

How can Covid-19- influenced CMU initiatives help diversify SME access to finance while promoting a greener economy?



Policy Department for Economic, Scientific and Quality of Life Policies
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PE 703.360 - May 2022

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Abstract

SMEs will play a key role in the green transition, especially in improving the energy efficiency of housing. Innovative financing models in this sector would contribute towards achieving the 'Fit for 55' goals, as well as support the business environment of the SMEs that will implement a myriad of small energy improvement projects.

This document was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON Committee).

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs (ECON Committee).

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Manuscript completed: March 2022

Date of publication: May 2022

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This document is available on the internet at:

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For citation purposes, the publication should be referenced as: Gros, D., W.P. de Groen, D. Gojsic, A. Thomadakis, M. Vuylsteke (2022), *How can Covid-19-influenced CMU initiatives help diversify SME access to finance while promoting a greener economy?*, Publication for the Committee on Economic and Monetary Affairs, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg, 2022.

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LIST OF ABBREVIATIONS

AECA	Spanish Association of Accounting and Business Administration
CEF	Connecting Europe Facility
CEPS	Centre for European Policy Studies
CMU	Capital Markets Union
CO2	Carbon dioxide
ECSP	European Crowdfunding Service Providers
EIB	European Investment Bank
ELTIF	European long-term investment fund
EPC	Energy performance contracting
ESAP	European Single Access Point
ESCO	Energy service company
ESG	Environmental, social and corporate governance
EU	European Union
EUR	Euro
FED	Federal Reserve System
GHG	Greenhouse gas
GWh	Gigawatt hour
H2020	Horizon 2020
IPO	Initial public offering
IMF	International Monetary Fund
LIFE	L'Instrument Financier pour l'Environnement
MWh	Megawatt hour
NACE	Nomenclature of Economic Activities

OECD	Organisation for Economic Co-operation and Development
P2P	Peer to peer lending
PF4EE	Private Finance for Energy Efficiency
PPPs	Public-private partnerships
PV	Photovoltaics
REG	REG scenario as defined in SWD(2020) 176 final
SAFE	Survey on the Access to Finance of Enterprises
SME	Small and medium-sized enterprises
SPINS	SME Partnerships for Innovative Energy Services

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EXECUTIVE SUMMARY

Background

The key role of small and medium-sized enterprises (SMEs) in the EU economy is well established. They constitute most enterprises based in the EU and are a major source of employment.

This study analyses one particular issue, which we have identified as being crucial, namely the financing conditions for SMEs in the building (renovation) sector. Rapid progress in building renovation is needed to reach the emission reduction targets envisaged in the 'Fit for 55' package for household heating (and cooling). The residential building sector (including insulation/renovation/rooftop photovoltaics [PV]) will thus form an important part of the evolving green economy.

Aim

The objective of the study is to ascertain which elements of the Covid-19 related elements of the CMU initiatives can help SMEs to overcome their existing obstacles in accessing finance. Within this, there is a particular focus on micro companies and their specific contribution to the green economy.

Key Findings

In this study, SMEs and micro companies are defined in line with EU Recommendation 2003/361, which is most commonly used in the context of EU policies but is distinct from the definition most often used in capital markets policies. The EU Recommendation considers around 36 million companies as SMEs, specifically companies with fewer than 250 employees and with up to EUR 50 million in assets or up to EUR 43 million in annual turnover. In contrast, capital market policies, such as MiFID II, considers only around 2 200 listed companies with a market capitalisation below EUR 200 million as SMEs. Importantly, the EU Recommendation would qualify most of these listed companies as large companies.

The plans launched by the European Commission under the Capital Markets Union (CMU) address listed companies with market capitalisation below EUR 200 million as SMEs. The CMU Action Plan was launched in September 2015, followed by a mid-term review in June 2017, and a new CMU Action Plan in September 2020. The CMU aims to enhance non-bank finance and lay the groundworks for local capital markets to deepen and become more integrated with each other.

The latest set of measures announced in September 2020, thus following the beginning of the pandemic, have three specific objectives. First, to support a green, digital, inclusive, and resilient economic recovery by making financing more accessible to European companies. Second, to make the EU an even safer place for individuals to save and invest long-term. Third, to integrate national capital markets into a genuine single market. These objectives will be implemented through 16 specific actions, of which the first six actions target the development of equity markets for SMEs. The impact that most of these actions will have still remains to be seen, as most of them did not have any corresponding legislative proposals until very recently. We find that, at least by the end of 2021, they have had no significant impact on SMEs. This might change somewhat over the next few years due to the implementation of actions that will, for example, foster support for access to public markets and encourage alternative sources of finance, such as P2P or crowdfunding. These measures are especially likely to benefit start-ups and high-growth companies. The CMU package is thus helpful, but more could be done.

The CMU could, for instance, support SMEs to contribute to net zero emissions by 2050. SMEs dominate the residential construction sector, accounting for over 60 % of employment in the sector. We therefore find that, rather than attempting to 'green' SMEs themselves, one should concentrate on the contribution SMEs could make to greening the economy. They would do this by helping to reduce households' emissions due to heating and cooling, which contribute considerably to overall emissions. SMEs in the residential construction sector emit only about 27 million tons of CO₂ equivalent in greenhouse gases (GHG, per annum), compared to the close to 300 million tons needed by households for heating (and cooling). The GHG emissions reductions will require several different approaches: insulation, PV on roofs or the installation of heat pumps. These activities tend to be performed by SMEs which depend on bank credit for their external financing.

Larger and more cross-border innovative financing schemes can help SMEs perform these activities, thus fostering the green transition and reducing fossil fuel reliance from third countries. The innovative financing can be based on past successful H2020 projects and take the form of energy performance contracting, crowdfunding, green bonds, on-tax financing, etc.

Finally, this study also argues that personal guarantees should be considered. Personal guarantees represent an often-neglected obstacle because they limit micro enterprises' access to capital, as well as their capacity to take risks.

1. INTRODUCTION

KEY FINDINGS

Reaching the CMU remains a priority for the EU. CMU should also support the green transition and the key role of SMEs. European SMEs depend mainly on bank credit.

A key issue is thus how SMEs can obtain more financing from capital markets and how innovative financing could facilitate their role in reducing emissions in the household heating/cooling sector.

The CMU Action plans builds on a long history of ambitions to create a single market for capital. Nevertheless, European capital markets are relatively underdeveloped compared to the Anglo-Saxon countries. The size, relevance, and complexity of European capital markets calls for an additional and targeted set of measures to help them develop further.

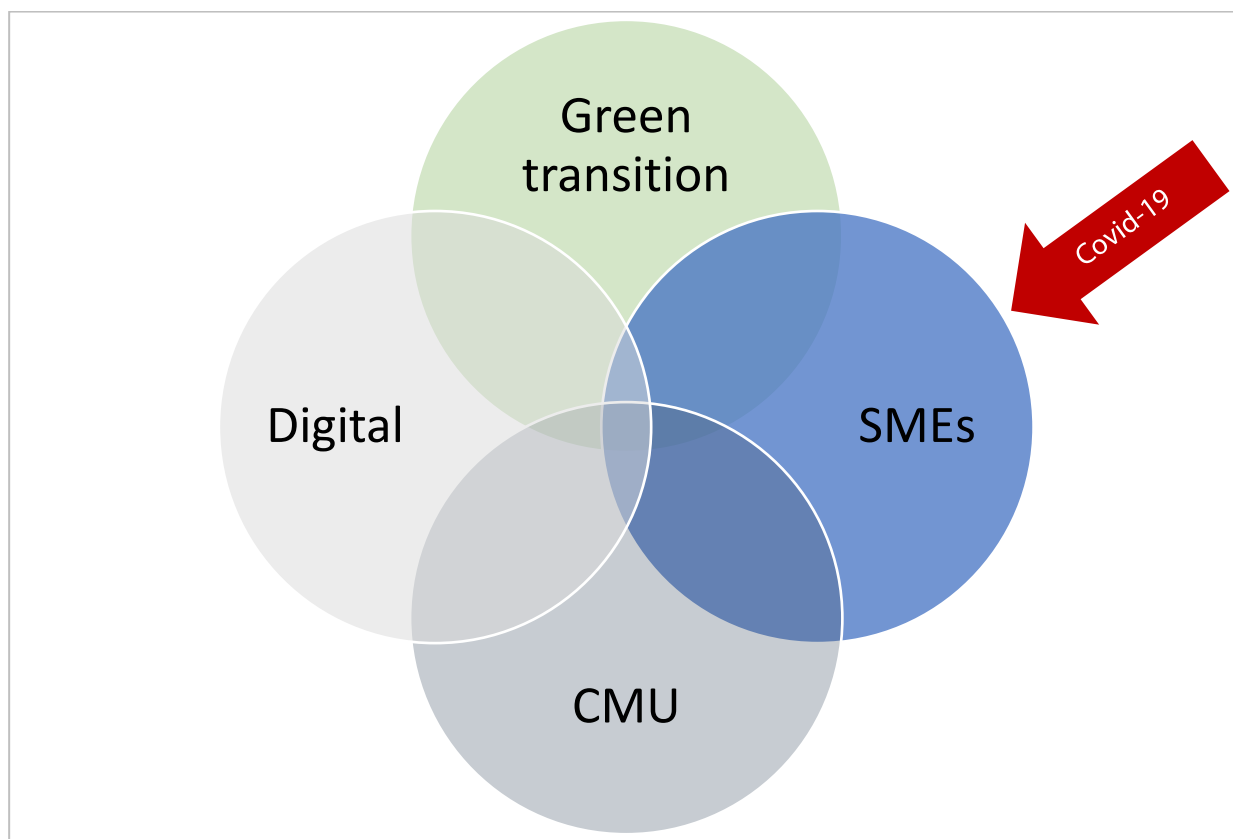
The European Commission has proposed various measures over the last few years under the Capital Markets Union (CMU) to strengthen European capital markets. The CMU Action Plan was launched in 2015, followed by the CMU Mid-Term Review in 2017. These plans were complemented by the Capital Markets Recovery Package, presented in July 2020 to support the recovery efforts from the Covid-19 crisis, quickly followed by the second CMU Action Plan in September 2020.

