



## Country Study Ireland

### A PESTLE analysis on the environment for citizen-led renovation services in Ireland

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## About this report

To support the development of sustainable building renovation activities by energy cooperatives and communities (citizen-led renovation) we have analysed three business models – operated by Carbon Coop (UK), Energy Communities Tipperary Cooperative (Ireland), and Klimaatpunt/Pajopower (Flanders) - for the delivery of such activities. To accompany the business model overviews we have analysed the context in which they operate using the PESTLE method looking at Political, Economic, Social, Technological, Environmental, and Legal factors relevant to citizen-led renovation in the respective countries. Additionally, the same analysis has been done for the Netherlands, and will be undertaken for the Basque country. This study on Ireland has been the first in this set of five 'country analyses'. This study was prepared as part of the 'Citizen-led Renovation' project funded by the European Climate Foundation.

## About citizen-led renovation

Citizen-led renovation is energy communities and/or cooperatives undertaking renovation activities for, and with, their members and local communities. This includes renovation, energy efficiency in buildings, and sustainable heating and cooling. Furthermore, these activities are often combined with installing renewable energy systems. Renovation activities range from performing energy audits and providing information to homeowners, all the way to guiding households through the entire renovation journey, which includes planning, financing, delivery of measures, and evaluation (a 'one-stop-shop' or 'integrated home renovation' service).<sup>1</sup>

Although the offered services differ from cooperative to cooperative most citizen-led renovation programs share a few common traits:

- Citizens are involved in the renovation process and governance of the initiative and/or project;
- As social enterprises without focus on profit cooperatives can act as a trusted partner providing independent advice and support;
- The development of local businesses and skills of people involved is supported by the program;
- Activities are adapted to local conditions and local networks and partnerships are created. Energy cooperatives and communities are rooted in their local communities and often act in partnership with local authorities, SME's, and other community groups and/or NGO's. Many follow a neighbourhood approach.

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<sup>1</sup> For more information see: <https://www.rescoop.eu/citizen-led-renovation>

## Summary:

Overall there is a strong potential for sustainable home renovations in Ireland, including citizen-led renovation programs, due to the relatively carbon intensive housing stock, strong government climate and energy goals and support for renovation, and many single family dwellings facilitating easier decision making.

Ireland has a strong decarbonisation target for the residential sector, with the ambition to retrofit almost 30% of the residential housing stock (500.000 homes) and install over 400.000 heat pumps. To achieve this the Irish government has set up grant schemes supporting sustainable home renovation, including support for community schemes, and proposed a five billion euro fund focussed on renovating social housing and homes of low-income households.

Renovation services in Ireland are currently provided by three types of actors. Social enterprises such as the local energy agencies, commercial service providers that have developed around retrofit grant schemes, and citizen-led initiatives such as Energy communities Tipperary Cooperative (ECTC). With ECTC currently being the only cooperative renovation scheme (see business model case study) in the country.

The importance of citizens and energy communities in achieving the energy transition seems to be increasingly recognized by governments and policymakers in Ireland. Moreover, as opposed to the situation a few years ago, people seem to be increasingly interested in the topic of community energy and home energy efficiency.

The following barriers to and opportunities for the development of citizen-led renovation programs were identified:

### Barriers:

- not having a (political) culture strongly supporting citizen-led energy efficiency
- Complexity of funding options and funding not always suited to citizen-led renovation programs
- Government focus on deep renovation could potentially limit the amount of households that can participate in citizen-led renovation programs in each community;
- Government focus on achieving economies of scale could be a barrier to citizen engagement and participation in general

### Opportunities:

- A large renovation potential due to the state of building stock
- Strong government goals regarding climate, renovation and sustainable heating
- Existence of government support for energy communities and sustainable home renovation

