Sustainable Energy Authority of Ireland

National Energy Research, Development & Demonstration Funding Programme

FINAL REPORT TEMPLATE

SECTION 1: PROJECT DETAILS – FOR PUBLICATION

Project Title	*Practical commercially focused research into innovative finance solutions for residential retrofits*
Lead Grantee (Organisation)	SustainabilityWorks
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Report Submission Date	22 February 2021

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Project Partner(s)		
Collaborators		
External Consultants	Jillian Mahon	Independent Financial Consultant

Project Summary (max 500 words)

Solving the residential retrofit finance puzzle is key to unlocking home retrofit activity in Ireland, which in turn is key to meeting national 2030 climate targets. Given the central role of mortgages and personal loans in any finance solution, commercial finance providers have a key role to play in solving this puzzle. They already have all the skills and capability required to design and deliver innovative finance solutions. They also have the capacity to handle the high-volume/low-value credit involved, both from a risk assessment and a process perspective. Indeed, over the past 18 months there has been encouraging engagement by many Irish finance providers, with the launch of new green mortgages and green personal loan products.

There is increasing evidence in the Irish market of innovative finance solutions that have worked well in other countries, which involves extensive collaboration between lenders, public finance providers and industry stakeholders. However, for these solutions to have deeper market penetration, there are a number of key topics on which a shared understanding by these stakeholders is required, including:

- the residential retrofit policy context and direction of travel
- the business case for finance providers

- the homeowner perspective on finance
- the Irish residential retrofit marketplace – which is complex and dynamic
- innovative finance mechanisms that have been trialled elsewhere

One of the key challenges when investigating these topics is not that there is limited information but rather that there no shortage of research and reports. However, that research is often fragmented, issue-specific, disconnected from the business case for finance providers and not tailored for an Irish audience.

This is what our project seeks to address. Intending to arm Irish finance providers with core facts, analysis and insights to fast-track their knowledge gathering and capacity building, the output of our project is "*Financing Energy Efficiency in Ireland | A Handbook on the Residential Sector*". The Handbook summarises and condenses relevant research on financial barriers and solutions, nationally and internationally, and provides insights on how the Irish residential retrofit marketplace functions in practice.

The positive conclusion of our research is that there is no new jigsaw piece to be found, no new financing mechanism to be invented, nor any novel source of finance to discover. The pieces of the puzzle all exist and there are any number of different ways of slotting the pieces together in a way that will support and accelerate home retrofits nationally. The innovation will be in the integration, i.e. developing new partnerships across the retrofit value chain, across industry and finance and across public and private sectors.

There is no definitive one-size-fits-all solution and different finance providers will have different perspectives and strategic approaches. The project aims to support and also challenge thinking on the financial solutions currently thought to be possible, stimulating further design innovation and the creation of competitive new products addressing this burgeoning market opportunity.

Keywords (min 3 and max 10)	Residential retrofit finance, Energy efficiency finance, smart finance, green mortgage, green loan, One Stop Shop, On-tax, On-bill, PACE, PAYS

NB – Both Section 1 and Section 2 of this Final Report will be made publicly available in a Final Technical Report uploaded online to the National Energy Research Database.

In the following Section, please provide a clear overview of your project, including details of the key findings, outcomes and recommendations. The section headings below are provided as a guide, please update or add to these as best suits your project.

By submitting this project report to SEAI, you confirm you are happy for Section 1 and Section 2 of this report to be made publicly available. If you wish to request edits to this section in advance of publication, please contact SEAI at EnergyResearch@seai.ie.

SECTION 2: FINAL TECHNICAL REPORT – FOR PUBLICATION (max 10 pages)

2.1 Executive Summary

Solving the residential retrofit finance puzzle is key to unlocking home retrofit activity in Ireland, which in turn will make a significant contribution to meeting national 2030 climate targets. Given the central role of mortgages and personal loans in any solution, commercial finance providers have a key role to play in solving this puzzle. They already have all the skills and capability required to design and deliver innovative finance solutions. They also have the capacity to handle the high-volume/low-value credit involved, both from a risk assessment and a process perspective. Indeed, over the past 18 months there has been encouraging engagement by many Irish finance providers, with the launch of new green mortgages and green personal loan products.

