



# SUPER i

## D4.1 SUPER-i Capacity Building Programme

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## Technical references

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- \* PU = Public  
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## Partners

<b>APRE</b>	Italian Agency for the Promotion of European Research
<b>BL</b>	Boligernes Landsorganisation
<b>CIVI</b>	CiviESCO
<b>EGC</b>	European Green Cities
<b>EEIP</b>	Energy Efficiency in Industrial Processes
<b>HE</b>	Housing Europe
<b>HFROS</b>	Housing Fund Republic of Slovenia
<b>TENDER</b>	Tendercapital Ltd.
<b>UoY</b>	University of York

## Abbreviations

<b>CBP</b>	Capacity Building Programme
<b>DCL</b>	Direct Credit Lines
<b>EE</b>	Energy Efficient
<b>EEFIG</b>	Energy Efficiency Financial Institutions Group
<b>EPCs</b>	Energy Performance Contracts
<b>ePPP</b>	Efficient Public Private Partnerships
<b>ESCs</b>	Energy Supply Contracts
<b>ESCO</b>	Energy Service Company
<b>IFI</b>	International Finance Institution
<b>LFI</b>	Local Finance Initiative
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>SME</b>	Small and/or Medium Enterprises

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## Executive Summary

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The SUPER-i project, funded by the EU's Horizon 2020 initiative, aims to renew energy efficiency refurbishments in the social housing sector through innovative financing models. Central to this report is the SUPER-i Capacity Building Programme (CBP), designed to empower stakeholders like financial institutions, Energy Service Companies (ESCOs), and social housing organisations (SHOs) across Europe. Initially focusing on Denmark, Italy, and Slovenia, the programme intends to expand its reach with partners in Spain, the UK, and Belgium.

The CBP employs online webinars and training events to explore existing knowledge, barriers, and financing schemes related to energy-efficient interventions. It emphasises policy analysis, technological interventions, energy poverty alleviation, and innovative financing models like Public-Private Partnerships (PPPs). Leveraging synergies with other EU projects, SUPER-i provides practical tools, case studies, and a six-step best practice guide derived from its work.

The scope of the CBP targets various stakeholders, including ESCOs, financial institutions, social housing organisations, and universities. By fostering learning and discussion, the programme aims to identify barriers and develop solutions for widespread implementation of energy-efficient refurbishments. The model for the CBP entails online webinars where stakeholders discuss existing knowledge, challenges, and potential solutions. These discussions cover policy frameworks, technological interventions, energy poverty, and financing schemes, utilising the SUPER-i pilot projects as case studies for practical application.

Key elements of the capacity building programme include:

- Identification of barriers and risks like financial constraints, administrative hurdles, stakeholder cooperation issues, knowledge gaps, and vision-related challenges.
- Mitigating risks by diversification of funding sources, streamlining administrative processes, enhancing stakeholder cooperation, providing education, training, and developing long-term strategies.
- Innovative financing solutions, e.g. public-private partnerships, direct credit lines, energy supply contracts, and grants.
- How to aggregate investments through leveraging national and European funds, exploring diverse funding methods, and utilising innovative financing models like ESCOs and Energy Performance Contracts (EPCs).

Investing in energy efficiency involves identifying and mitigating various risks, as highlighted in the SUPER-i project. The project identifies five primary categories of barriers: financial, administrative, stakeholder cooperation, know-how and information, and vision and approach. Addressing these barriers necessitates tailored risk mitigation strategies.

- Financial barriers encompass difficulty in funding, uncertain returns, high innovation costs, and limited access to funding sources. Strategies to mitigate these barriers include

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diversifying funding sources, establishing financial guarantees, forming public-private partnerships, and implementing long-term financial planning.

- Administrative and procedural barriers include complex regulatory frameworks and slow processing. To address these, strategies involve streamlining regulations, providing clear guidelines, and offering comprehensive training for stakeholders.
- Stakeholder cooperation barriers involve political obstacles and lack of trust. Mitigation strategies include enhancing communication, fostering collaboration, and conducting regular consultations.
- Know-how and information barriers pertain to a lack of qualified labour and information about green technologies. Strategies include implementing training programs, establishing knowledge-sharing platforms, and promoting vocational training.
- Vision and approach barriers encompass a lack of long-term vision and concrete evidence on gains. Strategies involve developing long-term strategies, highlighting non-economic benefits, and prioritizing sustainability goals.

Furthermore, the SUPER-i toolkit supports social housing organizations with technical, environmental, and financial analyses. It provides recommendations for technical interventions, aligns energy interventions with sustainable development goals, offers innovative financing options, and showcases real-world applications through case studies. Best practices at the EU level include identifying and understanding barriers, developing tailored risk mitigation strategies, leveraging innovative financing solutions, aggregating investments, and adopting a holistic approach to sustainable development. Case studies from Italy, Denmark, and Slovenia demonstrate successful energy-efficient refurbishments achieved through stakeholder cooperation, innovative financing, and a holistic approach, showcasing the practical application of SUPER-i tools in different national contexts.

# 1. Introduction

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SUPER-i is a Horizon Europe project funded by the EU, aiming to catalyse investments and collect data to enhance energy efficiency within social housing organisations (SHOs). The primary objective is to facilitate the transition towards more inclusive and environmentally sustainable living conditions. This report is written for both internal project partners and external stakeholders within the EU interested in engaging in energy-efficient investments for social housing organisations (SHO). It encompasses various stakeholders in the field and addresses financial, political, and operational aspects, including barriers and driving factors.

The second chapter presents the capacity building programme (CBP), drawing the practical considerations for planning and conducting capacity building webinars focused on energy-efficient investments in SHOs. Subsequently, the report delves into an exploration of barriers, risks, and investment opportunities. The fourth chapter outlines the SUPER-i Guidebook and tools to support stakeholders in their endeavours. Following this, a concise six-step best practice guide, offering a practical framework for replicating SUPER-i results efficiently. Lastly, the report examines potential synergies and concludes by summarising the overarching goals and outcomes of the SUPER-i capacity-building programme.

The scope of this report is to empower financial institutions, investors, energy service companies, and the social housing sector to facilitate intelligent financing for energy-efficient refurbishments within the social housing stock.