# 1. Background: building stock, renovation potential, & community energy

## Background: building stock characteristics and renovation potential

Ireland has around 2 million homes, of which 1.7 million are occupied. Currently around 900,000 Building Energy Ratings (BERs) have been registered with the national authority (SEAI)<sup>2</sup>. Over 25% of Ireland's housing stock has been built after 2000. Despite the relative young age of the housing stock the average BER is D1, homes with this rating use about 5 times more energy than a building built in Ireland today according to the current standards. This can be explained by the fact that most residential homes in Ireland are single-family dwellings (>80% of housing stock) with, compared to other EU countries, a high amount of inhabitants per home (2.7), a large floor area, and many rooms. Also 42% of the single family dwellings are 'detached' which are in majority located in rural areas (83% of single family dwellings), and 52.1% semi-detached houses<sup>3</sup>. This makes them less energy efficient, since detached buildings have a high surface area to volume ratio giving them a greater heat loss potential than other building types (built in the same period). This is also a main cause of energy poverty in Ireland, which over 20% of the households experience, since such house types have longer heating periods. Combined with the prevalence of oil, gas, and solid fuels for heating this leads to a high carbon intensity of the Irish housing stock<sup>4</sup>. Irish homes use about 7% more energy than the EU average and emit 58% more Co2 equivalents<sup>5</sup>.

The TURNKEY Retrofit project – an EU project developing one-stop-shop renovation services – then also sees a considerable potential for deep renovations in Ireland. With as priorities to improve the building fabric of the housing stock and switch to sustainable heating systems, especially in rural areas where oil fired boilers are prevalent. In the development of their service for Ireland they decided to focus on the following elements: making sustainable renovation easier and more desirable, upskilling the renovation industry, enhance engagement across the sector, and mobilizing private investment. Currently renovation activity in Ireland is estimated at around 23,000, of which the majority shallow, building renovations per year<sup>6</sup>.

## Background: community energy

Although still relatively small in size the community energy movement in Ireland is growing with new cooperatives and communities being set up, members joining, and

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<sup>2</sup> MaREI, "MaREI Retrofitting Homes Symposium: Summary of Presentations."

<sup>3</sup> Eurostat, "Housing Statistics - Statistics Explained."

<sup>4</sup> Desmaris et al., "Market & PESTLE Analysis."

<sup>5</sup> Government of Ireland, "Climate Action Plan 2019: To Tackle Climate Breakdown."

<sup>6</sup> Desmaris et al., "Market & PESTLE Analysis," 52.

some favourable government support policies (such as the SEAI community energy program and others described in chapter 2). To date there are six energy cooperatives in Ireland, an active community run electricity supplier, and many so called 'sustainable energy communities' which developed around a support program offered by the National Government. This can be seen as an indicator that communities are interested in tackling energy related issues together.

There also seems to be at least a basic level of government support for community energy and citizen participation in general, with the Irish government recognizing already in 2015 that the energy transition involved an energy system in which citizens and communities increasingly participate, and in 2018 the Irish prime minister highlighted that climate action, and in specific the role of communities in this is a national policy priority<sup>7</sup>.

## 2. Political

*Factors: government priorities and policy to promote sustainable renovation; policy to promote citizen participation, energy communities, and cooperatives; government funding tools and grants; Government policy and support measures (grants, funding instruments, tax incentives etc.) for building renovation*

### **Government priorities and policy to promote sustainable renovation**

In 2019 a national Climate Action Plan was developed which sets, among other things, as goal to reduce greenhouse gas emissions from the residential sector from 6Mt CO<sub>2</sub>e in 2017 to 3-4Mt CO<sub>2</sub>e in 2030<sup>8</sup>. At the same time Ireland missed its 2020 target of 20% energy reductions compared to 2009 (achieving only 16,23%)<sup>9</sup> and in September 2020 the Supreme Court ruled that Irelands climate change mitigation plans were not enough to comply with the 2015 climate act meaning that more government action will be required. The plan sees improving the fabric of buildings, switching to district heating in commercial buildings, switching from oil burners to heat pumps in residential buildings, and setting new building standards as the most cost effective measures.

To help achieve the GHG reduction goals an interdepartmental 'Retrofit Taskforce' was created with as goal to oversee the design and implementation of a nationwide renovation model and/or program that can help deliver 500.000 retrofits of buildings (to BER B2 which is seen as cost optimal), and the installation of 600.000 heat pumps (of which 400.000 in existing buildings) by 2030<sup>10</sup>. This is a very ambitious goal given the total of 1.7 million homes in Ireland. Up to date the taskforce has performed a review of existing

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<sup>7</sup> Watson et al., "Responding to the Energy Transition in Ireland: The Experience and Capacity of Communities."