While there is increasing evidence in the Irish market of the type of innovative finance solutions that have worked well in other countries, which involve extensive collaboration between lenders, public finance providers and industry stakeholders, there is a critical inflection point now where that can really accelerate. To do so, there are a number of key topics on which a shared understanding by these stakeholders is required, including:

- the residential retrofit policy context and direction of travel
- the drivers of and the business case for finance providers
- the homeowner perspective on finance
- the Irish residential retrofit marketplace – which is complex and dynamic
- innovative finance mechanisms that have been trialled elsewhere

One of the key challenges when investigating these topics is not that there is limited information but rather that there no shortage of research and reports. However, that research is often fragmented, issue-specific, disconnected from the business case for finance providers and not tailored for an Irish audience.

This is what the Project seeks to address. With a view to arming Irish finance providers with core facts, analysis and insights to fast-track their knowledge gathering and capacity building, the output is "*Financing Energy Efficiency in Ireland | A Handbook on the Residential Sector*". The Handbook summarises and condenses relevant research on financial barriers and solutions and provides insights on how the Irish residential retrofit marketplace functions in practice. In doing so, the authors aim to challenge thinking on the financial solutions currently thought to be possible, stimulating further design innovation and the creation of competitive new products.

The positive conclusion of our research is that there is no new jigsaw piece to be found, no new financing mechanism to be invented, nor any novel source of finance to discover. The pieces of the puzzle all exist and there are any number of different ways of slotting the pieces together in a way that will support and accelerate home retrofits nationally. The innovation will be in the integration, i.e. in the development of new partnerships across the retrofit value chain, across industry and finance and across public and private sectors.

There is no definitive one-size-fits-all solution, and different finance providers will have different perspectives and strategic approaches. The Project aims to support and challenge thinking on the financial solutions currently thought to be possible, stimulating further design innovation and the creation of competitive new products addressing this burgeoning market opportunity..

2.2 Introduction to Project

The benefit of having a warm, comfortable home with good air quality and low energy bills has been brought into sharper focus by COVID-19. As a result of the pandemic, many people are spending more time in their homes than ever, with our houses being utilised to their full capacity as workplaces for adults and for remote learning by students. This retreat into our homes brought about by the pandemic has coincided with a time when public awareness, public policy and the financial sector are increasingly focused on the challenge of making our homes more energy efficient in the context of climate action.

Residential energy efficiency upgrades (also referred to as “retrofits”) have been shown to deliver more comfortable homes and health benefits for the occupants, while paying for themselves over time, thanks to reduced energy bills. They also make a material contribution to decarbonisation at a national and individual level. Yet despite all these benefits, uptake by homeowners is slow, and certainly not at the scale required to meet national climate targets for 2030. At the pace we are going, reducing emissions to net-zero will take centuries, which is time we cannot afford as we seek to tackle the climate crisis.

To accelerate action, it is important to address the many barriers to undertaking a retrofit, including the disruption factor, the hassle of dealing with multiple contractors, and lack of funds for the upfront costs. While clearly not the only barrier, the lack of funds is cited as a significant barrier by Irish homeowners, which means that solving the residential retrofit finance puzzle is key to unlocking home retrofit activity.

This is not an Irish-specific challenge as many other countries globally have been and continue to try different approaches to solving this challenge. This is also not a new topic from an Irish research perspective. Over the past ten years, the SEAI and others have carried out extensive research and analysis to identify what the Irish market would regard as an attractive credit offering

However, one of the key challenges when investigating residential retrofit finance is that there no shortage of research and reports. That said, the research is often fragmented, issue-specific, disconnected from the business case for finance providers and not tailored for an Irish audience. Another challenge is that the level of jargon, both technical and financial, in the existing research can be overwhelmning. There is a need to cut through this complexity to explain clearly, and in the one place, what the various terms mean, how specific retrofit finance schemes work in practice and whether they would be suitable in an Irish context. Finally, while each finance provider will build out their strategy separately and competitively, the core knowledge and information upon which to base that strategy is common. It would be beneficial for this information to be collated and made publicly available in order to accelerate all efforts.

