the actions. (In Madrid included since 2023 in „Plan Rehabilita Madrid 2023“)
- The need to facilitate administrative procedures for obtaining subsidies.

Complete information about the event can be found at:

CEIM - Casos de éxito de descarbonización de edificios

YouTube: Casos de éxito de descarbonización de edificios (youtube.com)

4.4. FRANCE

“FEDER” Subvention (fonds européen de développement régional) by regions :

- HAUTS DE FRANCE: https://europe-en-hautsdefrance.eu/
- GRAND-EST:https://beeurope.grandest.fr/wp-content/uploads/2022/11/20221114-recueil-des-criteres-de-selection-feder-fse-ftj-2021-2027-compressed.pdf
- NORMANDIE: https://www.normandie.fr/pre-demande-fonds-europeens-feder-fse-ftj-po-2021-2027
- ILE DE FRANCE: https://www.iledefrance.fr/sites/default/files/2023-08/Programme-r%C3%A9gional-FEDER-FSE%2B.pdf
- BRETAGNE:https://www.bretagne.bzh/app/uploads/sites/5/2021_2027_FicheFEDERFSE_Aout2022.pdf
- BFC: https://www.bourgognefranchecomte.fr/sites/default/files/2022-07/Adoption_programme_2127_V3.pdf
- NOUVELLE AQUITAINE: https://participez.nouvelle-aquitaine.fr/processes/FEDER-FSE
- PAYS DE LA LOIRE : https://www.paysdelaloire.fr/mon-conseil-regional/les-missions-regionales/europe/sinformer-sur-la-programmation-2021-2027/les-fonds-europeens
- OCCITANIE : https://www.europe-en-occitanie.eu/Programme-Regional-Occitanie-FEDER-FSE-2021-2027
- AUVEGNE RHONE ALPES: https://www.europeenauvergnerhonealpes.fr/programmes-europeens/programme-regional-federfseftj-2021-2027
- PACA: https://europe.maregionsud.fr/
- CORSE:https://www.europa.corsica/obtenir-une-aide-europeenne/programme-corse-feder-fse-2021-2027/

4.4.1. MEETING 1

Main Topic of the Roundtable:

„FEDER“ subvention in the Région BFC and Elderly homes (Mr Boiro)

Date: 10 November 2020 / Teams

Location: logirep op08-COLOMBES feder ile de france

The meeting's objective was to determine the aid from Région Ile de France to OP08's Retrofit. It was for us a clear sign to develop those kind of meetings and get used to financing EnerPHit's project based on „FEDER" subvention:

4.4.2. MEETING 2: EHPAD COULANGES CS11 / TEAMS / RÉGION BOURGOGNE FRANCHE-COMTÉ

Main Topic of the Roundtable:

„FEDER" subvention in the Région BFC and Elderly homes (Mr Boiro)

Date: 12 july July 2021/ Teams

REGION BFC after getting feedback from Agence Régional de Santé (ARS) decided not to support the CS11 Retrofit project of Coulanges sur Yonne to EnerPHit level and thus condemned this beautiful and challenging project to a more standard retrofit.

4.4.3. MEETING 3: AJENA LONS LE SAUNIER

Main Topic of the Roundtable:

„FEDER" subvention in the Région BFC and the AJENA Case study

Date: 23 September 2023/ Lons le Saunier

Trying to draw a comprehensive financing map for the use of the AJENA member as well as the invited politicians (Mr J-Y Ravier, mayor of Lons le Saunier) based on the experience gathered throughout the OutPHit project and principally the AJENA positive showcase

4.5. NETHERLANDS

4.5.1. MEETING 1

Main Topic of the Roundtable:
National Stakeholder Involvement Workshop 1

Date: 23 January 2020

Location: Netherlands

Event organiser/host: Cooperative RaboBank Etten-Leur: Mr. Ger de Weert, former director of RaboBank Etten-Leur, currently Alderman of finance and sustainability at Municipality of Etten-Leur.

Other partners involved and their roles: Passive House Foundation the Netherlands

Target groups: Funding from Rabobank and Dutch consumers

Event description: The Dutch iPHA affiliate PassiefBouwen will build their new Passive House Premium office in Etten-Leur and has a plot obtained through mediation with the municipality. We know Mr. de Weert from this event.

Renovation and OutPhit: We discussion about the pros and cons of renovations of Dutch Terraced houses. The main pro is the repetition of similar houses in our country, often from tens to hundreds of identical houses.

For the prefab renovation like in Goese Polder the main con is the price and the condition that every houseowner needs to participate. We can't renovate row houses to a Passive House standard if one houseowner is not participating.

Minister De Jonge (Public Housing and Spatial Planning) informs the House of Representatives about building-related financing and care concepts for making your own home more sustainable. This has not yet been accepted.

With this new building-related financing option the house owner is no longer the borrower, but the renovation costs will be part of the building price. This means that the financing tongue is linked to the home and moves to the new owner when sold.

The most critical success factor is the quality of the renovation. After all, if this does not achieve the promised and calculated result, the business model will fail.

The Alderman of Etten-Leur was very interested to hear about the quality of the Passive House renovation calculation and checks. Although he mentioned that he is not in the position to take any action as long as the new law has not been adopted.

Housing associations: In the meantime, Mr. De Weert indicated that housing associations may be interested. Alwel is the largest social housing association in Etten-Leur and has 25,000 homes in its database. We told Mr. De Weert that Alwel has renovated 275 homes into passive houses in Roosendaal in 2010 and have user experiences with similar homes. OutPHit did not exist yet, but the principles regarding energy demand are the same. He didn't know this and was happy to receive this information.