<sup>8</sup> Government of Ireland, "Climate Action Plan 2019: To Tackle Climate Breakdown."

<sup>9</sup> Desmaris et al., "Market & PESTLE Analysis," 51.

<sup>10</sup> Government of Ireland, "Climate Action Plan 2019: To Tackle Climate Breakdown."

retrofit support schemes in Ireland, held stakeholder consultations, and analysed relevant international experience. The program developed is supposed to address barriers in the areas of customer proposition and demand generation, financing and affordability, supplier capacity, and delivery structure. With as overall goal to develop a model that aggregates projects leading to economies of scale instead of giving individual grants. Although this could lead to more achieved renovations, it could also be a threat to citizen-led initiatives if they do not get a place in this system. Also aggregation, and the necessary standardization could mean less opportunities for input by inhabitants and local job creation.

To help achieve the desired amount of retrofits a 5 billion euro fund has been proposed (filled through carbon tax receipts) to invest in home renovation, with a specific focus on social and low-income rental homes. Also the budget of the [Sustainable Energy Authority of Ireland \(SEAI\)](#) (see actor list) for 2021 has been increased with 100 million euro allowing up to 3,500 houses being renovated up to BER B2, and 3,500 extra home upgrades. The money is supposed to be used mainly on community retrofit schemes and schemes supporting those in energy poverty. Also, 500.000 euro has been made available to invest in seed funding for the development of new 'reskilling and activation' programs and a new 'Apprenticeship Action Plan' has been developed in 2020<sup>11</sup>. This can, for example, include developing training courses on NZEB and Deep retrofits. When it comes to heating the government hopes to deliver two municipal scale district heating systems (about 50.000 homes or equivalent).

### **Policy to boost citizen participation, energy communities, and cooperatives**

According to a 2020 report by the Irish Environmental Protection Agency (EPA) there has been a significant increase in interest from policymakers on the role of citizens and communities in that past few years. With energy communities seen as essential in achieving the energy transition. Yet at the same time they say Ireland is generally seen as a 'non-hospitable' environment for community energy, with only limited development, and a domination by large-scale commercial providers in e.g. wind<sup>12</sup>. In general, they discern two main views on citizen participation and community engagement in the energy transition among policy makers: 1) as a way to speed up project development through and increased acceptance and understanding of the benefits by citizens; 2) a basic right that leads to collective action, inclusion, empowerment, transparency, and accountability. After three years of working together with community energy groups their main conclusion is that citizens are interested in becoming active in energy communities, but that more government support for their operation and upscaling of activities is necessary. This includes providing more reliable and long-term funding opportunities,

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<sup>11</sup> Passive House+, "Deep Retrofit Plans."

<sup>12</sup> Watson et al., "Responding to the Energy Transition in Ireland: The Experience and Capacity of Communities," 10.

mentoring on community development (including a 'one-stop-shop' on setting up energy communities), addressing regulatory and bureaucratic barriers should be addressed, and including more people with training and experience in community development into existing support programs for energy communities<sup>13</sup>. Although there are thus different (financial) support mechanisms for community energy, and citizen-led renovation in specific, available much can still be improved.

### **Possible Brexit impact on energy prices**

Ireland, just like all EU 27 countries, is under increasing pressure to meet their energy reduction targets due to Brexit which leads to stricter targets. Ireland has the added risk of possibly facing higher electricity and household fuel prices due to Brexit. Since it is connected to the EU electricity market through the UK and is heavily dependent on the UK for fuel imports such as coal, oil, and gas. Meaning that possible supply disruptions and/or trade tariffs could lead to increased prices<sup>14</sup>. Rising energy prices could make the need for energy costs savings, and thus the need for sustainable renovations, more pressing. Also, it has been shown that the relative cost of fuel is an important factor for consumers when deciding on installing a new (sustainable) heating system such as heat pumps and/or solar thermal<sup>15</sup>.

### **Government policy and support measures (grants, funding instruments, tax incentives etc.) for building renovation**

The table on the next page provides an overview of government funding tools and grants for building renovation that were identified

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<sup>13</sup> Watson et al., "Responding to the Energy Transition in Ireland: The Experience and Capacity of Communities."

<sup>14</sup> Desmaris et al., "Market & PESTLE Analysis," 48.