2.3 Project Objectives

The overriding objective of the Project was to research and publish a report containing core facts, analysis and insights on residential retrofit finance, through an Irish lens, to support and accelerate finance provider engagement and lead to the launch of innovative home retrofit finance products and solutions for the Irish market. A parallel objective was to provide insights on the finance provider perspective for retrofit industry stakeholders and policymakers.

Specific project objectives included:

- To position the national home retrofit challenge within the broader context of the climate crisis and summarise and condense the key EU and national policy measures and initiatives.
- In the context of references to lack of customer demand and challenges in relation to the limited scale of the market, to provide an overview of the broader business case for finance providers, which includes other commercial, regulatory and reputational drivers.
- To ensure there is a common understanding of the broad range of barriers for home retrofits and raise awareness that access to funds is only one of the issues, albeit a key one.
- To highlight the extensive research carried out by the SEAI in an Irish context on the attributes of a finance offer that would be attractive to homeowners.
- To provide finance providers with a broad understanding of the residential retrofit marketplace as they consider how best to structure and launch new financial products and solutions.

- To assess and provide detailed analysis of specific examples of innovative financial mechanisms that have been used in other countries, successfully and less successfully.
- To outline in practice how the different methods of utilising public funds for credit enhancements work, including risk sharing, guarantees, first loss capital and interest rate buydowns.
- To outline in detail the various public finance sources (EU and national) that could be used to develop blended finance solutions that would deliver reduced interest rates to Irish consumers for residential retrofits and examine the merits and requirements for each.
- To discuss green mortgages, the EU Taxonomy and the development of innovative green building standards and labels.
- To review and discuss on-bill and on-tax schemes, including providing case studies and examples.
- To highlight and discuss relevant EU funded research projects funded by Horizon 2020.
- To disseminate and promote the results to the financial sector and other key stakeholders to stimulate action and collaboration in pilot projects and new competitive financial products.

2.4 Summary of Key Findings/Outcomes

2.4.1 Key Findings

- The key finding is that the **characteristics of a finance offer** that is most likely to overcome the finance barrier for homeowners considering residential retrofits are as follows:
    - A loan product that is lower-cost and longer-term than generally available on the market,
    - With both personal unsecured loan and mortgage options available,
    - That continues to be underpinned by the SEAI grant programmes, and
    - Where finance providers partner with One Stop Shop (OSS) retrofit service providers to provide an integrated solution for homeowners.
- Given the central role of mortgages and personal loans in any solution, **commercial finance providers have a key role to play**. They already have all the skills and capability required to design and deliver innovative finance solutions. They also have the capacity to handle the high-volume/low-value credit involved, both from a risk assessment and a process perspective.
- There is a **strong business case for finance providers** to develop retrofit finance products that goes far beyond customer demand. It extends to other commercial opportunities such as the opportunity to issue green bonds and also encompasses reputational benefits. Of particular relevance is increasing pressure from the financial regulator to identify, manage and mitigate climate-related financial risks in their loan portfolio. There are also interesting discussions ongoing regarding the potential introduction of a green supporting factor for regulatory capital purposes that could make green lending more profitable.
- However, from a commercial viewpoint, sustainability is about more than the climate crisis and involves balancing environmental, social and economic objectives. **Doing the right thing must bring a positive return**. A new product or service must be commercially viable as well as making a positive contribution to the environment. Clearly, providing finance at below market rates on an unsecured or reduced security basis incurs more risk and additional capital costs for a commercial finance provider. This is not economically sustainable and means that **new approaches to credit product solutions for the sector need to be considered**. This is where **innovative and blended finance solutions** come into play.
- There are **four types of innovative financial mechanisms** generally used for residential retrofits:
    - Publicly supported lower-cost loans
    - Green mortgages