## 2. Capacity Building Programme

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### 2.1. Target Groups

The scope of the CPB is to develop a programme for learning and discussion among the target groups. It will focus on how to create solutions after identifying barriers, to reach a broad implementation of energy-efficient refurbishment within a social housing context. This chapter outlines how the three pilot countries in SUPER-i will plan and execute their respective CBP webinars. The approach is replicable and relevant for other interested stakeholders outside of the project as well.

The capacity building will focus on ESCOs, financial institutions, social housing organisations and universities from Denmark, Italy, and Slovenia. Replication activities will involve social housing managers and associations, SMEs, policy makers, financial institutions and ESCOs in broader regions within Denmark, Italy and Slovenia, in other SUPER-i partner countries such as Belgium, Spain and UK and, more widely, across the whole EU. Other key stakeholders will be specialists such as political, regulatory, and legislative bodies whose role in creating and maintaining a wider environment supportive of this project's aims is also of great importance.

Lists of target groups to be invited will be made partly by the partners in all the SUPER-i partner countries and by Housing Europe (HE). The target groups, preliminary defined, are as follows:

- Social Housing Organisations, through HE and the three partners Boligernes Landsorganisation (BL), ATER Trieste and Housing Fund Republic of Slovenia (HFROS), members of HE.
- Financial intermediaries and institutions (LFIs and IFIs), and their investors: connections will be guaranteed by Energy Efficiency in Industrial Processes (EEIP) and Tender, regular contacts with the Energy Efficiency Financial Institutions Group (EEFIG) and their members, and national bank associations (starting from those countries where the case studies are located and then all the EU countries).
- ESCOs and other energy providers
- Local Governments, policymakers, regulators, via the network of all partners
- Research institutions and universities

### 2.2. Model for the Capacity Building

The model for the capacity building seminars will be in the form of online webinars/web-based training organised by country. They will be based on information, discussion, and training events, where social housing organisations meet with enterprises' representatives from ESCOs and financial institutions. There will be an introduction on existing knowledge and challenges related to the core elements of the SUPER-i project:

- Policy
- Type of interventions/technologies

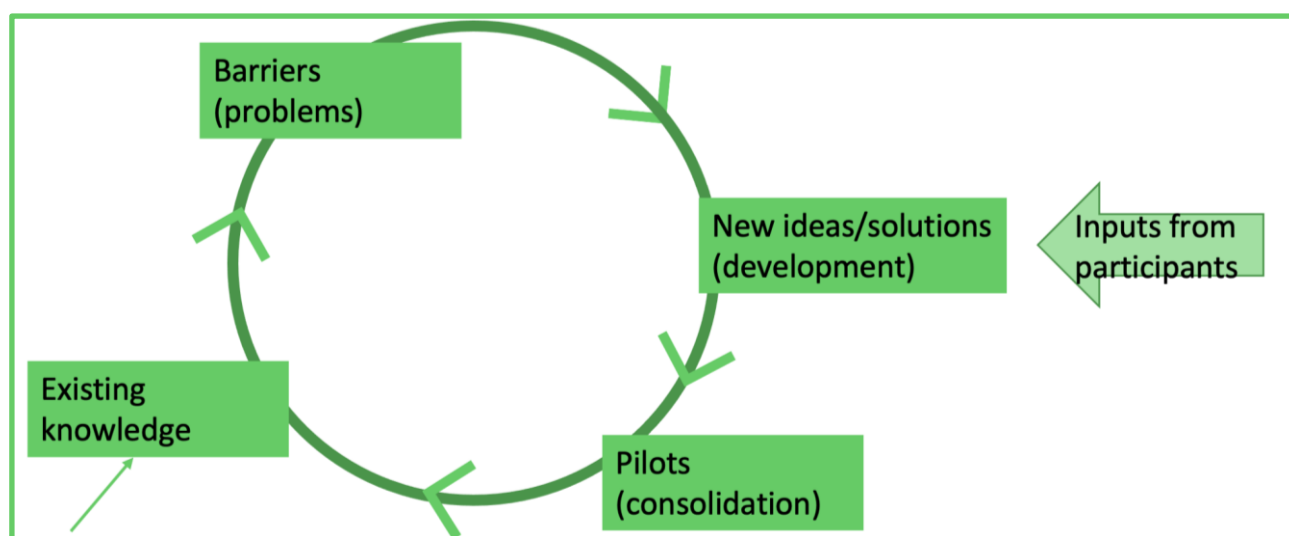
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- Data collection (energy poverty)
- Existing barriers and possible solutions
- Financing schemes

The participants will then discuss the challenges and possible solutions on the basis of their own experiences. Finally, the SUPER-i pilots will be presented and used as cases for a concrete discussion on solutions and how they can be implemented.

### 2.3. Content

The content of the capacity building programme for the abovementioned target groups revolves around existing knowledge, barriers, developing solutions and how to implement them. See figure below:



#### 2.3.1. Existing knowledge

The presentation of the existing knowledge will focus on four topics, 1) policy, 2) type of interventions/technologies, 3) energy poverty, and 4) financing schemes.

##### **Policy**

Renovation of social housing and the investment pipelines involves a set of policies, which will be presented and discussed at the beginning of the capacity building programme. The policies vary in the various countries across Europe, but there are also similarities. The common features are mainly in the field of the social and technical needs of the social housing stocks. More specifically, affordable and accessible and energy-efficient housing is a common goal in the EU and investments

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are expected to focus on long-term social infrastructures, human capital, and inclusive resilient communities.<sup>1</sup> In the CBPs, national as well as European policies will be presented.

### Type of interventions/technologies

Social housing in Europe must reach the best possible standard, considering that the buildings should be sustainable, energy efficient as well as affordable for the low-income groups. Considering the construction works, in the CBP, important elements such as design, materials, building methods, demolishing and reuse/disposal of materials will be presented. Furthermore, we will focus on circular economy, durability of the construction works and use of environmentally compatible raw and secondary materials in the construction works while giving relevance to the Environmental Product Declarations (EPDs) and new ideas for improvements and best practice solutions.

### Energy poverty

On the basis of the indicators for energy poverty presented by the SUPER-i e-Room (<https://super-i-project.eu/e-room/>), the CBP will target specific stakeholder groups in order to contribute to the improvement of the living conditions of low income social housing inhabitants. Read more about the e-Room in chapter five.

### Financing schemes

Using the material developed within the SUPER-i financial analysis, investment pipelines, stakeholder engagement, and policy co-creation, a comprehensive presentation of the financing schemes, barriers and possible solutions will be discussed at the CBP seminars - with presentations from experts and contributions from participants.