<sup>15</sup> Desmaris et al., 50.

**Policy and support measures for sustainable renovation, energy efficiency, and renewable energy**

Name:	Type:	Description:
<a href="#">Climate Action Plan</a> – Build Environment section	Policy	<ul style="list-style-type: none"> <li>- Reduce greenhouse gas emissions from the residential sector from 6Mt CO2e in 2017 to 3-4Mt CO2e in 2030</li> <li>- Structure and funding options for area based residential retrofit</li> <li>- 50.000 houses p/y retrofit target for 2021 for 10 years (BER B2)</li> <li>- Install 400.000 heat pumps in existing buildings before 2030</li> <li>- Upgrade social housing stock to BER B2 (for units &gt;40 years)</li> <li>- Deep retrofit for schools from pre-2008</li> <li>- Setting up a 'one-stop-shop' supply chain and model to bundle home retrofits for funding and delivery (see National Home Retrofit Scheme below)</li> </ul>
<a href="#">Deep Retrofit Grant (pilot scheme)</a>	Grant	Grant scheme provided through SEAI open between 2017-2019 with 21M euro budget. Pilot aimed at investigating the challenges and opportunities of deep retrofit focused on residential buildings. 325 homes have been upgraded to BER A3 with an average cost per building of 54.047 euro. The grant covered 50% of the costs including project management and advisory work <sup>16</sup> .
<a href="#">Better Energy Warmer Homes</a>	Grant	Administered by SEAI aimed at improving energy efficiency of houses owned by people with low incomes. Provides funding for: attic insulation, draught-proofing, boiler insulation, solar thermal, heat pumps, and Building Energy Ratings (BER). It is mandatory to get a BER after the work has been done to qualify for the grant. The scheme has been ongoing since 2009.
<a href="#">Home Energy Grants</a>		Grants of up to 35% of costs on a variety of energy efficiency measures such as insulation, heat pumps, heating controls, solar thermal, and solar PV. Open to owners of residential buildings build and occupied before 2006. People receiving social welfare payments may be eligible for free improvements.

<sup>16</sup> SEAI, "Key Findings."

<a href="#">Warmth and Wellbeing Pilot Scheme</a>	Grant	Administered by SEAI together with the public healthcare provider HSE aimed at providing significant energy upgrades to homes of people with chronic respiratory conditions. 20 million euro budget for 2016-2019 for lower income people (receiving 'fuel allowance') in the area of Dublin. Eligible measures: attic insulation and ventilation, wall insulation and ventilation, boiler replacement, window and door replacement where leading to improvement <sup>17</sup> .
<a href="#">Communities Energy Grant / Better Energy Communities</a>	Grant	Retrofit initiative directed at improving the energy standard of Ireland's building stock and facilities. Aimed at bringing groups of buildings under one retrofit program facilitating community wide improvements. In 2019, 57 communities have been granted in total 25.3 million euro (as a contribution towards 65.8 million euro total project costs) to put in place energy upgrades to around 700 houses and 570 commercial and community buildings <sup>18</sup> . For 2021 the budget is 28 million euro. Overall the grant has now supported upgrades to 13,200 homes and 2,570 non-domestic buildings <sup>19</sup> . Supported projects must show: community benefits, multiple elements, sustainable solutions, innovation/project ambition, energy savings, ability to deliver. Eligible project measures include: building fabric upgrades (e.g. roof and wall insulation), technology and system upgrades, integration of Control Systems, integration of renewable energy systems.
<a href="#">National Home Retrofit Scheme</a>	Grant	Scheme launched in September 2020 as part of the 2019 Climate plan to help reach the goals outlined in the Climate Action Plan. The goal is to promote One-stop-shops and activate groups of private households, housing associations, and local authorities to perform energy efficiency upgrades in (preferably) residential buildings. Takes a 'building fabric first' approach (energy savings).
<a href="#">Midlands Retrofit Programme for Local Authority Homes 2020</a>	Grant	A national government funded scheme (20 million euro) for houses owned by local authorities in the Midlands region. The scheme is funded by a Carbon Tax. The houses – currently at BER E or D - will be retrofitted to a level seen as 'cost-optimal' which is BER B2. Typically this involves wall, attic, and roof insulation, window and door upgrades, new heating systems, and led lights <sup>20</sup> .