The second CMU Action Plan contains 16 legislative and non-legislative actions with three key objectives, one being the support a green, digital, inclusive and resilient economic recovery by making financing more accessible to European companies. The Action Plan states that:

“Strategies on CMU, sustainable finance, digital finance and SMEs are all mutually reinforcing. They are a joined-up package of measures to strengthen Europe’s economy and make it more competitive and sustainable, and to better serve its people and companies”.

This study will address the question of how the Covid-19 inspired CMU initiatives in the second Action Plan can support the role of SMEs in general and in the green transition in particular (see Figure 1). This has three elements: the second CMU Action Plan, the role of SMEs, and the green transition.

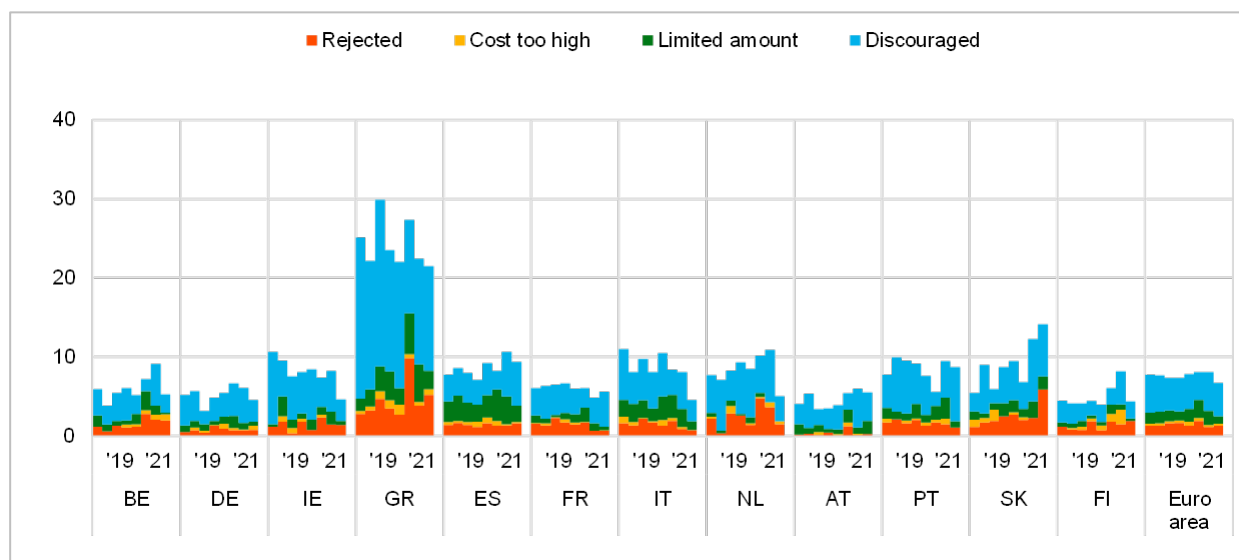
Figure 1: Graphical presentation of the study's coverage



Source: Authors' elaboration.

SMEs play an important role in the EU economy. It is widely known that they provide for a large share of both employment and output. Support for SMEs is also one of the EU's key overall policy ambitions. Access to finance is one of the main problems faced by SMEs. For their external finance, SMEs are dependent on bank credit. However, banks in some countries have often been handicapped in their ability to provide credit because their rating depends on that of their sovereign. Indeed, the access to bank credit varies largely between countries (see Figure 2). With similar credit ratings, there is more access in general to bank credit for SMEs in countries with high sovereign ratings than countries with low sovereign ratings (Demoussis et al, 2017).

Figure 2: Obstacles to obtaining a bank loan for SMEs across euro area countries (percentage of respondents)



Source: [ECB's Survey on the Access to Finance of Enterprises in the euro area \(2021\)](#).

If SMEs had more access to capital markets, they would suffer less from this negative feedback loop between banks and sovereigns. However, their size places them at a disadvantage compared to larger companies, which have scale advantages and more mature governance (see Box 2).

Moreover, the green transition has now become an overriding objective of the EU, which with the need to now reduce dependence on Russian fossil fuels, has become even more urgent (European Commission, 2022). It will require an unprecedented effort across the entire economy. SMEs play a particularly important role in one key sector, namely home insulation, where ambitious targets have to be soon reached.

This study also links all these elements together to investigate how innovative market financing models could help SMEs and households reduce their energy consumption and thus reduce greenhouse gas (GHG) emissions.

The remainder of this study is organised as follows. The below section briefly summarises the Covid-19 influenced CMU initiatives and their relevance for SMEs. This section also clarifies the definition of SME and emphasises one important element of SME financing, namely the personal guarantees the owner/operator of the SME typically must provide to obtain a bank loan. Section 3 analyses the role of SMEs in the green transition, concentrating on their role in the residential construction sector which will have to make an important contribution through the better insulation of housing stock. This section also provides an overview of the many existing innovative financing activities in this area. Section 4 concludes by making specific policy recommendations.

Box 1: Main barriers for SMEs to access capital markets

There are various demand, supply and policy factors limiting the access of SMEs to capital markets. The most important barriers are listed below.

- SMEs often lack the information to assess their creditworthiness, which is addressed by some lending platforms by using non-traditional information (World Bank Group, 2020).
- SMEs often lack the corporate governance that is required to issue securities, including equity and bonds (World Bank Group, 2020).
- The compliance requirements and costs accompanied with listing on regulated markets or multilateral trading venues are relatively too high for SMEs compared to larger companies. The costs are both direct costs (banks, auditors, lawyers, and other service providers) and indirect costs (compliance costs, stricter regulatory requirements). In the EU, these concerns are partially addressed by SME Growth Markets (Zachariadis, 2019).
- SMEs have a higher risk-profile than larger companies, which make these investments often an ill fit for retail investors and frequently fall outside the investment mandates of institutional investors (World Bank Group, 2020).

The limited interest from investors is reflected in the limited liquidity and price impact of trades in the markets dedicated to smaller companies, including SMEs (Zachariadis, 2019).

2. RECENT COVID-19 INFLUENCED CMU INITIATIVES AND SMEs

KEY FINDINGS

The diverse definition of SMEs, and the fact that capital markets only effectively consider large corporates, create problems.

The Covid-19 shock prompted the Commission to relaunch the CMU. However, the proposed measures, while useful in general, would have only had a delayed and small impact on SMEs.

Financing for SMEs consists mainly of bank credit, which is often subordinated to a personal guarantee. This limits SMEs' expansion capacities and their willingness to take risks.

Guarantee schemes can relieve this burden of personal guarantees for the owners/operators of SMEs.

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The steep recession caused by the 2020 Covid-19 crisis threatened to also affect the stability of capital markets and the overall financial sector. The Commission thus proposed a package of additional measures to reinforce the Capital Markets Union (CMU). This chapter will analyse to what extent the 16 initiatives proposed in late 2020 can be expected to improve access to finance for SMEs. But the chapter will start with a brief review of the SME landscape, drawing attention to the different definitions of 'micro', 'small' and 'medium' enterprises. It also presents an overview of the CMU package with a view to ascertaining whether any impacts could be already expected (as of early 2022). Finally, this chapter also draws attention to a neglected element of the financing of SMEs, name the personal guarantee that banks usually require from the owner/entrepreneur.

2.1. The varied universe of SMEs

There are several definitions in use at EU-level to define what counts as an SME, for both legal and statistical purposes. Most of the legal acts mentioning SMEs apply the official EU definition specified in Recommendation 2003/361¹. However, there is also legislation with alternative definitions for SMEs. These are either simplified versions of the EU Recommendation, topic specific or a combination of the EU Recommendation and topic specific definitions. Eurostat, as well as the Accounting Directive², use simplified versions of the EU Recommendation and specific definitions are applied in capital markets

¹ See: [Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises](#).

² See: [Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC Text with EEA relevance](#).

legislation. Finally, there are many legal acts that mention SMEs with legal provisions, but do not give a specific definition (De Groen et al., 2021).

2.1.1. EU Recommendation

The official EU definition of SMEs is provided in Recommendation 2003/361, which sets out thresholds for three criteria, namely staff headcount, turnover, and assets. SMEs are defined as enterprises employing less than 250 people and either having total assets worth less than EUR 43 million or a turnover up to EUR 50 million.

It is important to note for this definition that the method of calculation differs depending on if the enterprise is autonomous, partnered or linked (i.e. subsidiary or branch). While the thresholds for autonomous enterprises only apply to their own figures and the respective share of ownership for partnered enterprises, linked enterprises need to consider the total figures of all owned subsidiaries (>25 %) as well as shareholders (>25 %).

Using this definition, a total of around 36 million entities are counted as SMEs, representing around 98 % of all entities. SMEs furthermore represent around 36 % of total corporate employment, 22 % of total turnover and around 13 % of total assets. More than a third of SMEs are registered as limited liability companies (LLCs).