- On-bill schemes
- On-tax or PACE (Property Assessed Clean Energy) schemes

- As noted already, the conclusion of the report is that personal loans and mortgages are the most suitable finance products in an Irish context. However all four mechanisms are defined and extensively explored in the report. Key conclusions are as follows:
    - **Publicly supported lower-cost personal loans** appear to be the most common and successful approach in an EU Member State context. In developing credit solutions, finance providers should consider the suite of national and EU credit enhancement supports available (directly and indirectly) to deliver enhanced interest rates and terms for homeowners, including the Smart Finance for Smart Buildings Initiative and the Private Finance for Energy Efficiency Instrument. Providers should bear in mind that the use of any national or European financing supports is likely to carry conditions around demonstrating additionality, i.e. evidence that the financing that would not have taken place anyway without such support. Finance providers may also want to explore opportunities to access grant funding for technical assistance under the ELENA facility.
    - **Green mortgages** can also deliver the lower cost, longer-term debt that is required and discounted green mortgages are already available on the Irish market. Crucially, green mortgages can generally achieve these preferential terms without financial support from public sources. Mortgage finance providers should consider how they can stimulate additional demand for retrofits through the way they design these products, e.g. incremental discounts for deeper retrofits. They could also consider introducing the concept of green mortgages for retrofit on older properties at the point when they are purchased. Again, providers need to consider additionality concerns, i.e. whether a finance product is really boosting retrofits of existing homes or will effectively only be available for new homes if there is a requirement for a high BER rating that is beyond cost optimal standards. The implications of the EU Taxonomy definition of a green retrofit should be considered, alongside the developing range of standards and labels for green mortgages and loans.
    - **On-bill schemes** are a way of financing energy efficiency projects by using energy bills (electricity or natural gas) as the repayment vehicle, with the underlying finance provided either by the State, the energy utility or private finance providers. Energy savings made by the upgrade are used to repay or partially repay the loan for the upfront cost. A key design feature of these schemes is that the finance is attached to the property's energy meter (rather than to the homeowner), providing a robust form of security for the lender.

      Advantages include ease of repayment, access to finance for customers who are not able to qualify for traditional financing options, and that the liability can be transferred to the next resident of the home.

      However, there are challenging design elements, including whether there should be a "golden rule" on bill neutrality. This simply means that the projected energy cost savings offset the fixed monthly loan or tariff instalment. However this rule can severely limit the amount that households can borrow/measures that can be implemented. It is also worth noting that disconnecting electricity from a home in the case of default can become politically contentious where it is as a result of a retrofit loan rather than due to arrears on bill payments. Furthermore, on-bill mechanisms are generally not within the control of single finance providers as national legislation is needed to secure consumer protection around energy switching.

      A specific challenge for the Irish market is that oil is the dominant fuel for home heating, which results in separate bills for heating and electricity costs. On-bill energy efficiency measures would, in this case, result in savings on an oil bill but lead to a much-increased electricity bill.

      While hugely successful in North America, such schemes have been slower to take off in Europe. The first European programme was the UK Green Deal, which was spectacularly unsuccessful and has discouraged other countries from pursuing similar initiatives. Our finding is that this is not an option for the short term for Ireland but rather that a watching brief should be kept on the EU Horizon2020-funded RenOnBill research project that is exploring the potential of introducing on-bill schemes in Germany, Italy, Lithuania and Spain.

- **On-tax or Property Assessed Clean Energy (PACE) schemes** allow property tax bills to be used as the repayment vehicle, with the underlying finance provided either by the private sector or by local government. PACE financing is secured as a senior lien on the property and is repaid along with other municipal charges through the property tax bill. This provides investors with robust repayment security as property taxes are paid ahead of other loans secured on the property, including mortgages. PACE financing does not impact an individual's credit score and eligibility is based primarily on the equity in the home rather than the individual's credit history.

  Advantages include that the debt can be paid off over an extended period and can transfer with the property on a sale. However, challenges include selling the property if the buyer does not want the debt and that it is effective only if national property tax collection is well structured and transparent. Furthermore, on-tax mechanisms are generally not within the control of single finance providers as national legislation is required to establish the system for repaying finance on property tax bills.