4.5.2. MEETING 2

Main Topic of the Roundtable:
National Stakeholder Involvement Workshop 2

Date: 28 June 2022

Location: Online Teams Meeting

Event organiser/host: Cooperative Triodos Bank: Mr. Jeroen Pels, head of mortgage department and member of the board of directors

Other partners involved and their roles: Passive House Foundation the Netherlands

Target groups: Funding from Rabobank and Dutch consumers

Event description: Triodos is a small Dutch bank, and we know one of the board members because he was a speaker at our Passive House congress at Provada 2019. Triodos has had a link to the PassiefBouwen website for their lowest interest rates for a few years. We called him regarding OutPHit and asked him if he was interested to hear about our project in relation to their sustainability goals.

OutPhit: We presented OutPHit and the Goese Polder project to show what is the current status of high-quality mass renovation. Mr. Pels told us that Triodos was not involved in the finance of many terraced houses. They mainly do larger properties and CPO's. CPO's are collective private initiatives to build houses together on one plot. He indicated that the Rabobank has the largest portfolio of mortgages in terraced houses. We told him we already spoke with the Rabobank. In the meantime, Minister Kajsa Ollongren (Housing) has decided not to continue with the building-related financing. The means of making built space more sustainable is considered 'too complicated and too expensive'. There are also legal complications, in the sense of granting mortgages to non-persons. So OutPHit mass renovations of terraced private owned houses will not be an option at the moment or any bank in The Netherlands.

Bio-based and Passive House: Triodos is very busy with a new standard for sustainable construction. They no longer want to support the Dutch minimum standard. Until now they supported the Passive House standard with their lowest interest rate, but that will be subject for change. The materialisation will be included, together with Alba Concepts they have a material impact calculation (alternative to the Dutch MPG regulation) to calculate the carbon capture/carbon footprint. Only properties that comply with these new standards will qualify for the lowest interest rate (minus 0,6%).

Outcomes: We will work with Triodos on new construction (individual and CPO's) but not on mass renovation. Nevertheless, we will have a separate meeting with Mr, Jan Peeters, mortgage advisor and responsible for the Triodos workshops for clients. He gets homeowners and buyers with who would like to make their home energy neutral. The Passive House Standard is a reliable way to make sure the calculated goals are achieved in practice. This is of great importance for both the house owner and the bank.

4.6. GREECE

4.6.1. FOURTH OUTPHIT PROJECT MEETING AND OUTPHIT WORKSHOP

Main Topic of the workshop:

Fast, reliable, deep retrofits and prefabricated elements for near zero energy buildings

Date: 4-5 May 2022

Location: Athens, Greece

52 participants	6 speakers
	26 delegates in person
	5 online participants

Discussion pillars:

- The transition towards near zero energy buildings
- Funding of the renovation wave

During the 4th OutPHit meeting in Athens, we successfully organized a workshop focused on the rapid, reliable, and comprehensive retrofitting of energy systems. Throughout the workshop, we delved into the profound impact that retrofitting can have on various aspects, underscoring the significance of promoting large-scale projects. This garnered considerable interest from funding institutions, real estate agents, and banking representatives.

Complete information about the event can be found at:

https://eipak.org/outphit-workshop-athens

4.7. AUSTRIA

4.7.1. MEETING 1

Main Topic of the Roundtable:
Exchange and presentation on possible additional funding activities at federal level for thermal refurbishment in large-volume residential buildings

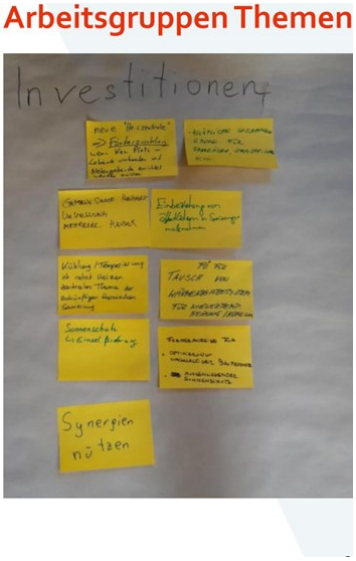
Date: 30 January 2023

Location: Vienna, Austria

approx. 47 participants	4 speakers
	43 delegates in person
	0 online participants

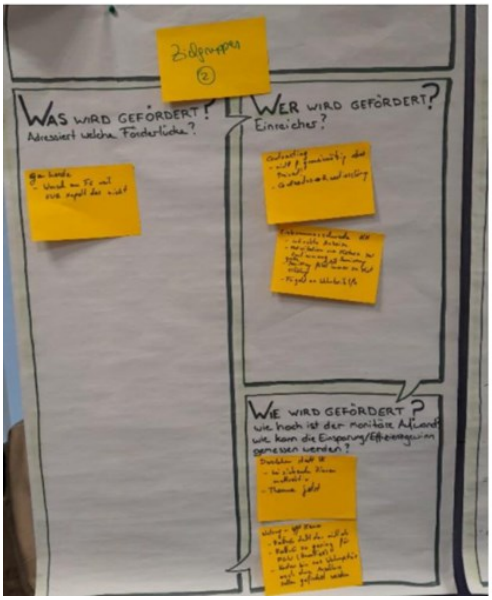
On 30 January 2023, the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK), Section VI - Climate and Energy, Department 7 - Funding Instruments for Innovative Climate and Energy Technologies, invited interested stakeholders to discuss possible additional funding incentives at federal level for thermal refurbishment in large-volume residential buildings.