2.1.2. Accounting Directive

The Accounting Directive³ sets the accounting requirements for different sizes of limited liability companies. The size classification in the Accounting Directive uses similar thresholds to the standard Commission definition of SMEs⁴. The thresholds are less than EUR 20 million in assets, EUR 40 million in turnover and fewer than 250 employees. In contrast to the previous definition, at least two out of the three criteria need to be fulfilled to be categorised as an SME. The thresholds apply to stand alone entities and groups structures (including subsidiary figures). This means that the thresholds are applied on the figures published by most entities. Unlike the EU Recommendation, the figures from shareholders are not included.

2.1.3. Eurostat

Alternatively, Eurostat uses a simplified definition of SMEs for official statistics, only considering the headcount as its single criterium⁵. If an enterprise employs fewer than 250 people, it is considered an SME. Depending on the practice of national statistical offices, stand-alone entities or group structures are considered.

As both of these definitions are fairly similar to the EU definitions, the overall indicators and coverage are also mostly similar. Nevertheless, the Eurostat definition captures a much larger share of total turnover and assets, due to it being the least strict definition, with only one criterion.

³ See: [Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC Text with EEA relevance.](#)

⁴ Member States are allowed to apply lower thresholds. Moreover, thresholds in non-Euro countries may deviate due to currency translation differences (see [De Groen et al., 2019](#)).

⁵ See: [Eurostat webpage explaining the SME definition they use.](#)

2.1.4. MiFID II

A second group of definitions focusses on using companies' market capitalisation to classify it by size. Naturally, this definition only applies to enterprises that have their shares listed on either a regulated market or a growth market on a European stock exchange.

The MiFID II Directive⁶ defines an SME as a listed enterprise when its shows less than EUR 200 million as its total market capitalisation. Using this definition, more than 2 000 companies are defined as SMEs. This represents around 56 % of all listed companies. In terms of employees, this represents around 7 % of the total workforce of all listed companies. Similarly, SMEs only represent around 5 % of EU turnover and 3 % of the EU assets of all listed companies.

2.1.5. Stock exchanges

Exchanges may also have their own size classifications, similarly focussing on market capitalisation as the deciding criterion. Typically, enterprises are classified as SMEs if they show less than EUR 5 billion in market capitalisation (De Groen et al., 2020). Compared to the MiFID II definition, this encompasses a much larger number of listed enterprises. Around 91 % of listed companies are classified as SMEs, representing 36 % of the total EU workforce, 26 % of EU turnover and 17 % of EU assets considering all listed companies.

2.1.6. Overview

Table 1 clearly shows the difference between the statistical definitions. All three different statistical definitions (by the Commission, Eurostat or within the Accounting Directive arrive at a similar number of enterprises (36 million) and employment (somewhat above 60 million), with somewhat large differences in turnover (between EUR 18 and 24 trillion). In turn, for the stock exchanges, there are only 3 600 non-large enterprises. The average employment for SMEs is fewer than 2 200 employees, but about 3 600 for the exchanges.

Table 1: Key statistics for various EU SME definitions

	European Commission	Accounting directive ⁷	Eurostat	MiFID II	Exchanges
Legal base	Recommendation 2003/361/EC	Directive 2013/34/EU	Regulation 2020/1197/EU	Directive 2014/65/EU	N/A
Definition					
Employees	< 250	≤ 250	< 250	N/A	N/A
Turnover	≤ EUR 50 million	≤ EUR 40 million	N/A	N/A	N/A
Assets	≤ EUR 43 million	≤ EUR 20 million	N/A	N/A	N/A
Market capitalisation	N/A	N/A	N/A	< EUR 200 million	< EUR 5 billion

⁶ [Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU Text with EEA relevance.](#)

⁷ Thresholds used as laid out in the national transposition of the Accounting Directive.

	European Commission	Accounting directive ⁷	Eurostat	MiFID II	Exchanges
Criteria	Employees and Assets or Turnover	Two out of Employees or Turnover or Assets	Employees	Market capitalisation	Market capitalisation
Additional criteria		National transposition may change thresholds and criteria, only limited liability companies		Only listed enterprises	Only listed enterprises
Scope					
Number of SMEs	36 million	13 million	36 million	2 200	3 600
Total employment (employees)	60 million	47 million	62 million	2 million	10 million
Total turnover (EUR)	9 trillion	6 trillion	11 trillion	350 billion	2 trillion
Total assets (EUR)	18 trillion	26 trillion	24 trillion	900 billion	5 trillion
Limited liability (%)	34 %	100 %	34 %	100 %	100 %

Source: Own calculations based on European Commission and Eurostat data.

For the purposes of this study, the definition provided in EU Recommendation 2003/361 is used. It is the most widely used definition for SMEs and is based on employment as the key criterion. This is important, as emissions and consumption are tied to a company's activities, which can be proxied by the size of its workforce. The definitions that utilise market capitalisation are not useful in this case, as the scope is mostly concerned with a large quantity of very small companies, which are not listed on exchanges and therefore not captured by these definitions.

2.2. Covid-19 influenced CMU initiatives and their impact on SMEs

The European Commission launched an Action Plan on building a Capital Markets Union (CMU)⁸ more than six years ago, in September 2015, which then underwent a mid-term review in June 2017⁹. The main objective of the CMU is to create a single market for capital, in which companies, in particular SMEs, will have better access to non-bank finance and that local capital markets will be deepened and better integrated.

In September 2020, the European Commission announced a new CMU Action Plan¹⁰. This is primarily driven by three specific objectives. First, to support a green, digital, inclusive, and resilient economic recovery by making financing more accessible to European companies. Second, to make the EU an even safer place for individuals to save and invest in the long-term. Third, to integrate national capital markets into a genuine single market.

These three objectives are expected to be achieved through 16 actions¹¹, which can be clustered into three broad categories: SMEs (actions 1-6); retail (actions 7-9); and single market (actions 10-16). The actions are summarised in Annex 1, their implementation so far, the expected impact as of the end of 2021, as well as the potential impact that they could have on SMEs upon implementation. The first six actions relate to developing EU equity markets.

For most of these actions, any impact is yet to be seen. This is because many of them are not yet tangible, without – until recently – concrete legislative proposals (Lannoo and Thomadakis, 2020). Below we discuss the six actions related to EU equity markets.

2.2.1. Making companies more visible to cross-border investors

Increasing transparency, availability and timeliness of information, in particular financial statement information, can significantly contribute towards creating deeper EU capital markets. A standardised repository with complete and timely information on company financials has the potential to greatly enhance investor participation in financing European companies, especially SMEs. A large hurdle for investor participation in SME capitalisation is the lack of complete and timely information that can be used to evaluate the credit riskiness of a private company. While the lack of corporate data is less of an issue for listed companies, the vast majority of European SMEs are unlisted. At present, there is no Europe-wide private company database available.

The European Commission's action to set-up an EU-wide platform – the European Single Access Point (ESAP) – would increase SMEs' visibility towards EU and international investors, such as business angels, venture capital or private equity funds, and diversify their sources of funding. However, for ESAP to serve SMEs, it should provide seamless access to existing published information (both financial and non-financial) and not impose additional administrative burdens and new information obligations on companies. Moreover, and from a user's perspective, ESAP should accommodate a more balanced view focusing on both investors and SMEs. Currently, ESAP has a particular focus on the needs of investors and civil society, and less on SMEs.

⁸ See: [Communication From the Commission on Action Plan on Building a Capital Markets Union](#).

⁹ See: [Communication from the Commission on the Mid-Term Review of the Capital Markets Union Action Plan](#).

¹⁰ See: [Communication from the Commission on A Capital Markets Union for people and businesses-new action plan](#).

¹¹ See: [Annex to the Communication from the Commission on A Capital Markets Union for people and businesses - new action plan](#).

2.2.2. Supporting access to public markets

Public listing in the EU is relatively cumbersome and costly for SMEs, and particularly for micro companies. These companies do not consider listing in the EU as an easy and affordable financing method, specifically due to high administrative burdens, excessive costs and compliance when attempting to access public markets (Allotti *et al.*, 2021). Not only is it costly to initially list, but costs continue to accumulate after a company is listed, including (but not limited to) compliance and regulation requirements/fees. SMEs primarily depend on internal funds to finance investments (Thomadakis, 2017). Hence, internal funds or retained earnings account for almost two-thirds (66 %) of investment finance, while external funds account for about one third (33 %) (see Table 2). However, reliance on internal and external funding is especially related to the size of the firm, with micro enterprises being more dependent on internal funds (73 %).

Table 2: Source of investment finance in the last financial year, EU27

	Micro	Small	Medium	Large
Internal funds or retained earnings	73 %	66 %	60 %	58 %
External finance	27 %	33 %	38 %	37 %
Bank loans	58 %	61 %	59 %	59 %
Other bank finance	9 %	8 %	8 %	9 %
Leasing	23 %	22 %	24 %	19 %
Factoring	1 %	3 %	3 %	3 %
Loans from family/friends	3 %	2 %	1 %	1 %
Grants	4 %	4 %	4 %	8 %
Bonds	0 %	0 %	0 %	2 %
Equity	0 %	0 %	1 %	0 %
Other	0 %	0 %	0 %	0 %
Intra-group funding	1 %	1 %	2 %	5 %

Notes: Reported data is based on two questions: 1) What proportion of your investment was financed by each of the following?; 2) Approximately what proportion of your external finance does each of the following represent? All firms who invested in the last financial year (excluding don't know/refused responses).

Source: EIB Investment Survey 2021.