<sup>17</sup> SEAI, "Warmth and Wellbeing."

<sup>18</sup> IEA, "Community Energy Grant Scheme – Policies."

<sup>19</sup> SEAI, "Community Grants."

<sup>20</sup> Department of Communications, Climate Action & Environment, "Midlands Retrofit Programme for Local Authority Homes 2020."

<a href="#">Energy Efficiency Fund</a>	Investment	Established in 2014 a 75 million euro fund to invest in public and private sector energy efficiency projects. Building retrofit projects in this fund can include measures such as: lighting, HVAC, waste heat recovery, process optimization, CHP, boilers, and heat pumps. Not open to households.
Recovery and Resilience fund	Grant	Provisional transition fund funding has been awarded to ECTC and Superhomes (Tipperary Energy Agency) to be used for sustainable home renovations.
<a href="#">Home Renovation Incentive (HRI) – no longer in existence</a>	Tax deduction	This incentive allowed homeowners and landlords to deduct up to 13.5% of certain costs related to repairs, renovations, and improvements to their homes from their income tax. This also included general (non-energy efficiency related) renovations. The scheme has been discontinued as of 2020.
<b>General support measures for energy cooperatives and communities</b>		
Name	Type	Description
SEAI Community Energy Program	Policy	Network of 'sustainable energy communities' hosted by SEAI. The SEC's are a 'community vehicle' developed and supported by the SEAI to help local communities to start set-up energy projects using SEAI grants. It is a partnership between a community and the SEAI. This can take different organizational forms, e.g. Kerry coop is a member, but can also be informal or a commercial vehicle. As part of its 2019 Climate Action Plan the government hopes to increase the amount of SEC's to 1500.
Energy Master Plan Grant	Grant	As part of its sustainable energy communities program communities can receive a grant to draft an 'energy master plan'.
<a href="#">Renewable Electricity Support Scheme</a>	Periodic subsidy	Provides support to the production of renewable electricity in Ireland on the basis of auctions. Winners of the auction process typically receive support for a period of 15 years. In the hope that this will lead to more support for climate policy the government has developed a 'preferential' category through which citizens can participate in 'community projects' <sup>21</sup> .

<sup>21</sup> Department of the Environment, Community, and Local Government, "Renewable Electricity Support Scheme (RESS)."

<a href="#">Support Scheme for Renewable Heat</a>	Grant + periodic subsidy	Support scheme to increase generation of renewable heat, open to commercial, industrial, agricultural, district-heating, public sector, and other non-domestic heat users. The scheme is aimed at bridging the gap in costs between renewable and fossil fuel based systems through providing an installation grant and on-going operational support. Domestic users are thus not included, but the scheme could potentially be useful for public buildings part of citizen-led renovation projects.
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### 3. Economic

*Factors: general economic situation, spending in the renovation sector, fiscal incentives, energy prices, cost for homeowners and developers, private sector*

#### General economic situation

The TURNKEY project found that the general economic situation in Ireland in 2019 could potentially have a negative impact on sustainable renovation services. Since increased inflation together with relatively low household incomes, high household debt to income ratio's, and decreasing consumer trust could decrease the ability of Irish citizens to invest in renovation services<sup>22</sup>. The economic downturn caused by the COVID pandemic could add to this negative impact. However, what this will mean for citizen-led development schemes is hard to assess. For example, high-level averages might not accurately reflect the type of citizens involved in the projects, or other factors such as available government grants might have a stronger effect.

#### Spending in the renovation sector

Ireland has a relatively low spending on renovation (third lowest of EU ) amounting to under 0.5% of households disposable income, moreover this percentage is going down<sup>23</sup>. According to the TURNKEY project this is then, together with the high upfront costs, the main economic factor negatively impacting possible renovation services<sup>24</sup>.

#### Fiscal and financial incentives and support

Between 2000 and 2016 over 375.000 homes have received government financial support to implement energy efficiency measures<sup>25</sup>. Many different grants are available to householders, see the table on policy and support measures.

#### Energy prices for households

Both electricity and gas prices for households lie a bit above the EU average, but relatively close to the Eurozone average. In 2019 average household electricity price fluctuated between 22.98 and 24.56 eurocent per kWh, gas prices between 6.83 and 7.68

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<sup>22</sup> Desmaris et al., "Market & PESTLE Analysis."