## 2.3.2. Barriers

Presentation of SUPER-i findings on the barriers for e.g. enabling financial institutions, social housing managers and ESCOs to find the best possible technical solutions for energy efficiency (EE) interventions, as well as the best possible financing possibilities. Examples of barriers could be:

- Energy efficiency challenges in social housing with materials and meeting the circular economy demands.
- Feasibility of EE interventions in social housing.
- Evaluation methodologies for measuring impact of EE.
- Existing financial schemes for energy efficiency renovation of social housing buildings in each region/country targeted by SUPER-i.
- Financial schemes towards social housing EE refurbishment projects and variables and achievable economic potential of EE investment opportunities in the social housing sector.
- Financial instruments with the aim to facilitate energy efficiency renovations.
- Evaluation methodologies to test how financial instruments are performing in delivering additional financing towards energy efficiency improvements in social housing and

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<sup>1</sup> Read more in the SUPER-i D3.1 Promoting Feasibility Assessment for the Investment Pipelines, p.8.

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measuring their potential to achieve the final outcomes, i.e. higher energy efficiency and lower energy bills, consumption, CO<sub>2</sub> emissions, or higher attractiveness for the LFIs.

#### 2.3.3. Developing Solutions and Implementation

The presentations of existing barriers will be followed by a discussion on drivers and solutions to implement and finance EE solutions where the various stakeholders will be sharing their thoughts, experiences, and ideas. This is then the starting point for the last part of the CBP, where the pilot projects will be presented as case studies for testing the feasibility of the new ideas and solutions in practice.

### 2.4. Planning of the Webinars

The webinars should be announced on websites, in newsletters, and on social media. Dedicated invitations will be sent out four weeks before. The target number of participants can be seen in the table below:

Webinars	30 participants
Webinar (all partners) Replication activity	50 participants
(Final event/conference) (EU)	80 participants

All webinars will be video recorded and distributed on the SUPER-i website. To make the recorded webinar files easier to access, a “chronicle” of “10 important moments” in the webinar/on the video, will be published. See illustration below:



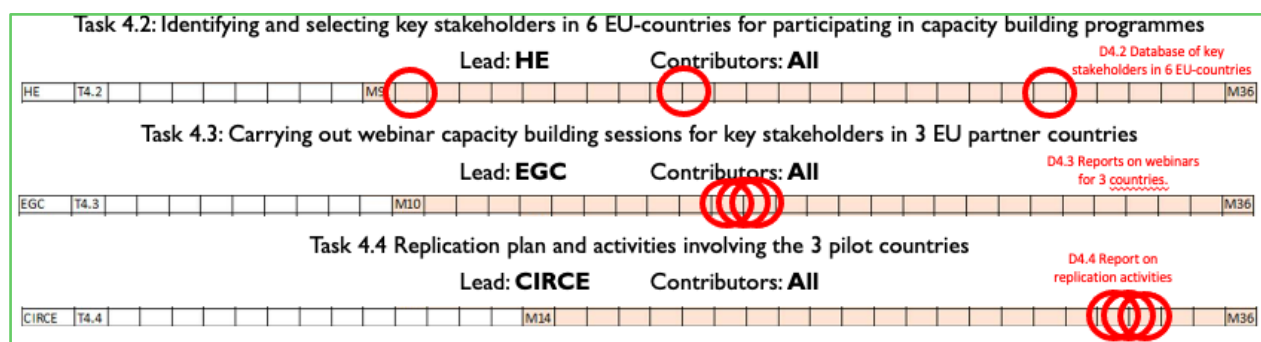
The detailed planning of the webinars will take place in each of the three pilot countries of Denmark, Italy, and Slovenia.

July 2022	Developing national programmes in cooperation with the national partners
August 2022	Finishing of the national programmes

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September 2022	Contacting speakers, settling the preliminary programme
Oct-Dec 2022	Participants lists
January 2023	Set up of participants' registration
February 2023	Lay out of invitations and web and social media announcing
March 2023	March 2023: Invitations and media campaign
April-May-June 2023 (April 2024) <sup>2</sup>	Webinars in Denmark, Italy, and Slovenia

We will then continue to work with locating participants in Belgium, Spain and the UK to be ready for the replication activities in M32-33 (February – March 2024).



See also the draft for invitations and a template for a participants list in the Annex.

<sup>2</sup> Due to different circumstances, the webinar in Slovenia was held 25/3-24 and in Italy the 11/4-24.

<sup>3</sup> The project has been prolonged for six months.

## 3. Barriers and Investments

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This chapter will outline the first part of best practice when investing in energy efficiency, which is identifying and mitigating risks. The first section will cover the identified risks and barriers, and how to mitigate them. The second section will go through the key points on the aggregation of investments for energy efficiency.

### 3.1. Risk Management and Barriers

Through the SUPER-i project, five categories of barriers have been identified. Each of them presents potential risks that should be mitigated as best as possible. The five barriers identified are presented below with some examples and recommendations to mitigate them:

**I. Financial barriers**, including risks and uncertainties surrounding return on investment, present significant challenges across all locations, hindering efforts to secure funding and make necessary investments.

- Difficulty in sourcing appropriate funding.
- Lack of long-term vision and value-oriented approach.
- Uncertain return on investment.
- Lack of dedicated funding sources.
- High innovation costs.
- Lack of guarantee on investments for energy requalification.
- Limited access to funding sources.

**Risk Mitigation:** Diversify funding sources, establish financial guarantees, and explore public-private partnerships.

**Risk Mitigation:**

Public-Private Partnerships (PPPs):

- **Strategy:** Form strategic partnerships between public authorities (government agencies, municipalities) and private companies (developers, energy service companies) to leverage both public and private resources.
- **Impact:** PPPs can provide the necessary funding and expertise to carry out large-scale energy efficiency projects. By sharing risks and benefits, these partnerships make projects more attractive to private investors while ensuring public interests are safeguarded.

Diversify Funding Sources:

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- **Strategy:** Utilise a mix of funding sources such as public funds (government grants, subsidies), private investments (venture capital, private equity), and international grants (EU funds, international development funds).
- **Impact:** This strategy reduces reliance on any single funding stream, enhancing financial stability and resilience against funding shortages. It also opens up new avenues for capital, increasing the likelihood of securing necessary funds.