Looking more closely at the sources of external finance, bank financing is the most important external financing source. The use of market-based financing through public markets is of marginal importance, however. For micro companies, bank-based funding (bank loans, overdrafts, and other credit lines) accounts for 67 % and leasing or hire purchases for another 23 % of their external finding. In contrast, market-based sources of finance, such as bonds and equity, are rarely used by micro companies and other SMEs.

The European Commission's actions, first to assess the current listing rules for public markets and then simplify them, and second to create an SME IPO fund¹², should have an impact on SMEs. However, this would be less evident for micro companies, except fast-growing and innovative ones, which might benefit from steps to make access to public markets more attractive.

2.2.3. Supporting vehicles for long-term investment

European long-term investment funds (ELTIFs) are funds that invest in unlisted companies and projects, focusing on parts of the economy that often lacks access to traditional finance. However, only a few years since launch in 2015, take up thus far has been limited. As of October 2021, there are only 57 ELTIFs established across the EU (of which 26 are domiciled in Luxembourg), with an equally low amount of assets under management (EUR 2.4 billion) (PwC, 2021). These figures should incentivise the Commission to make the ELTIF a more attractive vehicle.

To this end, last November's Review of the ELTIFs Regulation¹³ extends the types of assets in which ELTIFs can invest. These include equity or quasi-equity instruments issued by qualifying portfolio undertakings, debt instruments, issuance of loans by the ELTIFs, participations in underlying funds, real assets, and securitisations. Allowing ELTIF managers more flexibility could mobilise the growing levels of private capital needed to address the financing gap felt by SMEs, as was highlighted by the High-Level Forum on the Capital Markets Union¹⁴.

Maximising ELTIFs' potential is vital for SMEs as they respond to the twin challenges of Covid-19 and the green transition. ELTIFs could help strengthen and support the EU's ambitions regarding the CMU, the European Green Deal, and the digital single market.

2.2.4. Encouraging more long-term and equity financing from institutional investors

For companies that seek long-term corporate investment, to sustain innovation, value creation and growth, equity finance is key (Chalençon and Marion, 2021). This form of financing is particularly relevant for companies that have a high risk-return profile, such as micro/small, new, innovative, and high growth companies (OECD, 2021). Equity financing can boost firm creation and development, whereas other equity instruments, such as specialised platforms for SME public listing, can provide financial resources for growth-oriented and innovative SMEs.

With trillions of euros worth of assets under management, the banking and insurance sector can largely help the economic recovery and the financing of the Green Deal objectives, by contributing towards long-term investments and equity financing for micros and SMEs. The European Commission's actions to remove regulatory obstacles for insurance companies to invest long-term, and to provide for an appropriate prudential treatment of long-term SME equity investment by banks, are excellent steps in this direction.

¹² See: [A Public-Private Fund to Support the EU IPO Market for SMEs](#).

¹³ See: [Proposal for a Regulation of the European Parliament and of the Council amending Regulation \(EU\) 2015/760 as regards the scope of eligible assets and investments, the portfolio composition and diversification requirements, the borrowing of cash and other fund rules and as regards requirements pertaining to the authorisation, investment policies and operating conditions of European long-term investment funds](#).

¹⁴ See: [A new Vision for Europe's capital markets](#).

2.2.5. Directing SMEs to alternative providers of funding

Alternative sources of finance, such as peer to peer lending (P2P) or crowdfunding, although very limited in size, can contribute to the financing of SMEs. For example, the recently adopted European Crowdfunding Service Providers (ECSP) Regulation¹⁵ provides a regulatory framework and a single set of rules to platforms operating across the EU that can encourage and facilitate micro enterprise financing.

Although the rejection rate of bank loans to micro and small businesses has been gradually decreasing since the global financial crisis (according to the Survey on the Access to Finance of Enterprises, SAFE), the Covid-19 pandemic has highlighted that financing conditions for these companies remain challenging.

The European Commission's action to set up a referral scheme that requires banks to direct SMEs whose credit application has been rejected to providers of alternative funding is very important. However, such a scheme may entail three risks. First, the possible channelling of business, such as lending, away from the regulated banking markets and into the less regulated 'shadow banking' sector. Second, it could lead to conflicts of interest, predatory practices, and market abuse. Third, it could add extra administrative burdens and costs not only for SMEs, but also for all players involved. Thus, although in theory a referral scheme may be of benefit for micros and SMEs, in practice it may end up having very little added value for these companies.

2.2.6. Helping banks to lend more to the real economy

Well-designed securitisation provides an effective tool for banks to free up their balance sheets and release capital. This is because securitisation allows loans and other receivables to become tradable, thus allowing for the redeployment of capital, support to SMEs and spur the recovery from the pandemic. Moreover, ESG and green securitisation – if well supported – could also financially contribute to the transition to a more sustainable economy overall.

The revival of the European securitisation market, which has been in hibernation since the global financial crisis, can create more so-called high quality liquid securities that can be used as collateral by investors who want to build up diversified portfolios, which are exposed to various market segments and to alternative borrowers such as SMEs.

2.2.7. Overview

Overall, we find that in most cases any significant impact cannot be expected at this stage. We found that none of the actions had any impact on micro companies or other SMEs at the end of 2021. For a few of the actions, and upon implementation, we anticipate a potential future impact on micro companies and other SMEs (especially for start-ups and high growth companies).

¹⁵ Regulation (EU) 2020/1503 OF the European Parliament and of the Council of 7 October 2020 on European crowdfunding service providers for business, and amending Regulation (EU) 2017/1129 and Directive (EU) 2019/1937. See: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R1503>.

2.3. The neglected topic of personal guarantees

Traditionally the financing structure of an enterprise is described by the relative amounts of debt and equity on the balance sheet. In the case of SMEs there is one additional element which is off-balance sheet but plays a key role – the personal guarantee of the sole or main owner mainly provided for unsecured loans. When the bank extends a credit without (tangible) collateral it usually requires some form of protection to provide the loan at an acceptable rate. It is evident that personal guarantees are demanded by the bank only when the legal form is limited liability (e.g., GmbH, SA, etc.). This is because that under this form of company, the business owner is not personally liable for any debt incurred from the business.

SMEs depend mostly on credit from banks for their external financing needs. This is not surprising since banks have some knowledge about the business via their provision of payment services and through longer-term credit relationships. It is more difficult for the wider public who invests via the capital market to obtain information about an SME because the balance sheet information is often very country specific. The initiatives to make balance sheets comparable across countries could thus open access to the wider capital market for some SMEs. However, this might always remain difficult for micro-enterprises.

Personal guarantees are usually not considered in debt/equity ratios statistics. This means that the standard analysis of an SME's financial situation might miss an important element.

Personal guarantees are not included in standard debt/equity analysis because they are off balance sheet and difficult to put into the debt/equity scheme. A personal guarantee for a loan is different from equity, because equity gives the right on the residual claim. This means that the holders obtain all what is remaining after debt holders have been paid. For equity, the upside is unlimited, but the downside is limited to the price paid for the equity. For the person giving the guarantee, it is very different if one considers the guarantee in isolation: the upside is essentially zero and the downside is potentially very large (up to the amount of the loan granted and potential unpaid debt servicing costs). However, if the principal capital owner extends the guarantee, their pay-off structure become more symmetric: the owner obtains the returns when things go well, but also has to carry the losses if they become so large that debt cannot be serviced.

One consequence of a personal guarantee is it might make the owner more risk averse. A survey among 1462 American SMEs found that personal guarantees can lead to underinvestment as 12.5 % of owners of incorporated small businesses decided not to undertake a positive net present value project because the lender required a personal guarantee (Brown and Saunders, 2020)¹⁶.

Some empirical literature exists which suggests that personal guarantees are widespread and that at least a third, in some cases even more than half, of SMEs provide personal guarantees when taking a loan to finance their activities (Purbeck Personal Guarantee Insurance Survey of 1000 SME Owners and Directors, 2021)¹⁷ (Uesugi, 2018)¹⁸. In the US, the proportion of SMEs providing PGs might be even higher. A 2019 FED survey among 5 514 SMEs found that 59 % of SMEs with debt used a personal guarantee to secure their debt (49 % used business assets)¹⁹.

¹⁶ See: [Entrepreneurial Finance: Analyzing the Demand for the Personal Guarantee](#).

¹⁷ See: [1 in 3 Small Business Owners became Personal Guarantors in 2020 - 22% haven't told their spouse or partner](#).

¹⁸ See: [Competitiveness of SMEs: Exploring possibilities of unsecured financing](#).

¹⁹ See: [2020 Report On Employer Firms: Small Business Credit Survey](#).

However, one must keep in mind that personal bankruptcy proceedings in the US are much less severe than in the EU and the period needed to be able to start afresh is much shorter.

In the UK, the government even requested banks to waive personal guarantees for SME coronavirus loans (Thomas, Parker, and Megaw, 2020). Personal guarantees naturally imply a large risk for owners. According to the UK Responsible Lending Report, which includes a survey of 200 SMEs undertaken during April 2021, nearly half (47 %) of SME owners do not properly understand personal guarantees when taking out a loan²⁰. This is a big percentage given the very prevalent use of personal guarantees for SME financing. In a study by the IMF, it found that, because of personal guarantees, business insolvencies may lead to personal insolvencies even if the business is a separate legal entity (Bergthaler et al., 2015)²¹. In Europe, the overlap and conflation of business and household assets and liabilities are generally not very well covered. Moreover, SMEs are prone to a higher fixed cost of restructuring in case of insolvency, as bank loans are secured by real estate and other personal guarantees.