  Again, while very successful in North America, such schemes have not yet taken off in Europe. Our finding is that, particularly given the political headwinds in relation to local property tax, this is not an option for the short term for Ireland but rather that a watching brief should be kept on the EU Horizon2020-funded EuroPACE research project that is exploring the potential of introducing on-bill schemes in Spain, Italy, the UK and Poland. This project did review Ireland from a legal and fiscal perspective to determine its suitability for an on-tax scheme and concluded that it was "moderately" suitable.

- It is also important to highlight that, for either an on-bill or an on-tax financing mechanism, it is likely that public credit enhancement support would still be necessary to deliver the preferential interest rates and terms that research suggests are required.

• Finance providers cannot solve the home retrofit finance puzzle alone. Any solution to address homeowner needs requires collaboration with industry stakeholders. Therefore, finance providers **need a broad understanding of the residential retrofit marketplace**, which is complex and dynamic. In particular, they need information that would help them identify:

  - potential routes to market
  - appropriate industry partners for collaboration
  - risk reduction measures
  - suitable intervention points in the customer retrofit journey at which to make finance offers.

• **Key aspects of the marketplace** that are explored in some detail in the research include:

  - the key stakeholders across the national residential retrofit value chain.
  - the evolution of business models towards OSSs and the role of finance providers within, or in conjunction with, this model.
  - the increasing focus of policy on project aggregators to accelerate the pace and scale of projects.
  - the SEAI grant programmes. These are key to driving the market but are dynamic and constantly evolving, with learnings from previous programmes informing the next iteration.
  - the Energy Efficiency Obligation Scheme (EEOS). It is important to understand how any energy credits linked to a particular residential retrofit under the EEOS are being monetised. In particular, finance providers will want to understand how energy suppliers can 'claim' energy credits for projects. An interesting route for a finance

provider and an energy supplier to explore jointly would be the possibility for energy suppliers to claim credits where they have facilitated a low interest rate loan.

  - the development of new building regulations requiring minimum energy performance levels for major renovations. Finance providers will want to consider how these rules will be implemented, supervised and enforced, with a view to developing routes to market for finance products for home retrofits and for the "buy-to renovate" home market.
  - Ireland's housing stock profile – for customer segmentation and targeting purposes.
  - the non-financial human and psychological factors that influence the uptake of residential retrofits, with a view to identifying solutions and interventions to overcome barriers and thereby drive demand for retrofit finance.
  - the key trigger points for a retrofit as identified by the SEAI, and appropriate interventions that could be made at these times.
  - the Building Renovation Passports concept and the plans for how this may be rolled out in Ireland.
  - the challenge in relation to scaling up retrofit skills, considering the importance of this from a risk mitigation perspective.
  - the impact of rising carbon tax, which is of course a policy measure of relevance right across national decarbonisation plans.

- There is a great deal of research and information that must be assimilated to develop a clear picture of each piece of the retrofit finance puzzle as it relates to the owner-occupier segment of the residential sector. That noted, a key finding of the research is that there is no new jigsaw piece to be found, no new financing mechanism that needs to be invented and no novel source of finance to discover. **The innovation is in the integration**, i.e. in the development of new partnerships across the retrofit value chain, across industry and finance and across public and private sectors. The pieces of the puzzle all exist and, based on international experience, there are any number of different ways of slotting the pieces together in a way that will support and accelerate home retrofits nationally.

2.4.2 Application of Key Findings in Irish Context

- In an Irish home retrofit market context, **targeted loan offers from commercial finance providers should cover the range of offerings from personal loans to adapted mortgage products**.
  - For **personal unsecured loans**, below-market terms could be enabled by national and/or EU public credit enhancements, using existing mechanisms such as the Smart Finance for Smart Buildings guarantee facility and the Private Finance for Energy Efficiency financial instrument. Such public finance supports could potentially be supplemented by a contribution from large energy suppliers under the national Energy Efficiency Obligation Scheme (EEOS).
  - For **mortgage products**, discounted rates are already being achieved by Irish commercial finance providers without public finance support, thanks to factors including the increasing evidence of the correlation between lower risk of default and the energy efficiency of a home.
- These loan products would need to **continue to be underpinned by robust SEAI grant programmes and energy supplier support** under the EEOS, at least in the short to medium term as the market scales up.
- **Finance providers that will be well positioned to build market share** are likely be those who, in addition to launching competitive green personal loans and/or mortgage products, also:
  - **develop routes to market** through partnerships across the retrofit value chain, particularly **with OSSs and energy suppliers.**
  - **actively engage with state agencies and departments** to develop the innovative public credit enhancement programme required.