##### Establish Financial Guarantees:

- **Strategy:** Develop financial instruments such as guarantees, insurance products, and risk-sharing mechanisms that can offer protection to investors. For example, a government-backed guarantee can cover a portion of potential losses.
- **Impact:** Financial guarantees mitigate the perceived risk by ensuring that investors will recover part or all of their investment even if the project fails. This can significantly increase investor confidence and willingness to invest.

##### Long-term Financial Planning:

- **Strategy:** Implement financial models that demonstrate long-term returns and value creation from energy efficiency investments, including life cycle cost analysis and return on investment projections.
- **Impact:** By showing the potential for stable and sustained returns over time, this approach attracts investors who are interested in long-term gains rather than short-term profits. It aligns investments with long-term sustainability goals.

**II. Administrative and procedural hurdles** add complexity and delays to progress in all areas, making it difficult to navigate regulatory frameworks and meet requirements effectively.

- Complexity and lack of clarity in normative and administrative frameworks, including EU regulations and national laws. Heavy and complex administrative and bureaucratic procedures.
- Processing large volumes of applications for subsidies, legal restrictions, administrative procedures, and adherence to industry standards.
- Legal restrictions, lengthy financing processes, and slow deliberations by social housing tenants.

##### **Risk Mitigation:**

##### Streamline Processes:

- **Strategy:** Simplify and harmonise regulatory frameworks and administrative procedures to reduce complexity, for example, through digitalization of application processes and creating one-stop-shop services.

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- **Impact:** Streamlining processes reduces the time and cost associated with project approval and implementation, making it easier and faster to get projects off the ground. It also minimises bureaucratic delays.

#### *Improve Clarity in Regulations:*

- **Strategy:** Develop clear, transparent, and consistent regulations and guidelines. Provide comprehensive documentation and support for navigating these regulations.
- **Impact:** Clear regulations reduce misunderstandings and errors, ensuring that all stakeholders know exactly what is required of them. This improves compliance and reduces delays caused by regulatory confusion.

#### *Training for Stakeholders:*

- **Strategy:** Provide comprehensive training for stakeholders, including developers, contractors, and public officials, on regulatory requirements and administrative processes.
- **Impact:** Training ensures that all parties involved understand the regulations and procedures, leading to fewer errors and delays. It also builds capacity within the workforce to manage administrative requirements efficiently.

**III. Stakeholder cooperation-related challenges**, such as political obstacles and issues with social housing residents, pose significant barriers to successful implementation and overall progress.

- Political obstacles, e.g. state determined rent.
- Issues with social housing residents.
- Reluctance of tenants to pay more for energy-saving measures.
- Lack of trust in public-private cooperation.
- Limited motivations of owners to invest and ownership fragmentation.
- Lack of cooperation between stakeholders.

#### **Risk Mitigation:**

#### *Enhance Communication:*

- **Strategy:** Foster open and transparent communication channels between all stakeholders, including regular updates, public forums, and stakeholder meetings.
- **Impact:** Improved communication builds trust and understanding among stakeholders, which is crucial for collaboration and joint problem-solving. It ensures that all parties are informed and engaged in the process.

#### *Foster Collaboration:*



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- **Strategy:** Develop platforms for stakeholder engagement and collaboration, such as joint committees, working groups, and collaborative workshops.
- **Impact:** Collaborative platforms encourage stakeholders to work together towards common goals, share insights, and develop joint solutions to challenges. This reduces conflicts and fosters a cooperative environment.

#### Address Concerns through Engagement:

- **Strategy:** Conduct regular consultations and feedback sessions with tenants and other stakeholders to address their concerns and incorporate their input into project planning.
- **Impact:** Engaging stakeholders in the decision-making process ensures that their concerns are addressed, increasing their buy-in and support for the project. It also helps identify potential issues early and develop mitigation strategies.

**IV. Barriers related to know-how and information**, such as a lack of knowledge about green technologies and shortages in skilled labour, impede the efficient execution of energy renovation projects.

- Lack of qualified labour force, skills in designing and planning interventions, and understanding technical aspects.
- Complexity due to multiple stakeholders, lack of information about green technologies, and skilled labour shortages.
- Limited competences in municipalities or other governmental organisations.

#### **Risk Mitigation:**

#### Provide Education and Training:

- **Strategy:** Implement training programs for professionals on green technologies and energy efficiency practices. This can include workshops, certification courses, and continuing education.
- **Impact:** Training enhances the skill levels and technical competency of the workforce, ensuring that projects are executed efficiently and to high standards. It also helps keep professionals up-to-date with the latest technologies and practices.

#### Establish Knowledge-Sharing Platforms:

- **Strategy:** Create platforms for sharing best practices, case studies, technical information, and innovations in energy efficiency, such as online databases, forums, and conferences.
- **Impact:** Knowledge-sharing platforms increase awareness and understanding among stakeholders, promoting the adoption of successful strategies and technologies. They facilitate continuous learning and innovation.

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### Promote Skill Development:

- **Strategy:** Encourage vocational training and certification programs in energy efficiency and sustainable building practices, supported by industry partnerships and government incentives.
- **Impact:** Building a skilled labour pool ensures that there are enough qualified professionals to meet the demand for energy efficiency projects. It also raises the overall quality and reliability of project implementations.

**V. Vision and approach barriers**, alongside fragmented ownership structures and tenant reluctance, create obstacles to achieving sustainable and impactful energy renovation outcomes.

- Lack of long-term vision, value-oriented approach in managing public estate buildings, and lack of concrete evidence on medium-term gains.
- Lack of interest due to low district heating prices, and residents' reluctance to accept renovations.
- Lack of interest from tenants in energy-saving measures and focus solely on energy bill payments.

### **Risk Mitigation:**

#### Develop Long-Term Strategies:

- **Strategy:** Formulate comprehensive long-term plans that integrate energy efficiency goals with broader sustainability objectives. This includes setting clear targets, timelines, and performance indicators.
- **Impact:** Long-term strategies provide a clear roadmap and vision, aligning all stakeholders towards common goals. They help ensure that efforts are sustained over time and that short-term actions contribute to long-term objectives.

#### Integrate Non-Economic Benefits:

- **Strategy:** Highlight the non-economic benefits of energy efficiency, such as environmental impact (reduced carbon emissions), health benefits (improved air quality), and enhanced living conditions (comfort, aesthetics).
- **Impact:** Emphasising the broader benefits of energy efficiency helps stakeholders see the value beyond just financial returns. This can increase support and motivation for implementing energy efficiency measures.