- **Begrüßung Einführung**, Isabella Plimon, BMK
- **Förderanreize auf Bundesebene zur thermischen Sanierung im MGW,** Andreas Vidic, KPC
- **Förderanreize zu Quartierslösungen,** Agnes Fechner-Brancher, BMK
- **Förderanreize in anderen (Bundes)Ländern und klimaaktiv,** Tina Tezarek, ÖGUT
- **Arbeitsgruppen:** Vidic, KPC; Lamers, Ossberger, BMK; Tezarek, ÖGUT



This energy efficiency potential was intended to contribute to the implementation of the Energy Efficiency Act, which was currently under review.
The results were compiled in several groups as part of a workshop:

Gruppenarbeit



The Austrian "**Energieeffizienzgesetz**" (**Energy Efficiency Act**) is a comprehensive law aimed at improving energy efficiency and reducing energy consumption across various sectors in Austria. Here are the key points:

1. **National Energy Efficiency Targets**: The law sets national targets for energy efficiency improvements, focusing on reducing overall energy consumption.

2. **Obligations for Large Enterprises**: Large enterprises are required to conduct regular energy audits and implement energy management systems to identify and realize energy-saving opportunities.

3. **Energy Service Providers**: The act promotes the role of energy service providers in delivering energy efficiency measures, creating a market for energy-saving services.

4. **Consumer Information**: The law mandates the provision of information to consumers about energy efficiency, encouraging behaviour that reduces energy consumption.

5. **Monitoring and Reporting**: There is a framework for monitoring energy savings and reporting progress towards the national targets, ensuring transparency and accountability.

6. **Incentives and Support Programs**: The act includes incentives and support programs for investments in energy efficiency, helping businesses and households to implement energy-saving measures.

7. **Compliance and Penalties**: It outlines compliance requirements and penalties for non-compliance to ensure that the obligations under the law are met.

Overall, the Austrian Energy Efficiency Act is designed to drive significant improvements in energy efficiency, reduce greenhouse gas emissions, and support Austria's transition to a more sustainable energy system.

Complete information about the law amended by simple legislation can be found at:
https://www.bmk.gv.at/themen/energie/effizienz/recht/effizienzgesetz.html

5. OUTCOMES OF MEETINGS

5.1. BULGARIA

Examining the banking landscape in Bulgaria, the current suite of financial products offered to citizens reflects a diversified range, although there's room for more explicit alignment with sustainable energy goals. Bulgarian banks have demonstrated an increasing interest in sustainable investments, introducing specialized financial products that cover aspects related to decreasing carbon emissions. The focus on aligning portfolios with the European Commission's taxonomy regulations indicates a strategic move toward investments that adhere to recognized environmental standards. However, there's still a need for further innovation in banking products to more directly support energy efficiency and renewable energy initiatives. A closer collaboration between financial institutions and the sustainable energy sector could lead to the development of tailored financial instruments that empower citizens to actively participate in the country's transition towards a greener and more sustainable future.

The representatives of financial institutions across the several sustainable energy meetings in Bulgaria consistently emphasized the critical importance of aligning national strategies with European targets. This alignment, they argued, is not only a prerequisite for accessing funds but also ensures that Bulgaria's energy policies are coherent with broader European goals. Discussions underscored the need for comprehensive plans that go beyond short-term objectives, advocating for a vision that provides stability and attracts long-term investments.

A recurrent theme in these meetings was the exploration of blended financing models, particularly in the context of the Energy Service Company (ESCO) model. The financial representatives recognized the need to combine ESCO with grants, drawing examples from experiences in Latvia and Poland. This approach reflects an acknowledgment that a multifaceted approach to financing is necessary, and a one-size-fits-all strategy may not be suitable for the diverse landscape of sustainable energy projects.

A notable insight from the discussions was the emphasis on behavioural aspects in addition to technical solutions in energy efficiency. Financial representatives recognized the significance of understanding and leveraging human behaviour, asserting that even lower grant amounts, when strategically applied, can render projects viable. This acknowledgment reflects a nuanced understanding that financial incentives alone may not drive sustainable projects without considering the behavioural dimension and active engagement of stakeholders.

Financial institutions exhibited a pragmatic approach to grant-based financing, acknowledging that even partial grants generate substantial interest among final beneficiaries. This recognition indicates a willingness to explore models with reduced reliance on full grants, emphasizing the need for more sustainable and financially efficient approaches.

Another key focus was the adaptability to regulatory changes. Financial representatives consistently highlighted the importance of updating plans according to changes in European

legislation. This proactive stance reflects an understanding of the dynamic nature of the regulatory environment and the necessity of staying aligned to remain eligible for funding and support.

In conclusion, the financial institutions' representatives in these meetings showcased a nuanced understanding of the challenges and opportunities in sustainable energy financing. Their insights collectively underscored the need for aligned and comprehensive national strategies, the exploration of blended financing models, the importance of behavioural aspects, and adaptability to regulatory changes. This collaborative and adaptive approach suggests a thoughtful evolution of financial models for Bulgaria's sustainable energy future.

5.2. GERMANY

In the aftermath of the conferences and workshops explained in section 4.2 more meetings and discussions in depth with some twenty further property managers were held by Berthold Kaufmann and Bernhard Klinger.