<sup>23</sup> Desmaris et al.

<sup>24</sup> Desmaris et al.

<sup>25</sup> Desmaris et al., 52.

eurocent per kWh, oil (kerosene) between 7.61 and 8.44 eurocent per kWh, and wood (bagged pallets) remained constant at 7.33 eurocent per kWh. Per kWh electricity is thus by far the most expensive energy carrier for households in Ireland<sup>26</sup>. This is relevant given that relative fuel costs are an important factor for households when deciding on which new heating system to install<sup>27</sup>.

### **Cost of renovation for homeowners/developers**

The average retrofit cost for a home in Ireland is estimated at between 25,000 and 75,000 euro. In the SEAI 'Deep retrofit pilot' (See table above) the average cost for a renovation from F to A3 amounted to 54,000 euro (based on a total of 325 renovations). The SEAI estimates that a total of 35 billion euro over the coming 35 years is required to make the existing housing stock of Ireland 'low carbon'<sup>28</sup>. Yet, a lack of funds was found to be one of the main reasons why Irish homeowners are unwilling to invest in sustainable renovation measures. And the payback period of renovation measures was also found to be an important factor for homeowners when deciding on renovation measures. High costs of renovation measures are thus a big barrier. This also the main reason why 'deep' renovations are in lower demand<sup>29</sup>.

### **Cost of housing for homeowners/tenants**

In Ireland only 3.4 percent of the population lives in a household that pays over 40% of their income on housing (2018), after Malta and Cyprus this is the lowest in Europe<sup>30</sup>. The low cost of housing relative to income could indicate that households could have the financial space to invest in sustainable renovations.

### **Private sector financing methods**

Limited information on the availability of private sector financing methods for sustainable home renovation seems to be available. Generally a lack of funding options and the complexity of funding structures was seen as a barrier by Irish households and has led to them abandoning their renovation projects<sup>31</sup>.

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<sup>26</sup> SEAI, "Key Energy Statistics - Prices."

<sup>27</sup> Desmaris et al., "Market & PESTLE Analysis," 50.

<sup>28</sup> MaREI, "MaREI Retrofitting Homes Symposium: Summary of Presentations."

<sup>29</sup> Desmaris et al., "Market & PESTLE Analysis."

<sup>30</sup> Eurostat, "Housing Statistics - Statistics Explained."

<sup>31</sup> Desmaris et al., "Market & PESTLE Analysis."

## 4. Social

*Factors: culture (in favour or not) of energy communities and cooperatives, culture (in favour or not) of sustainable renovation*

### **Culture (in favour or not) of energy communities and cooperatives**

One study found there was generally not a culture supportive of energy communities and cooperatives, especially among politicians/policymakers (see also under 'political factors'). However, the interviewed expert from Energy Communities Tipperary Cooperative indicated that among the general population people seemed to be largely in favour of community action around renewable energy and energy efficiency. There are currently six energy cooperatives in Ireland, most of which are still in an early stage of development. However, there are many so called 'sustainable energy communities' which developed around a support program offer by the SEAI. This can be seen as an indicator that communities are interested in tackling energy related issues together.

### **Culture (in favour or not) of sustainable renovation**

The social barriers found to be of importance for Irish householders largely coincide with the social barriers identified in the REScoop.eu report on barriers and drivers for citizen-led renovation activities<sup>32</sup>. Namely: a lack of knowledge on renovation options, benefits, costs, and support measures, a lack of trust in service and information providers. Or, generally not having a 'culture of energy efficiency' <sup>33</sup>, although the expert from Energy Communities Tipperary Cooperative that was consulted indicated that energy efficiency is gaining more prominence as an issue.

## 5. Technological

*Factors: access to existing technological solutions renovation skills of professionals in the construction sector (skills gap); research and development on sustainable renovation*

The Turnkey project found that the following technological factors are a possible barrier to retrofit services: a lack of professionals skilled in energy renovations, a fragmented value chain, and deficiencies in auditing mechanisms. On the other hand they found that the focus on innovation, research and design in the country was supportive of developing retrofit activities<sup>34</sup>.