- engage with energy suppliers to assess opportunities to partner under the EEOS .
- **maximise their access to EU grants and supports** to develop internal capacity and enhance processes and systems for retrofit financing.
- **actively stimulate demand for retrofits at key trigger points**. These coincide with the life events at which homeowners often engage with finance providers, for example when making home improvements, buying a new home, retiring etc.

- **On-bill and on-tax financing mechanisms** should continue to be explored at a national level, as is envisaged under the Climate Action Plan. However, these require national legislative and regulatory support and have had very limited success in an EU context to date. Such mechanisms should therefore be considered as **a longer-term prospect**.

2.4.3 Innovation

- **Innovation 1: Making the business case for finance providers**

  It is globally recognised that energy efficiency loans rarely "fly off the shelves". Finance providers entering the market must actively engage across the energy efficiency value chain, working in partnership with other key players and introducing innovative solutions in order to address homeowner barriers to engagement, drive market demand and build market share. This requires resources and commitment supported by a strong business case. Many different teams across a finance provider need to be involved to provide their input on the commercial, regulatory and reputational factors involved. By pulling together all of these strands into the one place, our research should support and accelerate this process of developing the business case for residential retrofit finance in an individual financial institution.

- **Innovation 2: Bridging the gap between industry and finance**

  The residential retrofit marketplace is complex and dynamic, and yet finance providers need to develop a broad understanding of the key elements in order to consider how best to structure and launch new financial products and solutions. We reviewed the marketplace to identify the key topics that a finance provider would need to know and pulled out key facts and insights to support their investigations. We provided definitions of technical jargon and insights into the inner workings of the grant programmes and the EEOS, with a view to bridging this gap for finance providers

- **Innovation 3: Developing a shared understanding of "smart finance"**

  "Smart finance" for home retrofits is often referred to but rarely defined. The report defines and explores the four innovative financing mechanisms most commonly used, with a view to developing a shared understanding across policy, industry and finance of the advantages and challenges associated with each scheme.

2.5 Project Impact

The transition to a low-carbon economy means requires the market, financial sector, regulations and infrastructure to adapt to the changing environment. To achieve the impact required, an unprecedented level of public-private collaboration will be required. This research project is in line with the SEAI's overall remit and the objectives of the RD&D Funding Programme. The project benefits Ireland's energy sector as it will address a key barrier to uptake of residential retrofits, namely householders citing lack of sufficient funds.

The overall expected impact is to accelerate the pace and depth of residential retrofits through addressing the financial barrier. SustainabilityWorks cannot deliver the optimal finance solution. It is clear that commercial finance providers must and will play this role. The impact of our work is to support and accelerate finance provider engagement and lead to the launch of innovative home retrofit finance products and solutions for the Irish market. A secondary impact is to provide insights for retrofit industry stakeholders and policymakers so they understand the drivers and challenges from the finance provider perspective and can take this into account in their engagements.

Increased sources of home retrofit finance products will have **positive impacts on multiple stakeholders** in the domestic energy efficiency value chain, including but not limited to:

- Consumers – will experience a healthier, more comfortable home and reduced energy costs, albeit offset during the term of the finance by the finance charge. They will also feel good about doing their bit to help the environment and combat climate change.
- Government – accelerating pace and depth of residential energy efficiency retrofit will make a positive step-change towards meeting internationally agreed energy and climate targets.
- Finance providers – will be positively impacted through deploying more capital, managing climate-related financial risk and through being seen to be contributing to climate action.
- Energy Supply Companies – are facing disruption to their sector and need alternative and innovative business models in order to remain relevant to their customers. Building on their EEOS work to date, there is potential for the energy supply companies to take on a more significant role, namely that of the One-Stop Shop.
- Technical Energy Advisors – potential to build on BER Assessors/ Energy Advisors' current role to one that can guide the consumer through the technical aspect of the retrofti journey. This role is aligned to the One-Stop Shop concept.