Communicating the basic needs of future sustainable and energy efficient building design according to EnerPHit standard and the OutPHit consortiums approach were crucial in all the discussions there. As the property managers traditionally have mainly to save investment costs for each action to be done, the wider view for the investors for total lifecycle costs is not yet self-explaining – So the fact that EnerPHit is really saving energy consumption costs during lifetime of the building after the renovation will have to be explained to financial Stakeholders further on.

The main issue is– apart from governmental funding of energy efficient actions for renovation – that energy prices are again in 2024 as low as in former times before the crisis in 2022. So the simple economic approach with lifecycle costs, adding up investment costs with discounted future energy consumption cost has to be deepened by calculating scenarios: what is the economic situation with today's low energy prices (about 9 cent/kWh) and what will be the situation if energy prices will probably raise to about 15 cent/kWh again.

The OutPHit Project helped to gain first experience with these deeper evaluations and communication to the market players. But many more discussions will have to follow. And it will be crucial to find those actors in the field, who will be just willing to listen to these arguments and facts, which are kind of a new approach to many people working in real estate business who think they should just save investment costs. They will need time to accept the new and wider calculation approaches – and furthermore: they will have to re-design what they know about economic risk evaluation. It will be most probably not only the capital cost (interest rates) which makes an action for renovation costly or not. But as energy prices will be a growing risk to rise, it will be crucial to communicate, that forgetting about appropriate energy efficiency standards like EnerPHit, will be not easy to be fetched later – so a key takeaway to be communicated over and over: when a renovation action is on the time schedule –-do it right, right now!

The EnerPHit and the OutPHit Project are a good start for these communication challenges!

5.3. SPAIN

The results of the discussions with the different agents involved in energy rehabilitation highlight the need for joint public-private actions to meet the objectives imposed in Europe to improve the real estate stock.

Subsidies to implement energy improvements help to awaken the interest of citizens, who want to receive information and look for technicians or experts in the field. The actions carried out in the last two years included in the NextGenerationEU plan confirm this. These subsidies open the door to improve energy efficiency, but in many cases, they are not enough incentive. Partly due to the high investment necessary to carry out these measures and the high administrative cost to qualify for them.

A recurring theme in these meetings is the need to explore new financing models combining subsidies with other private financial products (banks, ESCOs...)

Comprehensive energy policies, with medium-long term plans, are also necessary to provide stability and continuity to the sector. Short-term actions become poorly detailed projects and involve a greater risk of not achieving the proposed objectives. We have been able to verify this in several cases analysed.

The promotion of quality control works for energy rehabilitations carried out by independent institutions (such as airtightness testing or EnerPHit certification) is the best way to guarantee results. It seems to be necessary to include these works within the eligible amounts of funds.

5.4. FRANCE

Passivhaus is so simple but it's very much confusing for a lot of people. It needs a lot of time to explain simplicity. It is better to discuss details directly confronting with facts, because generalities are very oft ill understood, even with partners:

SMARTER FINANCE FOR FAMILIES

What is the added value of a SMARTER endorsed residential project compared to well known certifications, nZEB and Passivhaus?

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 847141.

	SMARTER	BREEAM	LEED	EDGE	nZEB	Passivhaus	LEVEL(s)
Energy Efficiency Energy use + CO_2 emissions	■	■	■	■	■	■	■
Energy Savings	■	■	■	■	■	■	■
Indoor Air Quality Ventilation, VoCs, Radon	■	■	■	□	■	■	■
Water efficiency Water quality + testing	■	■	■	■	■	□	■
Daylight Levels Health + Wellbeing	■	■	■	□	□	□	■
Acoustic Comfort Wellbeing + Comfort	■	■	■	□	□	□	■
Embodied Carbon	■	■	■	■	□	□	■
Improving biodiversity	■	■	■	□	□	□	■
Universal Design Lifetime Homes	■	■	□	□	□	□	■
Connected Location Transport links, facilities, amenities	■	■	■	□	□	□	□
Lifecycle analysis	■	■	■	□	□	□	■
Circular Economy Design for reuse	■	■	■	□	□	□	■
Nationally adapted Data fed back into national policy	■	□	□	□	□	□	■

We fight against a lot of prejudices. Direct talk is better for addressing them.

Our focused was always to explain what OutPHit is doing in terms of:

- Water efficiency: most Passive Houses have rainwater systems installed
- Daylight levels (PHPP expert training):
- Embodied carbon (OutPHit D 4.3):
- LCA (OutPHit D4.3):
- Nationally adapted (OutPHit: T5.6 Contributions to the comparison report of deep renovations with national standards

5.5. NETHERLANDS

The outcomes of the two meetings held as part of the National Stakeholder Involvement Workshops were instrumental in shaping the future direction of the OutPHit project in the Netherlands. The first meeting, held on 23 January 2020 with the cooperative RaboBank Etten-Leur, highlighted several key insights and potential avenues for collaboration. Mr Ger de Weert, former director of RaboBank Etten-Leur and current alderman for finance and sustainability in the municipality of Etten-Leur, expressed a keen interest in the quality and precision of calculations and checks for Passive House renovations. This interest is crucial as it is in line with the central objective of ensuring high quality renovations that achieve the promised energy performance results. However, Mr de Weert also noted that legislative changes are needed before substantial action can be taken, in particular the introduction of new build financing options where renovation costs are linked to the property rather than the homeowner. This innovative financing model could significantly improve the feasibility and attractiveness of deep renovation projects.