According to the Spanish Association of Accounting and Business Administration (AECA), (personal) guarantees fulfil a dual purpose²². On the one hand, they facilitate credit recovery to the income assessed for its granting. On the other hand, guarantees can counteract moral hazard. Both are motivations for lenders to request personal guarantees from business owners applying for credit.

Personal guarantees thus involve risks for the guarantor (primarily the owner) but they also help the firm to grow if the only alternative is no loan at all. Brault and Signore (2019) find that guaranteed loans can positively affect a businesses' total asset growth by between 7 % and 35 %, sales by between 6 % and 35 %, employment by between 8 % and 30 % and decrease a business' probability to default by between 4 % and 5 %²³.

Guarantees provided by the government (or via lending schemes operated by the EIB) can reduce the detrimental effects of personal guarantees because they lessen the need for bank collateral. For example, the Italian government provides guarantees through Fondo di Garanzia (De Blasio et al., 2017). Eligibility is determined by a scoring system. The authors found that these guarantees have a positive impact on bank loans to businesses, with interest rates staying unchanged.

All in all, we conclude that personal guarantees are viewed by banks as an essential risk mitigation element. Compared to the alternative of no credit at all, they do help SMEs, but mostly in older economic sectors. However, personal guarantees also put a limit on the level of risk that entrepreneurs are willing, possibly limiting the expansion of innovative start-ups. This is where public guarantees (and of course more venture capital) might be beneficial.

²⁰ See: [Responsible Lending Report: An analysis of SMEs' risk awareness when taking out finance](#).

²¹ See: [Tackling Small and Medium Sized Enterprise Problem Loans in Europe](#).

²² See: [Guarantee system. Keys for their implementation](#).

²³ See: [The real effects of EU loan guarantee schemes for SMEs](#).

3. SMEs IN THE GREEN ECONOMY: THE CASE OF ENERGY EFFICIENCY FOR RESIDENTIAL BUILDINGS

KEY FINDINGS

Heating buildings, especially residential buildings, is responsible for a significant portion of the EU's overall GHG emissions.

Thus, reducing this sector's emissions is indispensable.

Increasing the energy efficiency of homes is an important part of the green transition.

SMEs, especially micro enterprises, will be called upon to undertake many of the energy efficiency measures in the residential housing sector, especially those that aim to improve the efficiency of housing stock (insulation, heat pumps, rooftop solar, etc.).

Reaching the 'fit for 55' targets requires a substantial increase in residential (energy related) investment, which would have to double relative to the level recorded over the last decade.

Innovative financing mechanisms to facilitate this work from both households and SMEs already exist but need to be strengthened.

In this chapter, we focus on one particular aspect of the green economy, where SMEs are particularly important, namely the building sector²⁴.

The EU's overall green ambitions are clear:

"The European Union has set itself ambitious targets with the long-term goal of achieving climate neutrality by 2050. The latest intermediate target is now to cut emissions by at least 55 % by 2030".

Official documents also testify to the importance of the building sector:

"Reducing emissions from buildings must constitute a considerable part of the effort since: Collectively, buildings in the EU are responsible for 40 % of our energy consumption and 36 % of greenhouse gas emissions, which mainly stem from construction, usage, renovation and demolition²⁵".

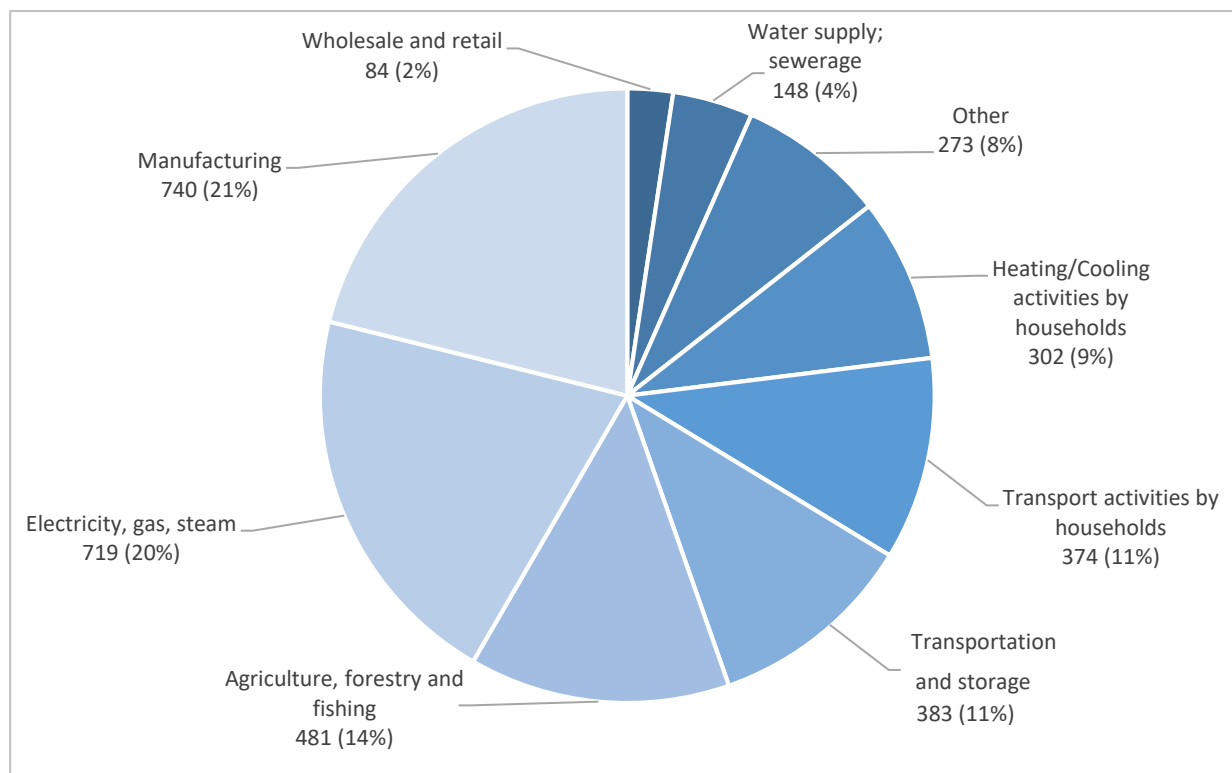
It is difficult to follow these claims that "collectively, buildings in the EU are responsible for ... 36 % of greenhouse gas emissions".

The European Commission provides detailed figures on the distribution of overall GHG emissions in the EU by NACE sector. 'Buildings' as such do not constitute a NACE sector. The quote above thus refers to the "construction, usage, renovation and demolition" (of buildings). We focus here on "usage", which in practice means mainly heating. This is an activity which can be identified separately for residential housing. Data exists for emissions caused by household heating (and less by cooling). As Figure 3 below shows, heating households amounts to about 9 % of total emissions (300 million tons of GHG equivalent).

²⁴ Given the limited size of this study, we are not able to document and discuss the role of SMEs in other sectors. SMEs are likely to play a somewhat smaller role in the production of renewables and in industry overall.

²⁵ See: [In focus: Energy efficiency in buildings](#).

Figure 3: Distribution of GHG emissions by sector in EU27 (in million tonnes of CO₂ equivalent and share of total GHG emissions in EU27)²⁶



Source: Eurostat, [air emissions accounts by NACE Rev. 2 activity](#).

We are interested in the potential energy savings in the residential housing sector. As we will argue below, this is a sector where the role of SMEs is strongest. A rough approximation of the emissions generated by this sector can be obtained by analysing the emissions of the household sector, which amount to 20 % of the EU total.

The different measures taken to reach the decarbonisation targets for buildings are well known. They include at the Member State level:

- Indicative Member State contributions to EU-wide energy efficiency targets;
- Legal mandates to make energy efficiency a priority in planning and investment decisions;
- Required renovation rates of 3 % by Member States of the total floor area of all public buildings;
- Energy use reduction targets of 2 % per year in the public sector by Member States;
- Recommendation that the public sector uses Energy Performance Contracts in the renovation of large non-residential buildings;
- Contractual rights on heating, cooling and hot-piped water.

(Source: [Fit for 55: Building Factsheet](#))

Moreover, several rules regarding energy efficiency in the residential sector are included in the Energy Efficiency of Buildings Directive²⁷.

²⁶ "Other" means the following sectors: accommodation and food service activities, information and communication, financial and insurance activities, real estate activities, construction, professional, scientific and technical activities, administrative and support service activities, public administration and defense; compulsory social security, education, human health and social work activities, arts, entertainment and recreation, other service activities, activities of households as employers; undifferentiated goods and services-producing activities of households for own use, activities of extraterritorial organisations and bodies.

²⁷ See: [Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings](#).

We will concentrate on the role of SMEs in the implementation of these measures.

Box 2: Commission's Communication - 'Fit for 55' delivering on the EU's 2030 climate target

Building on the EU's Green Deal, 'Fit for 55' is a package of proposals by the European Commission (2021) to achieve the EU-wide goals of reducing net greenhouse gas (GHG) emissions 55 % by 2030 compared to 1990 levels, and eventual climate neutrality by 2050. Proposals in the 'Fit for 55' package cover large areas contributing to the energy goals, such as sustainable transport and mobility, renewable sources of energy, and biodiversity.

To bolster zero or low-emission vehicle production, emissions trading will be extended to road transport. Hence, emissions generated by new cars should be net zero by 2035, while overall emissions from all cars combined should drop by 35 % up until 2035. Moreover, a strong emphasis is placed on the need to create new infrastructure to support lower-emission vehicles, including, for instance, a broad network of charging stations. Similarly, carbon pricing should be extended to both the maritime and aviation sector to encourage cleaner fuel use, as well as innovations in these areas.