The project should also yield wider societal, economic and policy benefits, including but not limited to:

Economic

- incremental jobs and turnover growth right across the value chain, including contractors, energy advisers, and finance providers.
- a clear example of using innovative EU financial instruments to attract additional funding from other public or private investors and thereby support economic growth.
- should encourage new business model and financial innovations in other sectors through public-private system-wide collaborations.
- the retrofit sector has been a valuable employer but suffers from skills shortages through a lack of understanding with respect to financing residential retrofits. This research will provide direction and clear signposts to the policy and investor marketplace, while bringing collaborators together to spearhead new and sustained business opportunities for the retrofit sector.
- there are many innovative Irish companies that have developed new technologies and solutions for home energy efficiency upgrades and outputs from this project will help them scale their businesses.
- should also advance opportunities for new and innovative international solutions to be trialled and deployed in the Irish marketplace, where such deployment will only take place where retrofit projects are being undertaken at a sufficient scale to make Ireland an interesting market, e.g. technologies similar to Energiesprong.

Societal

- consumers that carry out energy efficiency retrofit for energy savings or health or comfort reasons should become more engaged and mobilised on wider climate and environmental issues, e.g. transport choices and waste management.
- develop new skills in the energy efficiency value chain, which supports the development of complex projects
- facilitating the translation of financial sector needs/challenges for industry, policymakers and consumers, and vice-versa.
- the residential sector is often seen as less attractive sector to tackle from an energy efficiency perspective due to its diffuse and heterogeneous nature but a programme that can accelerate delivery through integrated and collaborative approaches, will send a positive signal and

potentially inspire other sectors to adopt a similar model in relation to their challenges and barriers, whether financial or other.

Policy

- This research presents a composite picture of the energy efficiency value chain, and how innovative solutions can be developed to overcome the finance barrier. It presents a set of policy recommendations, setting out recommendations, for example use of EU financial mechanisms.
- By achieving energy targets – have reduced the energy required and facilitated the energy transition.

2.6 Recommendations

For policymakers

- EU sustainable finance policy and regulatory developments, along with voluntary initiatives such as the Principles of Responsible Banking, are driving financial institution action on sustainability and climate change in particular. Alligning with these drivers and iniitiatives can be a powerful support in discussions with finance providers around mobilising capital for sustainable purposes..
- Any new financial product or service must be commercially viable as well as making a positive contribution to the environment. Providing finance at below market rates on an unsecured or reduced security basis incurs more risk and additional capital costs for a commercial finance provider and is not economically sustainable/viable. Given the public policy imperative involved, blended finance approaches are useful (and increasingly used) in these scenarios and can improve the risk-return profile to attract private capital by managing, mitigating, or transferring risks to funders with a higher risk appetite (e.g. government).
- Consider whether there is an opportunity now, given the engagement by finance providers on this topic, to contribute to the establishment of a national collaborative forum for engagement on retrofit finance by both public and private stakeholders across industry and finance. This forum could focus on the residential sector or be broadened to include commercial projects and public buildings as projects evolve.
- Provide access to BER data, for individual financial institutions or for a collaborative project, to enable projects to examine the relationship between energy performance and credit risk/market value at a national level, as have been carried out in other countries.
- Engage with the Central Bank with regard to mortgage lending rules as they relate to buy-to-renovate projects, e.g. by relaxing loan to value or loan to income rules in the case of home retrofits after purchase.
- Fund research to demystify innovative finance solutions for public buildings and the commercial sector, which again should be made publicly available for all stakeholders to accelerate retrofit activity for those segments.