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<sup>32</sup> D'herbemont, "Report on Drivers and Barriers to the Deployment of Citizen-Led Renovation."

<sup>33</sup> Desmaris et al., "Market & PESTLE Analysis," 60.

<sup>34</sup> Desmaris et al., "Market & PESTLE Analysis."

## **Access to existing technological solutions/development of supply chains**

No indication was found that access to specific technologies is lacking. It could be however that supply chains for certain technologies are less well developed than others, but no evidence on this was found.

## **Research and development on sustainable renovation**

The SEAI also provides funding for a host of research projects on renovation related topics such as renovating 'traditional' buildings, look at health impacts of sustainable renovations, financing solutions, barriers to renovation adoption by households etc. See their National Energy Research Database for a complete overview.

## **6. Legal**

*Factors: building regulation, standards, and certification for sustainable building renovation; building energy performance certificates; other legal factors*

### **Building regulation, standards, and certification for sustainable building renovation**

Currently, a large proportion of homes in Ireland fail to achieve the 'cost-optimal energy efficiency standard' of 125 kWh/m<sup>2</sup>/yr., which is the required standard housing in Ireland (specified in Part L of the Irish building regulations) must meet if after performing 'major retrofit work'. Housing is considered to have undergone a major retrofit if work is carried out on more than 25% of the building surface area. Building regulations and standards are an important factor for sustainable renovation activities, especially when it comes to the depth of renovation.

The 2019 Climate Action Plan outlines the following regulatory measures that could affect sustainable renovation activities<sup>35</sup>:

- A ban on the installation of oil boilers from 2022 and the installation of gas boilers from 2025 in all new dwellings through the introduction of new standards for home heating systems, and to stimulate the development of the supply chain for renewable heating systems. To facilitate this the NZEB performance requirements will be taken up into regulation. Although this measure is aimed at new buildings, a better supply chain leading to lower prices and better availability of renewable heating systems will also make it more attractive to fit such a system in an existing building.

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<sup>35</sup> Government of Ireland, "Climate Action Plan 2019: To Tackle Climate Breakdown."

- Explore how and when fossil fuel based heating systems can be phased out of public buildings.
- Maximize the potential for BER and DEC data to help households and businesses decarbonize their buildings

## 7. Environmental

Relevant environmental factors such as awareness on energy efficiency and climate change have been discussed under social factors.

## 8. Overview of relevant actors (non-exhaustive)

Overview of sustainable renovation related actors (non-exhaustive)		
<i>Name:</i>	<i>Type:</i>	<i>Description:</i>
<a href="#">Project coordinators related to SEAI Community Grants</a>	Variable	To be eligible for a grant homeowners need to work with designated project coordinators. This can be public agencies such as the local energy agencies, cooperatives such as Energy Communities Tipperary cooperative, or commercial parties.
<a href="#">Proenergy Homes</a>	Commercial	Retrofit supplier using SEAI grants;
Technical assessors doing home audits	Commercial	Variety of consultancies/engineers provide audit services for buildings
<a href="#">House2Home</a>	Commercial	One-stop-shop service for home energy upgrades
<a href="#">Churchfield home services</a>	Commercial	One-stop-shop service for home energy upgrades
<a href="#">Envirobead</a>	Commercial	Contractor/ Retrofit provider
<a href="#">Leethern</a>	Commercial	Contractor/ Retrofit provider
<a href="#">NCE Insulation Energy Hub</a>	Commercial	Energy efficiency services
<a href="#">Renova</a>	Commercial	Contractor / Retrofit provider
<a href="#">Greenwatt</a>	Commercial	Contractor / Retrofit provider