#### Prioritise Sustainability Goals:

- **Strategy:** Embed sustainability and energy efficiency objectives into the core mission and values of organisations and projects. Ensure that decision-making processes prioritise sustainability alongside economic considerations.

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- **Impact:** Prioritising sustainability ensures that projects are planned and executed with a focus on long-term environmental and societal benefits. It helps build a culture of sustainability within organisations and communities.

### 3.2. Aggregation of Investments

For social housing investments to thrive, access to financial support and favourable loan options is imperative. Stakeholders from the SUPER-i pilot countries underscore the importance of diversifying funding methods, alongside concerted efforts to raise awareness and actively engage property owners and tenants in the process. SUPER-i stakeholders also point out that financial incentives, guarantees, and more favourable loan terms will bolster the general support for social housing investments. Furthermore, a clearer regulatory framework, heightened expertise, and improved stakeholder collaboration are deemed critical for providing the non-financial support which is essential for the success of energy efficiency initiatives. In the section below, some different funding options will be touched upon briefly. You can read more in the SUPER-i Guidebook.

#### 3.2.1. Public-Private Partnerships

A means to diversify potential funds is through public-private partnerships (PPPs), which offer mutual benefits as the private sector gains risk management guarantees while the public sector receives capital investment and expertise. However, challenges such as increased costs and prolonged procurement processes are notable.

An example of PPP financing is **special purpose vehicles** (SPVs). They often raise funds through equity and debt. Equity investors, including project developers and private equity funds, seek higher returns but bear higher risks. Non-recourse project finance, a common method, involves lenders compensated solely from project revenues, minimising equity investors' risks. While advantageous for large projects, project finance typically sustains higher interest rates than government borrowing. Alternative models include corporate guarantees and government participation in finance structures, which can reduce financing costs.

In PPPs, various contract types facilitate EE renovations in affordable housing. **Guaranteed savings** contracts require social housing associations to finance EE projects while ESCOs undertake renovations and assume financial risks. Conversely, **shared savings** contracts see ESCOs financing and implementing projects with social housing companies providing the building equity. In both contracts, energy savings are crucial, with excess savings shared between parties.

Another way to finance is through **direct credit lines** (DCLs). It involves public entities expending funds to financial institutions for EE projects. This approach addresses limited lending for EE projects by providing favourable interest rates to encourage further lending by private institutions. By amplifying the financing pool for EE projects, DCLs stimulate sustainable initiatives while engaging private financial institutions actively.

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Yet another possibility is **energy supply contracts** (ESCs). It resembles traditional energy supplier models, by distributing financial risk between ESCOs and social housing companies. In this setup, both parties share EE project costs and energy savings, with debt typically tied to the building's metre.

#### 3.2.2. Grants and Funds

In the SUPER-i pilot countries of Italy, Slovenia and Denmark, the funding sources for energy efficiency initiatives which stand out as the primary choices are the national funds, closely followed by European funds. Particularly noteworthy are targeted incentives such as the Italian "Conto termico," which significantly alleviate the financial burden associated with energy efficiency projects. Recognising the importance of financial incentives, SUPER-i stakeholders have emphasised the need for more risk mitigation mechanisms, especially concerning investments in social housing. Moreover, the effectiveness of financial support is contingent upon several enabling factors, including a higher presence of knowledgeable actors, well-structured investment plans, streamlined procedures, ongoing training initiatives, and the fostering of public-private partnerships, as shown above.

EU funds emerge as another important funding opportunity, occasionally preceded by national funds. Grant-based support is yet another possibility such as the Slovenian ECO FUND or Petrol. However, concerns linger regarding the efficacy of grants, as they can lack stringent impact requirements. But the most favoured model seems to be a blend of financing methods, extending beyond traditional grants. This includes leveraging national funds, mortgages, loans, and individual financing initiatives.

Innovative funding models like ESCOs and EPCs, or interventions facilitated by them, as well as green loans or bonds are also recognised as valuable tools in the pursuit of energy efficiency goals.

## 4. SUPER-i Guidebook and Tools

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The SUPER-i toolkit provides resources for social housing organisations aiming to combat energy poverty and enhance energy efficiency. Central to this toolkit are the technical analysis, environmental assessment, and financial analysis, all tailored to the specific needs of social housing contexts. This chapter will briefly cover them in addition to the practical implementation of the tools through our pilots and present the SUPER-i e-Room. More information can be found on the following link, where the whole Guidebook and Toolkit also will be available:

<https://super-i-supershine.eu/super-i/toolkit/>

### Technical Analysis

The SUPER-i toolkit offers detailed recommendations for technical interventions to boost energy efficiency. By leveraging the SUPER-i Portal, housing organisations gain access to tailored renovation strategies designed for diverse settings. These recommendations encompass retrofitting buildings with energy-efficient appliances and implementing renewable energy systems, all aimed at improving energy access and affordability. Additionally, the toolkit provides insights into potential energy savings, enabling organisations to quantify the economic and environmental benefits of their interventions.

### Environmental Analysis

Environmental considerations are integral to the SUPER-i toolkit, ensuring that energy interventions align with sustainable development goals. Through meticulous environmental assessments, organisations can gauge the ecological footprint of proposed interventions. By prioritising energy-saving measures that reduce carbon emissions and mitigate environmental impact, the toolkit promotes the adoption of sustainable technologies that minimise ecological harm.

### Financial Analysis

Addressing financial barriers is paramount in energy poverty alleviation. The SUPER-i toolkit offers innovative financing options tailored to the unique circumstances of social housing organisations. By exploring partnerships with financial institutions and alternative funding mechanisms, the toolkit facilitates the implementation of energy efficiency projects. From microfinance initiatives to public-private partnerships, organisations gain access to a roadmap for mobilising resources and overcoming financial constraints.

### Practical Applications

Beyond theoretical frameworks, the SUPER-i toolkit showcases real-world applications through specific case studies and examples. By highlighting successful initiatives from the project's three

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pilot countries of Italy, Slovenia, and Denmark, organisations gain practical insights into the potential of the toolkit.

### **Application of SUPER-i Guidebook Instruments/Templates for Social Housing Companies**

The SUPER-i Guidebook (d1.1) offers a comprehensive suite of instruments and templates such as the SUPER-i toolkit and the SUPER-i E-room which are designed to assist social housing companies in efficiently planning, implementing, and managing energy efficiency (EE) refurbishment projects. These tools are tailored to address technical, environmental, financial, and stakeholder-related aspects of EE projects, ensuring a holistic approach to energy renovation.