The package also envisages the adoption of renewable energy sources. Among the related targets, the Commission has proposed that at least 40 % of all energy consumed in the EU should stem from renewable sources by 2030.

To discourage companies from engaging in carbon-rich production in countries with looser regulation, a carbon border adjustment mechanism is proposed. This mechanism would allow for an additional price placed on carbon-heavy imported products produced in non-EU countries. This to avoid the case where emissions generation is shifted outside the EU.

Revenues from the new emissions trading mechanism will also be used to establish a Social Climate Fund. The EUR 72 billion allocated to this fund would be used by Member States to support entities most affected by the transition, for example, to increase energy efficiency in buildings used by households and micro-enterprises. Further funding for climate action will be provided under the EU's NextGenerationEU economic recovery package, as well as significant support to SMEs and start-ups via Horizon Europe.

In addition to reducing emissions, the package is designed to create new jobs in sectors that will contribute most to achieving the energy goals.

Part of the package aims to increase renovation efforts, as most buildings are not energy-efficient. For instance, many rely on fossil fuels for heat generation. Inadequate building envelopes are also identified as an area of concern. The Commission estimates an additional 160 000 jobs could be created through the process of increased renovation, requiring an additional EUR 275 billion of annual investment. To help drive this effort, the public sector will be required to renovate 3 % instead of 1 % of its buildings stock each year. Similarly, new minimum energy performance standards aim to drive further renovations. This is especially important for the most energy-inefficient buildings, which are mostly inhabited by low-income tenants and micro companies who often cannot afford costly renovations. Funds from NextGenerationEU, Horizon Europe and the proposed Social Climate Fund will be used to ease the impact of renovation costs.

3.1. SMEs and emissions savings in the residential construction sector

Conceptually, one could distinguish between two contributions SMEs could make to the green economy in the residential building sector:

- The energy used (emissions caused) by the SMEs operating in this sector;
- The energy saved (emissions avoided) by investing in energy efficient buildings.

The data presented below indicates that the second contribution is much more important.

3.1.1. The energy used (emissions caused) by the SMEs operating in the residential building sector

It is difficult to separately estimate the energy used (and thus the potential for energy savings) for SMEs. A CEPS study has quantified the savings connected to one particular instrument, namely energy audits (De Groen et al., 2021). This study estimates energy consumption and GHG emissions data at the company level, using the sector and number of employees in combination with Eurostat data on energy expenditure per country and sector. Mai et al. (2017) estimate that the potential energy savings in this activity could be up to 15 %, with 5 % more likely to be reached.

As Table 1 below shows, the total emissions caused by SMEs in the construction sector are only estimated at about 27 million tons of GHG equivalent per annum. This implies that the energy savings one could expect from energy audits are substantial (5 % to 15 % of 27 million amounts to 1.5 to 4.5 million tons) but rather limited compared to the overall emissions caused by households through heating and cooling (see Figure 3).

3.1.2. Potential emissions avoided through investments in the residential housing sector

We therefore see a much greater potential here because emissions caused by household heating are currently high (9 % of the total) and their reduction is one of the most difficult elements of the 'Fit for 55' package to address.

The next section will analyse this issue in more detail.

3.2. The residential construction sector

Here we document the structure of the residential building/renovation sector. This is a sector which is dominated by SMEs, often micro companies.

It is widely accepted that achieving the 'Fit for 55' targets would require an unprecedented acceleration in the improvement of buildings' energy efficiency, which has thus far led to the halving of emissions over the last 40 years²⁸. The green transition requires a rate of (energy efficiency) renovation of about 3 % of the existing building stock annually, against less than 1 % today as detailed in the [Factsheet of the Commission](#) cited above. Other analysts concur on the need to increase the rate of renovation.

The renovation of buildings to increase energy efficiency does not have economies of scale as each building is different and the potential savings on energy must be separately evaluated in each case, depending on the state of the building, the material used at the time, etc. This applies in particular to residential buildings. Each house constitutes a different project and even in apartment buildings, different tenants often have different preferences and means for undertaking energy improvements. The same consideration applies to the deployment of photovoltaics on residential buildings. Here again, each installation must be tailored to the specific needs of the individual building.

The myriad of small efficiency improvements and the millions of small photovoltaic installations which will be needed to improve residential buildings' energy efficiency will be implemented mainly by SMEs, whose activities in this sector must expand considerably if the ambitious targets are to be achieved.

Some of the materials needed for energy efficiency, such as solar panels and heat pumps, are produced by larger enterprises. However, these must be installed and maintained by local specialists, which are often micro companies.

The importance of photovoltaics is well known. But some argue that halving the emissions arising from residential heating requirements would require a substantial expansion of electric heating via heat pumps²⁹.

We do not want to debate here which specific energy efficiency measures are the most cost effective. We concur with 'Fit for 55's' Impact Assessment, which argues that renovation activities should be bundled³⁰.

Table 3 below shows the estimated contribution of the residential construction sector to overall emissions and documents the important role SME have in reducing it.

The second column shows the GHG emissions caused by the activities of the construction sector, which are estimated at 55 million tons of GHG, or only 2 % of total emissions.

²⁸ Since the first measures were introduced under national building codes, the energy consumption of new buildings has halved, relative to typical buildings from the 1980s.

See: [In focus: Energy efficiency in buildings](#).

²⁹ See: [Towards more efficient heating and cooling in Europe's buildings](#).

³⁰ The 'Fit for 55' Impact Assessment argues that renovation activities should be bundled:

[Impact Assessment Accompanying the Communication from the Commission on Stepping up Europe's 2030 climate ambition; Investing in a climate-neutral future for the benefit of our people](#).

"Modelling shows that it is more cost-efficient to increase the depth of renovations towards deep renovation and through a holistic approach combining measures in the building envelope with the upgrading of the heating systems and integrating renewable energy solutions".

See also: [EU Buildings Factsheets](#);

[Great opportunity to kickstart the market for deep retrofits - EuroAce press release on new requirements for public buildings](#).

We estimate that SMEs are responsible for about half of the sector's total (27 million tons). As mentioned above, this should be compared to the around 300 million tons of GHG emissions caused by household heating and cooling.

Table 3: The residential construction sector's contribution to GHG emissions and its employees

Classification	GHG emissions (in million tonnes)			Employment (in million employees)		
	All sectors	<i>Of which residential construction sector</i>	<i>Share of residential construction sector</i>	All sectors	<i>Of which residential construction sector</i>	<i>Share of residential construction sector</i>
Micro	434	8	2 %	24	1	4 %
Small	339	10	3 %	19	1	5 %
Medium	307	9	3 %	17	1	6 %
SME	1 079	27	3 %	60	3	5 %
Large companies	1957	28	1 %	99	2	2 %
All	3 036	55	2 %	159	5	3 %
<i>Share of SMEs</i>	36 %	49 %	..	38 %	60 %	..

Source: Own calculations based on Eurostat data.

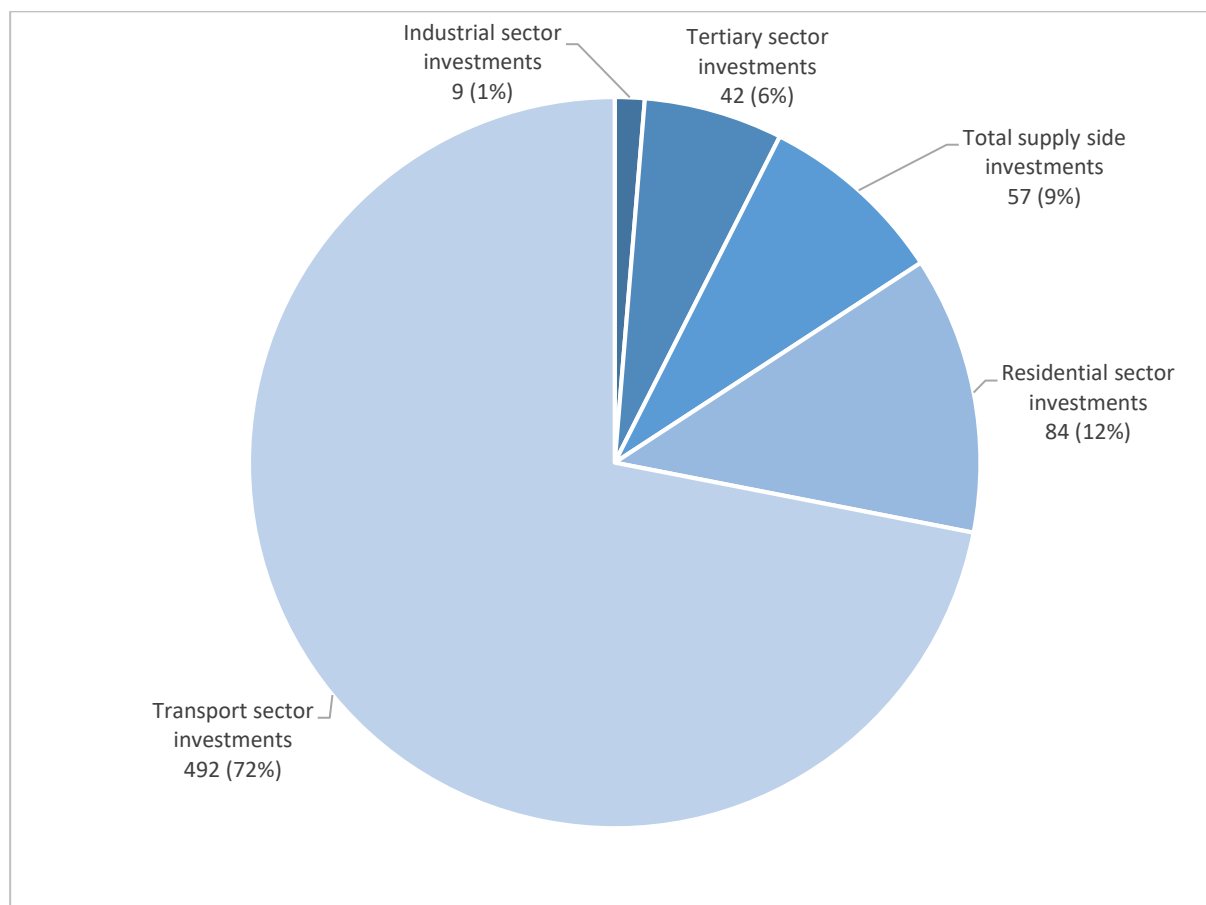
Moreover, Table 3 shows that SMEs represent a larger share of the construction sector compared to the general economy (=all NACE sectors). If one considers the wider universe of all NACE sectors, SMEs account for about 34 % of all employment and 36 % of all GHG emissions. By contrast in the residential construction sector, SMEs account for over 60 % of employment and a lower share, namely 49 % of GHG emissions.