The discussion also highlighted the potential role of housing associations in driving mass renovation. Alwel, the largest social housing association in Etten-Leur with a portfolio of 25,000 dwellings, already has experience in Passive House renovations, having renovated 275 dwellings in Roosendaal in 2010. This historical context provides a solid foundation for potential collaboration under the OutPHit initiative, leveraging past successes and scaling them across similar housing typologies in the region.

The second meeting, held online via Teams on 28 June 2022 with the cooperative Triodos Bank, offered additional perspectives and opportunities. Mr Jeroen Pels, Head of the Mortgage Department at Triodos Bank, provided valuable insights into the bank's strategic focus on larger properties and collective private initiatives (CPOs) rather than mass renovations of terraced houses. This focus suggests a different but complementary path for the OutPHit project, potentially targeting new construction projects and bespoke renovation initiatives rather than mass market solutions.

Despite the setback of the Dutch government's decision not to proceed with construction-related financing, the meeting with Triodos Bank highlighted an evolving standard for sustainable construction that goes beyond the Passive House standard. Triodos Bank is moving towards incorporating material impact calculations and carbon footprint assessments into its lending criteria. This shift represents an opportunity for OutPHit to align its renovation projects with these emerging sustainability metrics, ensuring continued eligibility for favourable financing terms. The commitment to work with Triodos on new build and individual

or CPO projects remains a positive outcome, indicating an ongoing partnership that can evolve to meet the changing sustainability landscape.

In conclusion, these meetings provided key insights and directions for the OutPHit project. They highlighted the importance of legislative support for innovative financing models, the potential role of housing associations in mass refurbishment and the need to align refurbishment standards with evolving sustainability criteria. These findings will guide the strategic planning and implementation of OutPHit initiatives to ensure they are both impactful and aligned with stakeholder priorities and regulatory developments.

5.6. GREECE

The included deliberations that not only highlighted the transformative potential of retrofits but also emphasized the crucial role these projects play in the sustainable development landscape. The enthusiasm expressed by diverse stakeholders signals a collective recognition of the importance of investing in substantial retrofitting endeavours.

The positive outcome of the workshop indicates a growing commitment to advancing sustainable and energy-efficient practices. The potential for significant improvements in energy efficiency, environmental sustainability, and overall building performance is evident, reinforcing the importance of concerted efforts in this domain.

Looking ahead, sustaining the momentum generated during the workshop becomes paramount. This involves fostering continued collaboration among stakeholders, exploring innovative funding mechanisms, and pinpointing specific projects aligned with the overarching goals of energy efficiency and sustainability.

Ongoing communication and knowledge-sharing within the retrofitting community will be instrumental in disseminating best practices, sharing lessons learned, and fostering the adoption of innovative solutions. Such collaborative efforts will contribute substantially to the success and scalability of energy retrofit initiatives in the future.

5.7. AUSTRIA

According to the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK), an additional €190 million in funding will be available by 2030 as part of the new ‘energy efficiency’ campaign.
Three pillars of the Austrian subsidy system are now to channel these funds into the federal government's refurbishment offensive:

1. **Kommunalkredit Public Consulting** (KPC)

   KPC has approx. € 940 million available from 3 January 2023 to 31 December 2024.

   1.1. **Model A**:
   Comprehensive refurbishment according to **klimaaktiv** regulations

(https://www.klimaaktiv.at/bauen-sanieren/gebaeudedeklaration/kriterienkatalog.html) => new 'property funding' is possible (https://www.umweltfoerderung.at/betriebe/umfassende-gebaeudesanierung/unterkategorie-thermische-gebaeudesanierung)

- Signature of individual households ('renovation cheque' as before) can therefore be omitted,
- only the heating demand according to klimaaktiv counts (max. 44 kWh/m²) then up to €100/m²living space.
- For application in 2023 -> implementation (billing) possible until 2025 (2 years)

1.2. **Model B:**
Renovation of individual building components (windows, etc.) according to **klimaaktiv** regulations.

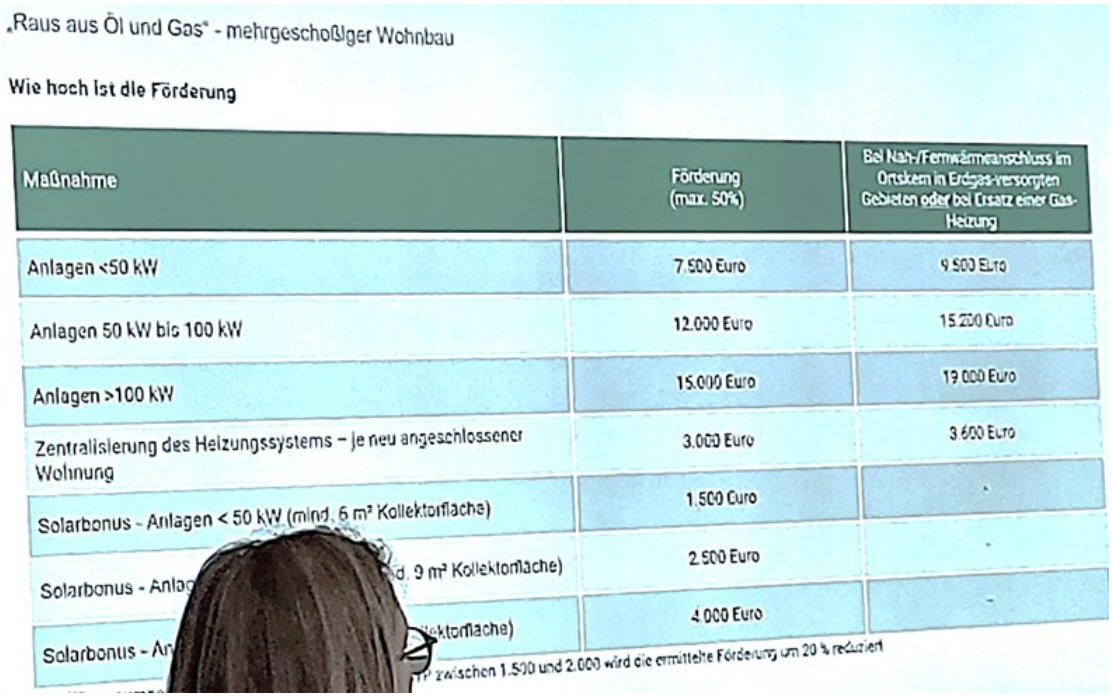
https://www.umweltfoerderung.at/betriebe/thermische-bauteilsanierung/unterkategorie-thermische-gebaeudesanierung