Trade associations of renovation/construction companies	Commercial	E.g. Irish District Energy Association, Heating and plumbing association, etc.
<a href="#">Retrofit Ireland Limited</a>	Commercial	Energy efficiency services
<a href="#">TurnKey Retrofit</a>	Non-profit	EU funded project developing a one-stop-shop service for home retrofit.
Local Energy Agencies	Government/non-profit	Ireland has 14 local energy agencies set-up to help the local authorities meet energy performance targets. The agencies do this through knowledge development, implementing best practices, setting up projects etc.
<a href="#">Tipperary Energy Agency</a>	Government/non-profit	One of the 14 local energy agencies. A social enterprise operating in the Tipperary area. Run the 'superhomes' program which is a one-stop-shop for sustainable renovation of homes.
<a href="#">3CEA (3 Counties Energy Agency)</a>	Government/non-profit	Regional energy agency providing sustainable renovation services using the National Home Retrofit Scheme
<a href="#">Retrofit Taskforce</a>	Government	Oversee the design and development of a new national retrofit delivery model/program to reach the goals from the Climate Action Plan.
Relevant departments of national government	Government	Departments of: housing, local government, and Heritage; Employment affairs and Social Protection; Public expenditure and Reform; Education and Skills; Finance
<a href="#">Sustainable Energy Authority of Ireland (SEAI)</a>	Government	National government authority responsible for promoting sustainable energy. Gives out energy and renovation related grants. Main responsibilities include: energy modelling, policy analysis, and advice; provide official energy statistics; fund/perform research on energy technology and policy.
<a href="#">Retrofit Energy Ireland Limited (REIL)</a>	Commercial	Energy services provider for all sectors; services include energy credits, grants, project finance, and transport
<a href="#">ENPROVA</a>	Commercial	Initiative by Irish Petroleum Industry Association/Fuels for Ireland and its members to help them meet their 1.5% year-on-year energy use reduction as obliged by the EU energy efficiency directive
<a href="#">Irish Green Building Council</a>	Non-profit	Member organisation, mainly from the building industry, focused on promoting sustainability in the Irish building sector.

		Doing advocacy, providing education and training, and developing tools.
Muintir na Tire – National Association for the Promotion of Community Development in Ireland	Community	National association with as goal to promote community development in Ireland through improving capacities of people in urban and rural communities to become active in local social, economic, cultural, and environmental development. Run by volunteers, and a REScoop.eu member.
Valentia Island Energy Co-operative	Community	Energy cooperative, and REScoop.eu member through Energy Co-operatives Ireland. Does not offer renovation activities. They seem to be still being set-up as a coop, involved in an EU project on hydrogen.
<a href="#">Comharchumann Fuinnimh Oileáin Árann ; Aran Islands Energy Co-op</a>	Community	Energy cooperative, and REScoop.eu member through Energy Co-operatives Ireland. Does not offer renovation activities. Their goal is to be self-sufficient as an island by 2022 using renewable energy. Involved in an EU project on hydrogen (SEAFUEL) for ferries and Clean Energy for EU Islands.
<a href="#">Galway Energy Co-op</a>	Community	Energy cooperative, and REScoop.eu member through Energy Co-operatives Ireland. Does not offer renovation activities. They are focused on developing RES
<a href="#">Claremorris and Western District Energy Co-operative</a>	Community	Energy cooperative, and REScoop.eu member through Energy Co-operatives Ireland. Does not offer renovation activities. But they do have energy efficiency activities. Working on a 3D map of the village with energy data per building (BER) visualizing energy savings realised. Also involved in an Interreg project involving hydrogen storage.
<a href="#">Kerry Sustainable Energy Co Op</a>	Community	Energy cooperative, and REScoop.eu member through Energy Co-operatives Ireland. Does not offer renovation activities. But they do have energy efficiency activities; For example, mapping energy use of different communities. They also have meters to monitor energy use by appliances and water content in fire wood. These can be borrowed by residents. Do have developing district heating and providing home energy upgrades (using energy credits) as part of their future ambitions.
<a href="#">Energy Communities Tipperary Cooperative</a>	Community	Energy cooperative in the Tipperary region providing renovation activities leveraging government grants. Their

		primary goal is to deliver local benefit through employing local people and improving local homes.
<a href="#">South Kerry Development Partnership CLG</a>	Community	A direct member of REScoop.eu; They are a rural development organization that is part of the ECCO project working to set up local cooperatives. They do not offer any renovation activities.
Knockylon Network Sustainable Energy Community	Community	Knockylon network was founded in the aftermath of the 2008 financial crisis to connect people and help them find work. It is a non-profit agency located in Knockylon, a suburb of Ireland's capital Dublin. In 2016 they broadened their activities and established a Sustainable Energy Community (SEC), using the SEAI program. There are many of such energy communities. Some being 'real' community initiatives while others are commercial vehicles.

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