3.3. Investment needs in the residential housing sector

The green transition will require a steep increase in investment. The annex to the Commission's 2020 impact assessment³¹ provides some overall figures that are shown in Figures 4 and 5 below.

The first chart (see Figure 4) shows the past level of actual investment in different key sectors. This provides the starting point from which one can calculate the additional effort needed to reach stronger emission reductions. This shows that during the past decade, energy related residential sector investments were running at about EUR 84 billion per annum – a small, but still significant share of the overall energy related investments of about EUR 680 billion.

Figure 4: Actual investments between 2011 and 2021 (average)

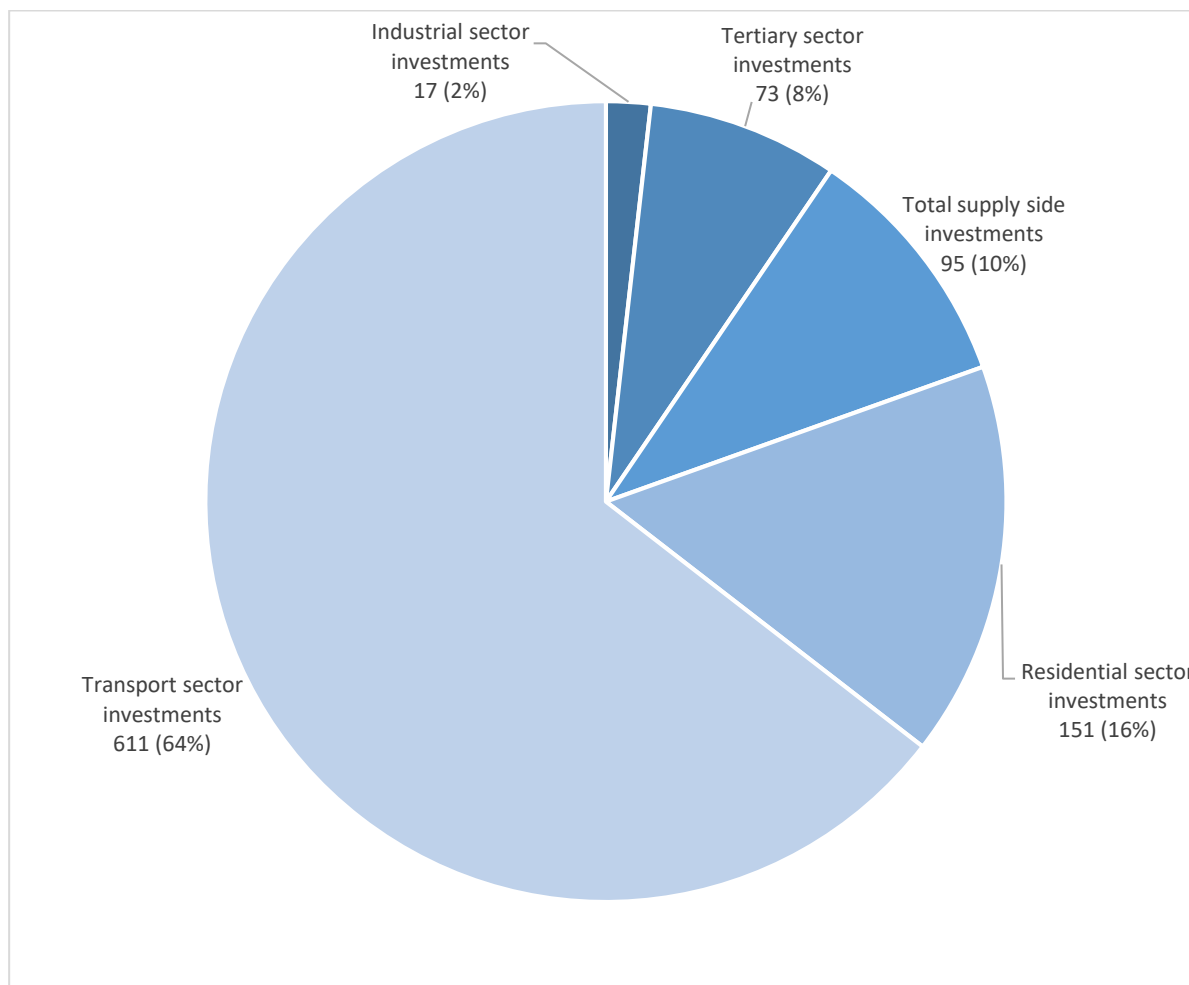


Source: Own calculations based on figures from the European Commission (2020).

³¹ See: [Impact Assessment Accompanying the Communication from the Commission on Stepping up Europe's 2030 climate ambition; Investing in a climate-neutral future for the benefit of our people.](#)

The second chart (see Figure 5) shows the (annual) investment needs for the next decade projected by the European Commission under the 'old' baseline target, namely to reach a 40 % reduction in emissions by 2030 (relative to 1990 levels). The total (energy related) investment needs would then increase by about 40 % to EUR 850 billion. However, the sum needed in the residential sector would increase by twice that rate, namely 80 % (from EUR 84 billion to EUR 151 billion per annum).

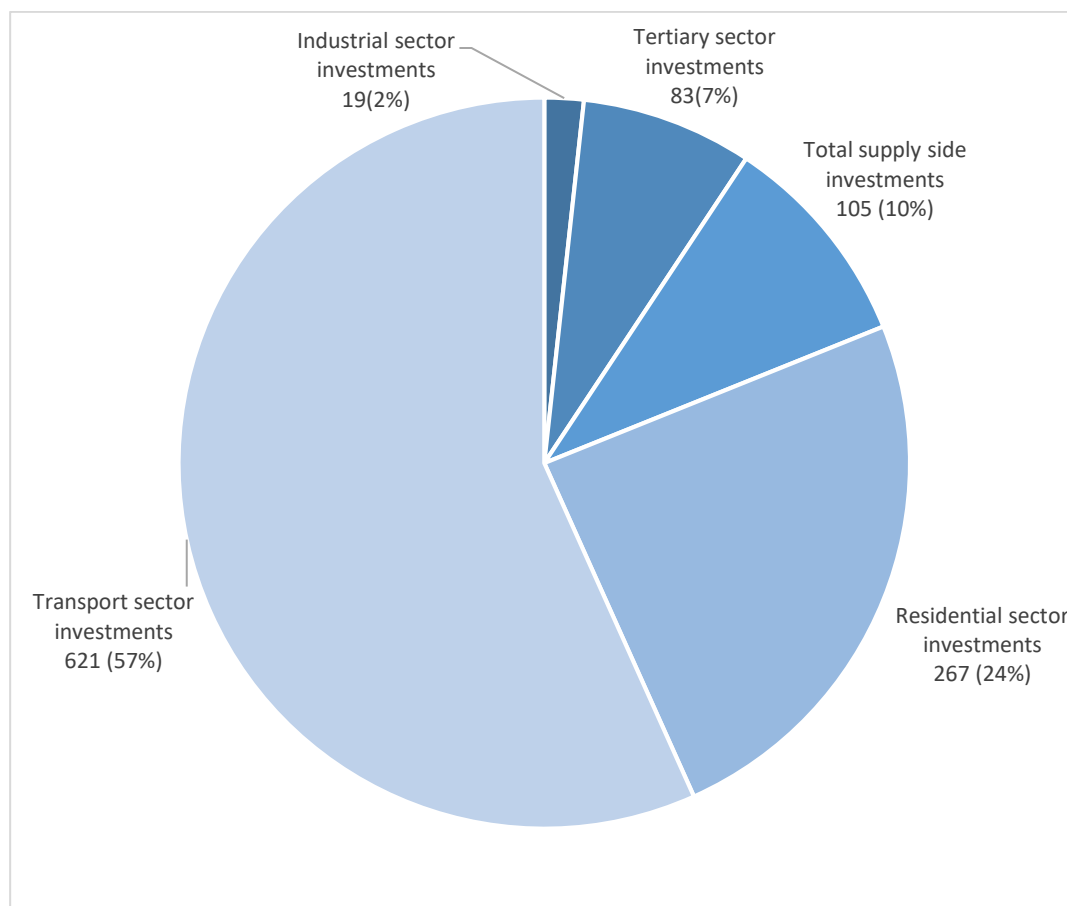
Figure 5: Investment needs baseline 2021-2030 (average)



Source: Own calculations based on figures from the European Commission (2020).