- At least 75% of the measure must be implemented (e.g. 75% of all windows new)
- For application 2023 -> implementation (billing) possible up to 12 months later

1.3. **Initiative Raus aus Öl und Gas! - "Get out of oil and gas!":**

- New also as 'property funding'
- For application 2023 -> implementation (billing) possible until 2025 (2 years)
- Individual measures (boiler replacement, etc.) possible up to 12 months thereafter

For further details, see photo:



„Raus aus Öl und Gas" - mehrgeschoßiger Wohnbau

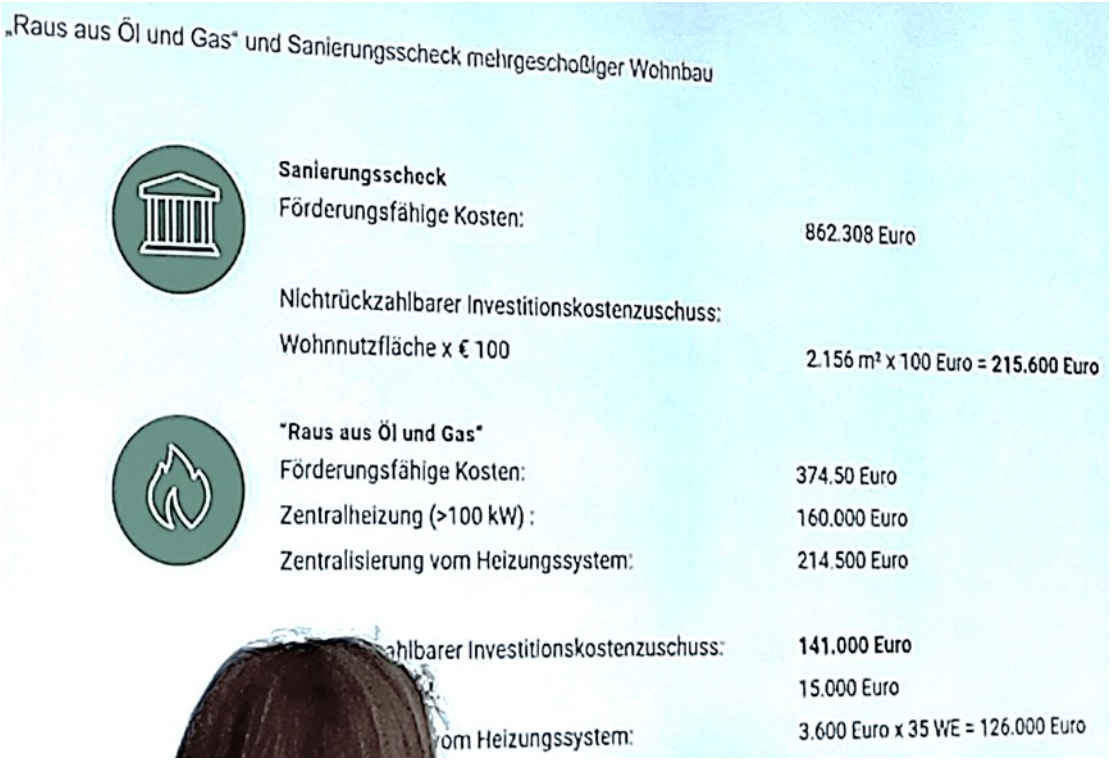
Wie hoch ist die Förderung

Maßnahme	Förderung (max. 50%)	Bei Nah-/Fernwärmeanschluss im Ortskern in Erdgas-versorgten Gebieten oder bei Ersatz einer Gas-Heizung
Anlagen <50 kW	7.500 Euro	9.500 Euro
Anlagen 50 kW bis 100 kW	12.000 Euro	15.200 Euro
Anlagen >100 kW	15.000 Euro	19.000 Euro
Zentralisierung des Heizungssystems – je neu angeschlossener Wohnung	3.000 Euro	3.600 Euro
Solarbonus - Anlagen < 50 kW (mind. 6 m² Kollektorfläche)	1.500 Euro	-
Solarbonus - Anla d. 9 m² Kollektorfläche)	2.500 Euro	-
Solarbonus - An lektorfläche)	4.000 Euro	-

[illegible] zwischen 1.500 und 2.000 wird die ermittelte Förderung um 20 % reduziert

Funding example (building similar to Austrian OutPHit-demo building ST03 - St. Johann - 35WE, 2,156m²living space):

"Therm. Refurbishment" plus "Out of oil and gas" equals a total of € 356,600.