For finance providers - individually

- Develop a broad understanding of the residential retrofit marketplace, with an initial focus on the key issues explored in the Handbook
- Collaborate with OSSs, large energy suppliers, the SEAI and other key stakeholders in order to leverage industry insights to structure tailored retrofitting propositions for homeowners and to identify potential routes to market for finance products
- Explore EU and national public finance supports to develop lower-cost loan products at an individual institutional level, e.g. PF4EE, ELENA, the national Climate Action Fund
- Review and consider the innovative and blended financing mechanisms and approaches that have been successful internationally which could possibly be adapted to meet Irish market conditions
- Streamline and simplify mortgage top-up application processes where they relate to home retrofit borrowings

- Develop relationships with the various EU research projects and initiatives that are driving financial innovation and ambition in this arena
- Consider how to engage and advocate, alongside the wider energy efficiency market actors, for clear and durable policy frameworks to support the national retrofit strategy. Specifically, this could include:
    - advocating for a durable multi-annual funding framework for grant programmes to build momentum and give retrofit service providers the confidence to expand.
    - advocating for tax incentives linked to energy performance upgrades, e.g. a lower rate of stamp duty for homes with a higher energy performance; stamp duty rebates for homes retrofitted within a certain period after purchase; the reintroduction of the Home Renovation incentive for specified home energy upgrades
    - keep a watching brief on evolving policy and developments, both nationally and at an EU level, given the accelerating pace of action in this policy field.

For finance providers - collaboratively

- Engage with policymakers and state agencies on the possibility of accessing EU public funds at a national level, e.g. the SFSB guarantee facility.
- Collaborate with policymakers, state agencies and energy suppliers to explore the possibility of introducing national legislation to enable On-bill and/or On-tax mechanisms.
- Contribute to the establishment of a national collaborative forum for engagement on retrofit finance by both public and private stakeholders across industry and finance. This forum could focus on the residential sector or be broadened to include commercial projects and public buildings as projects evolve.
- Contribute to collaborative projects to examine the relationship between energy performance and credit risk/market value at a national level.
- Engage with the Central Bank with regard to mortgage lending rules as they relate to buy-to-renovate projects, e.g. by relaxing loan to value or loan to income rules in the case of home retrofits after purchase.

For research community

- Focus on the business case for private sector stakeholders, whether in the financial sector or involved in the real economy. In both scenarios, leverage EU sustainable finance policy and regulatory developments, along with voluntary initiatives to support making the business case. These are driving action on sustainability and climate change across the private sector. These drivers can be a powerful support engaging with finance providers around mobilising capital for sustainable purposes.
- Bridge the gap between industry and finance. Don't assume that the financial sector are sustainability experts, nor vice versa that industry experts are financial experts. There is a lot of jargon involved on both sides. While they will ultimately find a common language, there is a lot that the research community can do to speed up that process by translating, defining and exploring key concepts.

2.7 Conclusions and Next Steps

The financial sector has a major contribution to make in delivering on the ambitious sustainability and climate targets that have been set by international agreements, including the Sustainable Development Goals and the Paris Agreement. One of the core functions of the financial sector is the provision of capital and liquidity to the economy, which means it can play a pivotal role in balancing the trade-offs inherent in achieving sustainability goals. Finance providers are also skilled at identifying, understanding and managing financial risks, including climate-related financial risks. Through lending strategies and investment decisions, finance providers have a very real contribution to make towards solving the big challenges faced by society - a contribution they can demonstrate very effectively to the general public by developing innovative residential retrofit finance products.

Accelerating the depth and pace of residential retrofits nationally is a win-win-win scenario for all stakeholders. The more successful the finance providers are in delivering solutions, the more comfortable, healthy and cheaper to run homes there will be provided across the country, and the closer Ireland will get to meeting its climate targets. If 2020 has shown us anything it is that collaboration and resilience are needed as we tackle the climate crisis. It is hoped that this research project and the resulting Handbook will act as a catalyst, supporting and accelerating innovation by finance providers in developing new tailored financing solutions for the Irish market, so enabling and even stimulating residential retrofit activity to deliver on national targets.