*Technical Analysis Tools:* One of the primary tools provided by the SUPER-i Guidebook is the technical analysis tool which is based on energy audit instruments. This tool facilitates detailed energy audits of social housing units, helping social housing associations collect data on current energy consumption patterns. By identifying areas with the highest energy wastage, housing companies can pinpoint specific EE measures to implement. This standardised approach of the template ensures that all relevant aspects, such as heating, insulation, and electrical systems, are thoroughly examined. Following this audit, the EE intervention selection strategy helps in developing a customised renovation plan for each housing unit. This involves outlining specific EE measures, such as installing new insulation, replacing old windows, and upgrading heating systems. The strategy template aids in prioritising interventions based on cost-effectiveness and potential energy savings, and it also helps in establishing a clear timeline and budget for the renovation activities.

*Environmental Analysis Tools:* To ensure that EE measures align with sustainability goals, the Guidebook includes an Environmental Impact Assessment (EIA) Template. This tool helps social housing companies evaluate the environmental implications of proposed EE measures. By conducting assessments to identify potential impacts, such as reductions in carbon emissions and waste generation, social housing associations can document findings and propose mitigation strategies using the EIA template. This not only ensures compliance with environmental regulations but also supports the adoption of sustainable technologies. Additionally, the Sustainability Metrics Template allows social housing associations to track and report on the sustainability performance of EE projects. By defining key indicators, such as energy savings and reduction in greenhouse gas emissions, and using the template to collect and analyse data, organisations can effectively communicate the environmental benefits of their projects to stakeholders.

*Financial Analysis Tools:* Addressing financial barriers is critical for the successful implementation of EE projects. The Guidebook's Cost-Benefit Analysis Template helps social housing companies evaluate the economic viability of their projects. By estimating initial investment costs and calculating expected energy savings and other financial benefits over the project's lifecycle, this template aids in comparing costs and benefits to determine the return on investment (ROI) and payback period. Additionally, the funding source template assists social housing associations in securing financing for their projects. By preparing detailed project proposals that include technical, environmental, and financial analyses, housing companies can attract investors and funding sources. The template emphasises the potential energy savings, environmental benefits, and

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financial returns, making it easier to apply for grants, subsidies, or loans from public and private entities.

**Stakeholder Engagement Tools:** Effective stakeholder engagement is crucial for the success of EE projects. The Stakeholder Mapping Template helps social housing companies identify and engage key stakeholders, such as tenants, local authorities, financial institutions, and energy service companies (ESCOs). By assessing their interests, influence, and potential impact on the project, social housing associations can develop a comprehensive stakeholder engagement plan. This template ensures that all relevant parties are involved and informed throughout the project lifecycle, fostering collaboration and support. The Communication Plan Template further facilitates transparent and effective communication with stakeholders. By outlining communication objectives, key messages, and channels, and scheduling regular updates and consultations, this template helps address stakeholder concerns and feedback promptly, maintaining trust and support for the project.

**Project Management Tools:** To ensure efficient project execution, the Guidebook provides a Project Timeline Template. This tool helps social housing companies plan and monitor the progress of their EE projects by defining key milestones, tasks, and deadlines. Responsibilities can be assigned to project team members, and their progress tracked systematically. The template also allows for adjustments to the timeline to accommodate delays or changes in project scope. Additionally, the Risk Management Template is essential for identifying and mitigating risks associated with EE projects. By conducting risk assessments to identify potential financial, technical, and regulatory risks, organisations can document risk mitigation strategies and contingency plans. This proactive approach ensures that risks are managed effectively, enabling timely responses to emerging issues.

### **Practical Applications: Case Studies from SUPER-i Pilot Countries**

(<https://super-i-supershine.eu/super-i>)

The practical application of these tools is illustrated through case studies from the SUPER-i pilot countries of Italy, Slovenia, and Denmark. These case studies demonstrate how the Guidebook's instruments and templates can be used to overcome barriers and achieve energy efficiency goals in real-world settings.

#### **Case Study: Italy**

In Italy, social housing companies are utilising the Energy analysis template to assess energy consumption in older buildings. The audits identified significant heat loss through windows and walls, leading to the development of a comprehensive renovation plan using the Renovation Strategy Template. This plan included installing new insulation and replacing old windows, resulting in a 30% reduction in energy consumption and improved tenant comfort. To secure financing, the Funding Application tool was employed, to provide the social housing association with various funding sources to obtain necessary funds for implementing the EE renovations. The Cost-Benefit analysis template demonstrated the project's financial viability, showing a payback period of seven years, substantial energy savings and enhanced property value.

#### **Case Study: Slovenia**

In Slovenia, social housing companies face significant financial barriers to implementing EE projects. By utilising the Cost-Benefit analysis template, we were able to present a strong case for the

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economic viability of their project. The analysis showed that the initial investment in energy-efficient technologies would be offset by substantial energy savings within a few years. The stakeholder mapping template and communication plan template plays a crucial role in engaging tenants and local authorities. Regular consultations and updates ensure that all stakeholders are informed and supportive of the project. The results suggest a successful implementation of EE measures, will lead to significant energy savings and improved living conditions for tenants.

##### Case Study: Denmark

In Denmark, social housing companies leverage the environmental impact assessment (EIA) template to evaluate the environmental benefits of proposed EE measures. The assessment highlights potential reductions in carbon emissions and improvements in indoor air quality. Using the Sustainability Metrics Template, the housing associations can track these indicators throughout the project. The Project Timeline Template helps in planning and monitoring the progress of renovations, ensuring that the implementation of EE interventions stay on schedule. The Risk Management Template is used to identify potential risks, such as regulatory changes and technical challenges, and to develop strategies to mitigate them. This comprehensive approach facilitates the successful implementation of EE measures, resulting in enhanced sustainability and energy efficiency of the housing units.

To conclude, the SUPER-i Guidebook's instruments and templates provide social housing companies with the essential tools to effectively plan, implement, and manage energy efficiency projects. These tools address technical, environmental, financial, and stakeholder-related aspects, ensuring a holistic approach to energy renovation. By applying these tools, social housing associations can overcome barriers, secure funding, engage stakeholders, and achieve their energy efficiency and sustainability goals.