„Raus aus Öl und Gas" und Sanierungsscheck mehrgeschoßiger Wohnbau

Sanierungsscheck

Förderungsfähige Kosten: 862.308 Euro

Nichtrückzahlbarer Investitionskostenzuschuss:

Wohnnutzfläche x € 100 2.156 m² x 100 Euro = **215.600 Euro**

"Raus aus Öl und Gas"

Förderungsfähige Kosten: 374.50 Euro

Zentralheizung (>100 kW) : 160.000 Euro

Zentralisierung vom Heizungssystem: 214.500 Euro

[illegible]ahlbarer Investitionskostenzuschuss: **141.000 Euro**

15.000 Euro

[illegible]om Heizungssystem: 3.600 Euro x 35 WE = 126.000 Euro

1.1. **Initiative "Mustersanierung" - 'model renovation':**

There is also the special ‘model renovation’ subsidy - this option was also offered to us by the Energy Agency Tyrol for ST03-St. Johann, but could not be realised due to the tight and very short time frame.

https://www.umweltfoerderung.at/betriebe/mustersanierung/unterkategorie-thermische-gebaeudesanierung

2. **Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology** (BMK)

   Nothing really new came from BMK.

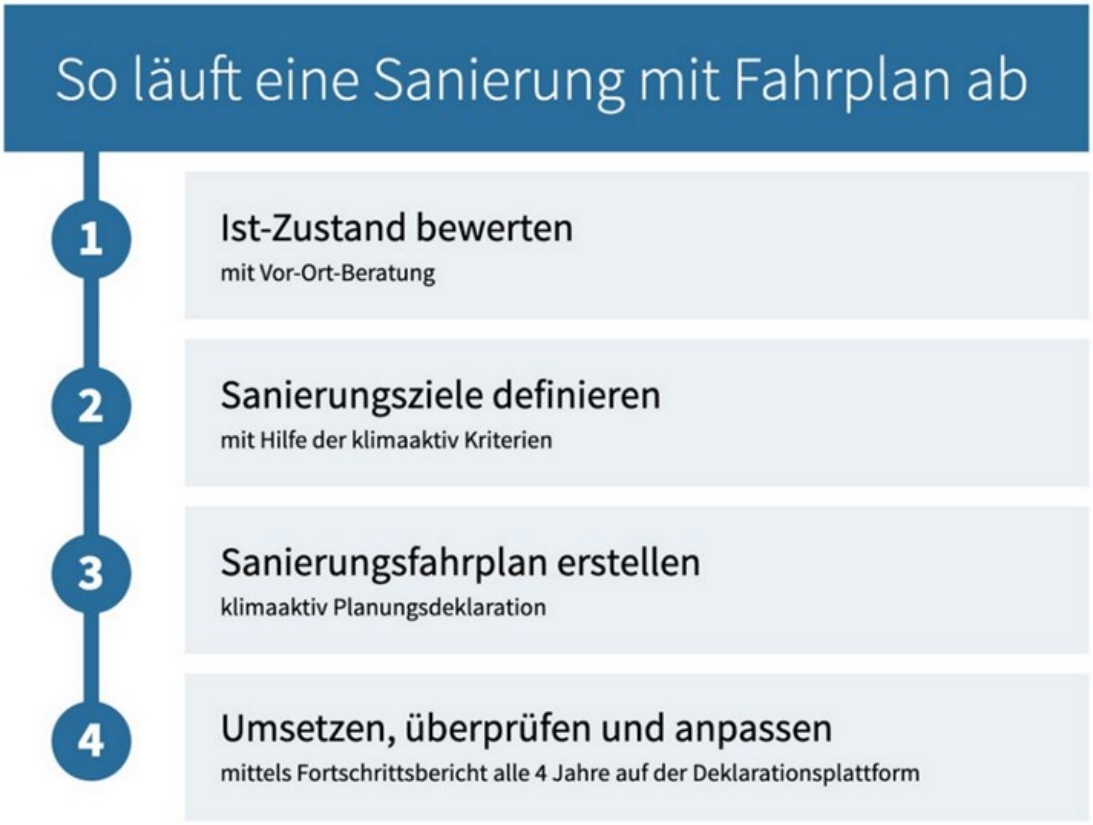
   There was only a reference to the ongoing research funding programmes such as **SmartCity** (similar to the NHT projects: SmartCity Campagne, SmartCity Wörgl and SmartCity Speak Smart).

3. **Klimaaktiv**

   The aim of the initiative **klimaaktiv** is to reduce greenhouse gas emissions by increasing the market share of climate-friendly technologies and services of a high, assured quality. The use of renewable energy sources is to be intensified, the energy efficiency of buildings, technical processes and devices increased and sustainable mobility promoted.

   klimaaktiv essentially only replicated the KPC contribution (point 1) and once again referred to the available ‘refurbishment roadmap’ - https://www.klimaaktiv.at/bauen-sanieren/gebaeude-deklarieren/sanierungsfahrplan.html

   For **step-by-step refurbishments**, klimaaktiv now also enables the planning declaration with refurbishment roadmap. See the following picture:



In this case, however, the KPC subsidy is less complex, as it only requires the klimaaktiv criterion “heating demand” (as described under point 1).

6. CONCLUSION AND NEXT STEPS

In conclusion, the comprehensive examination of sustainable building practices, financing mechanisms and regulatory frameworks across the EU reveals a landscape characterised by intricate interconnections and evolving dynamics. The underlying principles of the EU taxonomy, which embraces sustainability in its holistic sense, serve as a robust framework for identifying economic activities that contribute to both immediate environmental goals and long-term resilience. This taxonomy integrates seamlessly with the objectives of sustainable finance, mitigating risks associated with environmental impacts and incentivising positive contributions.

The SMARTER Finance for Families initiative is emerging as an actor in translating these principles into actionable strategies. By supporting the development of Green Home Green Mortgage programmes, it is forging partnerships between financial institutions, investors and homebuyers in line with the sustainability goals outlined in the EU taxonomy. The emphasis on energy efficiency, location, sustainable materials, indoor air quality and bioclimatic design in the SMARTER initiative reflects the technical screening criteria set out in the Taxonomy for both new and existing buildings.

Meetings with financial institutions reinforce these links and provide insights into the practical implementation of sustainable financing practices. Discussions on financial products, risk-sharing mechanisms and the role of financial institutions in promoting environmentally sustainable activities underline the concerted effort to align financial incentives with environmental objectives.

Critical links between risk mitigation and financial instruments, market-driven solutions, and proportionality and adaptability further underline the dynamic nature of sustainable construction practices. By embracing market-driven solutions such as green mortgages, financial institutions are actively participating in the transformation of theoretical sustainability principles into tangible economic realities.

In essence, this synthesis of the principles of the EU Taxonomy, the SMARTER initiative and the insights of financial institutions paints a landscape where sustainability is not just an abstract goal, but a collaborative, adaptive and market-driven endeavour. As the momentum for green finance grows, these connections provide a roadmap to a future where sustainable building practices are not just an aspiration, but an integral part of the economic fabric. The challenges are significant, but the collective efforts demonstrated in these initiatives and discussions are paving the way for a more sustainable and resilient built environment in the European Union.

The OutPHit project is currently positioned to address substantial challenges in building renovation financing. As we move forward, it is essential to gather insights from past obstacles and proactively strategize for a more efficient and impactful implementation. These are some challenges the industry has encountered in the past and here are what actions are required to overcome them.

- **Proactive Definition and Monitoring:** The delay in defining Nearly Zero Energy Buildings (NZEB) highlighted a significant challenge. To avoid a repeat scenario, the OutPHit project should advocate for the timely definition of Zero Emissions Buildings (ZEB) and, equally, establish a robust monitoring mechanism. This ensures that the set standards are not only defined promptly but are diligently adhered to, providing a clear trajectory for the industry.
- **Ensuring Implementation Oversight:** A significant concern is the scepticism within the professional guild regarding the monitoring of ZEB implementation. Addressing this requires a transparent and inclusive approach. The OutPHit project can collaborate with industry associations and regulatory bodies to establish an oversight framework that instils confidence, demonstrating a commitment to effective implementation.
- **Quality Control of Certificates:** The OutPHit project should advocate for stringent quality control measures for energy performance certificates. Certificates play a pivotal role in influencing financing decisions, and their accuracy is paramount. Collaborating with certification bodies and regulatory authorities to enforce and regulate quality standards will enhance the credibility of the certification process.
- **Cost-Effective Certification:** The high cost of certification acts as a deterrent for both banks and builders. The OutPHit project can work towards incentivizing cost-effective certification models, exploring partnerships with certification bodies to streamline processes and reduce associated costs. This can make certification more attractive to banks and builders alike.
- **Capacity Building for Certifiers:** The shortage of trained certifiers, especially those adhering to international standards, poses a challenge. The OutPHit project can take a proactive role in collaborating with training institutions and certification bodies to develop programs that ensure an adequate pool of certifiers, fostering expertise and competence within the industry.
- **Shifting Builder Perspectives:** Builders and construction companies often prioritize cost over energy efficiency. The OutPHit project can initiate awareness campaigns and capacity-building programs to shift this perspective. Highlighting the long-term benefits and market advantages of EnerPHit renovations can encourage builders to position themselves in the upper segment.
- **Engaging Banks in New Segments:** The reluctance of banks to explore new segments is a systemic issue. The OutPHit project can engage with financial institutions to demonstrate the untapped potential of the energy-efficient building market. Highlighting the economic and environmental benefits can incentivize banks to redirect their focus and contribute to the financing of sustainable building initiatives.

In conclusion, the next steps for the OutPHit project involve a proactive and collaborative approach. By learning from past challenges and addressing current concerns, the project can play a transformative role in shaping the landscape of building renovation financing, fostering a sustainable and energy-efficient future for the construction industry.

7. REFERENCES

[OECD 2020] Organisation for Economic Co-operation and Development, Developing Sustainable Finance Definitions and Taxonomies, Available at: https://www.oecd-ilibrary.org/sites/5e092588-en/index.html?itemId=/content/component/5e092588-en#back-endnotea7z41

[Kronmiller 2022] Ted Kronmiller, Steven Borncamp et al., D4.05 Green Finance Policy Recommendations, Available at: https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5e0392ea2&appId=PPGMS

[Green Homes & Mortgages 2019] Steven Borncamp, "Green Home & Green Mortgages: A toolkit for Green Homes Solutions Providers", Available at: https://c2e2.unepccc.org/wp-content/uploads/sites/3/2020/06/bg-toolkit-residential-investors.pdf

[EU 2021] Regulation (EU) 2021/1119 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law'), Available at: https://eur-lex.europa.eu/EN/legal-content/summary/european-climate-law.html