##### **SUPER-i e-Room**

Energy poverty in Europe lacks a common definition and is addressed by only a few countries' legislation. Recent research emphasises its multidimensional nature, leading to various measurement approaches, including questionnaire and expenditure-based methods. Despite ongoing efforts to identify affected populations, poor energy efficiency in buildings remains a key contributor to fuel poverty. To accommodate this, the SUPER-i project has created an e-Room with detailed insights into the project results and invaluable information for replicating the SUPER-i solutions with detailed datasets, tables, and charts. The e-room combines the project result with Eurostat Energy data and the Eurostat Income and Living Conditions to ensure replicability. Visit the e-Room here:

<https://super-i-supershine.eu/e-room/>.



## 5. Best Practices at EU level to enable key stakeholders investments in energy renovations

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The SUPER-i project has identified five general risks that should be considered when aggregating energy-efficient investments. These risks include administrative, financial, knowledge-based, vision-related, and stakeholder cooperation barriers. This subsection provides practical advice on how to approach aggregating investments, mitigating risks, and gaining non-financial support to improve the successful implementation of energy-efficient refurbishment projects.

**Identify and Understand Barriers:** Identifying and understanding the barriers that impede energy efficiency projects. These barriers can be administrative, financial, related to know-how, tied to vision and approach, or due to a lack of stakeholder cooperation. Conducting thorough assessments and stakeholder consultations is crucial to gain insights into the challenges faced. Understanding these barriers at a granular level allows for the development of targeted strategies to address them. For example, administrative barriers might involve complex regulatory requirements, while financial barriers could include the high upfront costs of energy efficiency measures. Detailed insights into these challenges are outlined in Section 3.1 of the SUPER-i Guidebook.

**Risk Mitigation:** Once the barriers have been identified, the next step is to evaluate the likelihood and impact of each barrier on your investment. Developing tailored risk mitigation strategies for each category of barriers is essential. This might include measures such as streamlining administrative processes to reduce bureaucratic delays, securing guarantees or insurance to mitigate financial risks, providing training and capacity building to overcome knowledge gaps, aligning the project vision with stakeholder priorities, and fostering robust stakeholder engagement mechanisms to enhance cooperation. Suggested mitigation strategies for each identified barrier are provided in Section 3.1.

**Innovative Financing Solutions:** Exploring and implementing innovative financing solutions is key to overcoming financial constraints associated with energy efficiency projects. Leveraging partnerships with financial institutions and alternative funding mechanisms can mobilise the necessary resources. Public-Private Partnerships (PPPs) are a prime example, offering a framework for sharing risks and rewards between public and private entities. Other financing options include Direct Credit Lines (DCL) and Energy Supply Contracts (ESCs), which can provide the necessary capital for large-scale refurbishments. These solutions, tailored to the unique circumstances of the national context, are discussed in detail in Section 3.2.

**Aggregation of Investments:** Aggregating investments involves pooling resources to increase the scale and impact of energy efficiency projects. Seeking out national and European funds can provide substantial financial support. For instance, unique national incentives like Italy's "Conto Termico" can significantly ease financial burdens. Additionally, grant-based aid, loans, and interventions from

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Energy Service Companies (ESCOs) can diversify funding sources and provide the flexibility needed to undertake comprehensive refurbishment projects. Aggregating investments not only makes projects more financially viable but also attracts larger institutional investors looking for scale.

*Practical Tools and Real-world Applications:* Providing stakeholders with the knowledge and resources needed to enhance energy access and affordability is crucial. The SUPER-i Toolkit offers practical tools and resources to support the implementation of energy efficiency projects. These include templates for project planning, financial modelling, and stakeholder engagement. Real-world applications and case studies from the SUPER-i pilot countries, such as Italy, Denmark, and Slovenia, demonstrate the practical utility of the toolkit in addressing energy poverty and improving energy efficiency. These examples showcase how the toolkit can be applied to overcome common challenges and achieve successful project outcomes.

*Holistic Approach and Sustainable Development:* Emphasising a holistic approach that combines technical expertise, innovative financing, and practical tools is essential for the successful implementation of energy efficiency projects. This approach not only addresses the technical and financial aspects of projects but also considers the broader social and environmental impacts. By focusing on sustainable development, energy efficiency projects can empower communities, reduce energy poverty, and contribute to long-term economic and environmental sustainability. Highlighting the transformative potential of such projects can inspire stakeholders to adopt a more integrated and sustainable approach.

### Best practices in pilot countries

#### Italy:

In Italy, the "Conto Termico" incentive scheme has been instrumental in supporting energy efficiency investments. Social housing companies have leveraged this scheme to reduce the upfront costs of refurbishments. A notable case is the renovation of a large social housing complex in Milan, where the use of the "Conto Termico" funds, combined with a PPP, allowed for significant energy savings and improved living conditions for residents. The project also incorporated community engagement strategies to ensure that residents were supportive and informed throughout the renovation process.

#### Denmark

Denmark has successfully implemented energy efficiency projects through robust stakeholder cooperation and innovative financing mechanisms. The municipality of Copenhagen, in collaboration with private investors and financial institutions, undertook a comprehensive refurbishment of social housing units. The project utilised an Energy Supply Contract (ESC) to finance the upgrades, ensuring that energy savings would offset the investment costs over time. This approach not only improved energy efficiency but also reduced the overall cost of living for residents.

### Slovenia

In Slovenia, a holistic approach to energy efficiency has been adopted in the city of Ljubljana. The city's social housing company implemented a large-scale refurbishment project that integrated technical upgrades with community engagement and capacity building. By involving residents in the planning and implementation phases, the project ensured greater acceptance and support. Financially, the project benefited from a combination of national grants, European funds, and loans, demonstrating the effective aggregation of investments to achieve significant energy savings and enhanced living standards.

These case studies illustrate how the SUPER-i tools can be effectively applied across different national contexts to overcome barriers, mitigate risks, and achieve successful energy-efficient refurbishments.

## 6. Synergies

For the capacity building webinars, experiences from other EU-projects will be integrated – with focus on best practice examples of inspiration for the generating of investments, collecting data on energy-efficient refurbishment in the social housing sector, and increasing the share of renewable energy in the final energy consumption. Below are identified EU-projects that creates synergies with SUPER-i:

### EXPRESS

SUPER-i will build upon the XPRESS network and its successful experience in organising co-creation workshops at regional and national level.

### ENERINVEST

SUPER-i will use some of the concepts offered by this platform focusing on offering a direct point of interaction between local authorities and innovative SMEs who are interested in implementing RES and EE innovations.

### E2BA

SUPER-i will build upon this project by providing a more in-depth knowledge about the role and impact of local authorities and their interaction with ESCOs and financial institutions.

### CitiZEE

SUPER-i will build upon this project by integrating tailored and widely adopted crowdfunding and cooperative financing schemes with new financial solutions that are PPP based with the ESCO support.

### BUILD UP

SUPER-i will build upon this project by providing a more in-depth knowledge about the social housing sector.

### CITYinvest

SUPER-i will build upon successful innovative financing models for energy efficiency renovations in public buildings.

## 7. Conclusion

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SUPER-i has leveraged EU funding and collaboration to develop new financing models tailored to the unique needs of social housing organisations. By bringing together stakeholders from diverse backgrounds, including financial institutions, ESCOs, and social housing associations, the project has fostered a collaborative environment conducive to meaningful change.

This report presents the SUPER-i capacity building programme designed to address the multifaceted challenges of energy-efficient refurbishments in social housing. By targeting key stakeholders and providing tailored training events, the project aims to foster collaboration, share best practices, and overcome barriers hindering EE initiatives, such as financial constraints, administrative hurdles, stakeholder cooperation, and widespread implementation. However, through continued collaboration, knowledge sharing, and targeted interventions, these challenges can be overcome.

The SUPER-i project provides invaluable insights and practical tools to address barriers and facilitate investments in energy efficiency across the social housing sector. Through meticulous risk management strategies and innovative financing solutions, the SUPER-i project identifies key barriers, paving the way for successful energy-efficient refurbishments. The identification of five categories of barriers – financial, administrative, stakeholder cooperation, know-how and information, and vision and approach – has shed light on the multifaceted challenges faced by stakeholders. By offering tailored mitigation strategies for each category, such as diversifying funding sources, streamlining administrative processes, enhancing stakeholder communication, providing education, and training, and developing long-term strategies, the project aims to empower stakeholders to navigate obstacles effectively. Moreover, the aggregation of investments has been emphasized as a crucial strategy to increase the scale and impact of energy efficiency projects. By pooling resources and leveraging national and European funds, alongside exploring innovative financing models like public-private partnerships, stakeholders can overcome financial constraints and implement comprehensive refurbishment projects.

Furthermore, the SUPER-i Guidebook and Toolkit are considered as indispensable instruments for social housing organizations, offering technical, environmental, and financial analyses tailored to their specific needs. Practical applications of these tools, as evidenced by case studies from pilot countries like Italy, Denmark, and Slovenia, underscore their effectiveness in overcoming barriers and achieving successful outcomes. Looking ahead, the dissemination of best practices at the EU level is essential to enable key stakeholders to invest in energy renovations effectively. By identifying and understanding barriers, mitigating risks, exploring innovative financing solutions, and adopting a holistic approach to sustainable development, stakeholders can unlock the transformative potential of energy efficiency projects, empowering communities, reducing energy poverty, and contributing to long-term sustainability goals.

## 8. Annex

### 8.1. Draft for Capacity Building Programme



## **WEBINAR ON SMART FINANCING OF ENERGY EFFICIENCY IN THE SOCIAL HOUSING SECTOR**

Hereby, we invite ESCOs, local governments, financial institutions, and social housing organisations to a webinar on

*XXXDAY, XX MONTH, AT XX*

The EU-funded SUPER-i project will contribute to increasing investment and data collection on energy efficiency in the public housing sector. During the CBP workshops, we will discuss financing, risk mitigation and energy efficient renovation – e.g. how to provide solutions to overcome barriers to a broad implementation of energy efficiency refurbishment within a social housing context by enabling financial institutions to access Energy Efficient Public Private Partnerships (ePPPs).

### **PROGRAMME** (DRAFT FOR THE DANISH WEBINAR)

<b>10:00</b>	<b>Welcome and introduction to SUPER-i</b> <i>By BL - Danmarks Almene Boliger and EGC - European Green Cities</i>
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<p><b>10:30</b></p>	<p><b>State of the art in SUPER-i including EU experiences on main ways of financing e.g.</b></p> <ul style="list-style-type: none"> <li>● Financing by national funds, green schemes etc.</li> <li>● Financing as “pure business case” – with long repayment periods, risks and guarantees</li> <li>● Financing with ESCO involvement</li> </ul> <p><i>By Elsebeth Terkelsen, EGC</i></p>
<p><b>11:30</b></p>	<p><b>Presentation of SUPER-i findings on the barriers for e.g. enabling financial institutions and ESCOs to access ePPPs and the rules and boundaries for how ePPPs are implemented – e.g.</b></p> <ul style="list-style-type: none"> <li>● EE financing challenges in the social housing market;</li> <li>● Existing financial schemes for energy efficiency renovation of social housing buildings in each region/country targeted by SUPER-i;</li> <li>● Financial schemes towards social housing EE refurbishment projects and variables and achievable economic potential of EE investment opportunities in the social housing sector;</li> <li>● Financial instruments with the aim to facilitate energy efficiency renovations;</li> <li>● Evaluation methodologies to test how financial instruments are performing in delivering</li> <li>● Additional financing towards energy efficiency improvements in social housing and measuring their potential to achieve the final outcomes (i.e. higher energy efficiency and lower energy bills, consumption, and CO2 emissions, higher attractiveness for the LFI).</li> </ul> <p><i>By Mikkel Jungshoved, BL and Hans Bjerregaard, EGC</i></p>
<p><b>12:00</b></p>	<p><b>Discussion in parallel groups</b></p> <ul style="list-style-type: none"> <li>● Discussion of challenges and problems</li> </ul> <p><i>All</i></p>
<p><b>12:30</b></p>	<p><b>Plenary session</b></p> <p>Discussion on Super-i findings</p> <p><i>By Fruehøjgaard and Himmerland Social Housing Organisations</i></p>
<p><b>13:00</b></p>	<p><b>End</b></p>



## 8.2. Template for participants lists

It is important that the participants' invitation and participation lists can be exported into an Excel database for further use e.g. sending out final programmes, PowerPoints etc.

Below a suggestion for registration categories to be integrated in the SUPER-I website (example from Danish Round Table). Work will continue in D4.2.

RoundBaltic Stakeholders Danmark + municipalities and ESCOs								
Navn	Mail	tlf	titel	Organisation	Type	Region	Kolonne5	