The “old” baseline of a reduction of 40 % has been superseded in the ‘Fit for 55’ package by the new goal of a reduction of 55 % to be reached in 2030, and net zero emissions in 2050. We concentrate here on the implications of the 2030 targets, which have the largest impact on the investment needs for the immediate future. The impact assessment shows that investment needs differ in some important aspects, depending on the mix of measures employed to reach the target. Market-based mechanisms with a carbon price usually yield lower investment needs, because a carbon price leads to a more efficient use of capital than regulations. Figure 6 shows the (energy related) investment needs, assuming the EU applies a mix of regulatory and price-based instruments.

Figure 6: Investment needs mix, 2050 scenario

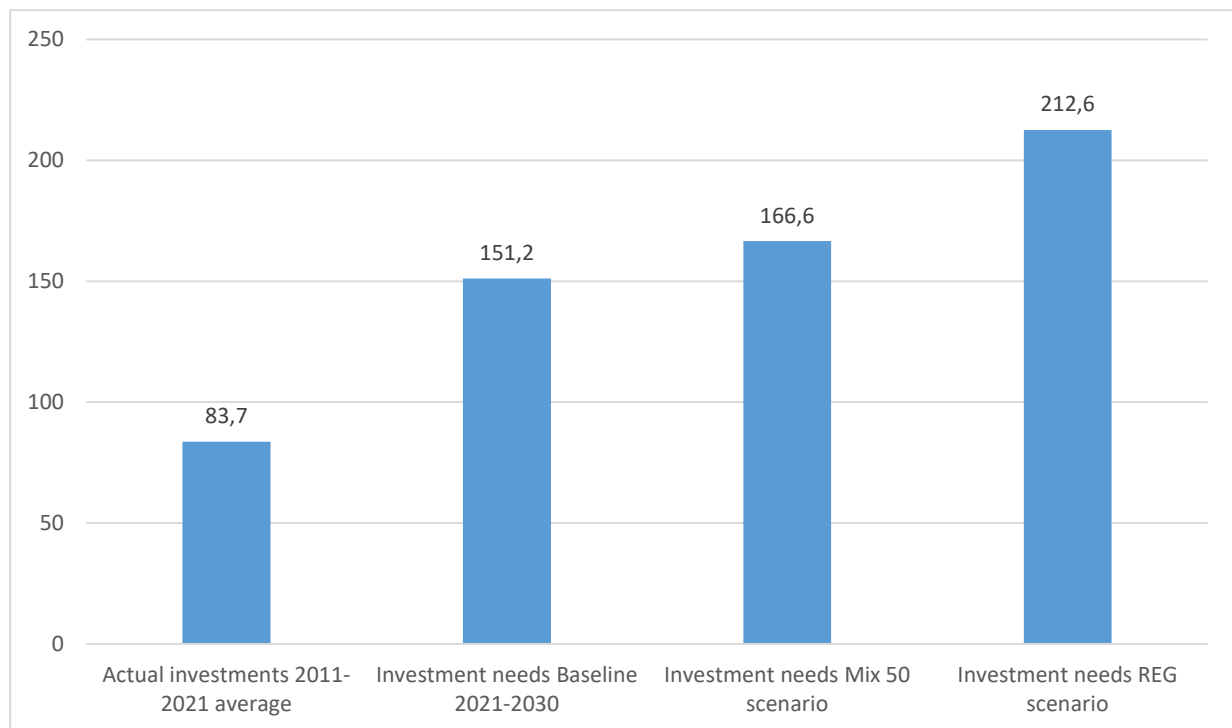


Source: Own calculations based on figures from the European Commission (2020).

The higher emission reduction targets require even higher (energy related) investments, around EUR 166 billion, more significant now relative to the biggest sector (transport), but only about 10 % higher than the figure under the old baseline (of an emission reduction of 40 % by 2030).

The final chart below concentrates only on (energy related) residential investments and shows the totals for the past decade, as well as the needs 2021-2030 under different scenarios.

Figure 7: Investments in residential housing sector (in real 2015 EUR billion)



Source: Own calculations based on figures from the European Commission (2020).

This comparison shows the steep increase needed in residential investments, which amount to roughly a doubling of the level recorded over the past decade. This has two implications: first, the SMEs in this sector will face a rapidly growing market, but they will also need to rapidly increase their own capabilities, including large amounts of working capital.

3.4. Innovative financing models for residential energy savings measures

A key issue for residential energy savings investment is that they involve a relatively large initial outlay and a payoff which stretches far into the future, and which is often difficult to foresee for consumers. This is one of the reasons why many households do not undertake energy savings investment. Amelie and Brandt (2015) show the main determinants of households' willingness to adopt clean energy technologies. They find that 'households' propensity to invest in clean energy technologies depends mainly on home ownership, income, social context and household energy conservation practices'. Trotta (2015) has similar results. These suggest that cost-benefit analysis is not the key determinant of energy savings investment. Moreover, as one would expect, poorer households, especially those who rent, are least likely to invest in clean energy savings.

SMEs themselves are not able to provide financing because of their own limited access to finance. Indeed, an owner of an SME is unlikely to dedicate the business' line of credit to financing the insulation of a building to reduce its energy costs when responsible for the credit via a personal guarantee.

New financing models are needed which will allow SMEs to better propose and implement energy savings investment in the residential housing sector.

We concentrate on the residential housing sector because the owners/operators of commercial buildings have easier access to finance and are also more likely to be able to calculate the return on these investments. There are also cases, of course, where the private owners of residential buildings might face financing constraints. In extreme cases it might even be less costly to tear the building down and rebuild from scratch. For poor households this might not be affordable or financially viable. This aspect needs to be dealt with separately.

There are dozens of EU-level initiatives to foster innovative financing models but most of them are rather small-scale and the total amount involved is limited (less than EUR 100 million over several years). Many of them were financed under Horizon 2020³². Annex 2 provides a list and the relevant sources on the initiatives.

These initiatives are all useful in themselves, but they seem to differ and have little connection to each other. Moreover, most of the implemented schemes implemented are local. Cross-border schemes are more limited. This seems a lost opportunity as larger, more cross-border oriented schemes might have helped the development of the CMU.

We take a closer look at a selection of programmes from the list of 25 projects that are performing well and have been or are planned to expand to other countries. We only included programmes that have already ended to properly assess their performance. These projects have both different types of financing and different objectives. Some of these projects take on the financing themselves, while others focus more on capacity building for other initiatives, and some try to tackle both. Of course, this list is non-exhaustive, and more examples can be found in Table 4.

Some projects have achieved better energy savings compared to the funding received than others. It is important to note that in our relatively small sample the best performing ones tackle the issue on all fronts. They link users and utilise different types of instruments, instead of focusing on one instrument. Another possible difference is that several projects try to standardise contracts, so stakeholders are able to work with them even after the end of the projects, thus ensuring that the acquired knowledge during the project is not lost.

A common factor among some successful projects is a pre-screening for SMEs. They often perform a technical and financial assessment to select the most viable solutions for certain companies. What is noteworthy is that the environment must also be considered. Western European countries generally have more modern and already more energy efficient buildings, therefore the improvements in eastern European countries are proportionally greater, but household incomes are lower. Of course, other factors, such as the level of development of the financial markets also plays a role. Unfortunately, there was no data available on how the exact amount of Horizon 2020 support was spent and what proportion went into direct investments or capacity building.

Differences in local conditions vary enormously across Member States. However, some lessons seem to apply more generally.

First, assistance and advice for stakeholders is needed throughout the whole process (planning, project development, financing and implementation), not just during one particular phase.

³² The following EU-level initiatives all fall under Horizon 2020:

- Trust EE (focussed on institutional investors);
- E-FIX (mostly eastern Europe);
- ESI Europe (energy savings mechanism for SMEs);
- eEaaS (promotes energy efficient material as a service);
- EuroPACE (property-linked on-tax finance for home renovation);
- Ren-on-bill (on-bill financing for residential building innovations).

Standardising and easy access to contracts and/or legal guidance are elements of this. Intermediaries are needed between the three main parties:

- SMEs;
- Financial institutions / insurance companies; and
- Installing / renovating party.

Second, a diverse mix of financing options is needed. This is a key point. The projects listed below are essentially only pilot projects with very limited financing. The total amount over dozens of projects equates to scarcely EUR 100 million, whereas the required amounts shown above amount to over EUR 100 billion.

The EIB has a special programme entitled “Private Finance for Energy Efficiency (PF4EE)”, which aims to unblock a more substantial amount (EUR 480 million) of private investment. However, this amount is based only on EUR 80 million from the LIFE Programme to fund credit risk protection and expert support services.

One must keep in mind that the EIB will not provide credit to households. It only invites banks to submit their own lending schemes for re-financing with some loss protection under this programme.

In addition, there are numerous other EU programmes that provide funding for the green transition, which are not innovative financing or focused on SMEs. This includes the various initiatives under the Just Transition Mechanism, Funding for Climate Action, the Innovation Fund, the Modernisation Fund and Connecting Europe Facility (CEF).

Table 4: Selection of SME-related projects that have been successful under Horizon 2020

Project name	Country/region	Why is this project successful?	Project performance	Type of financing	Total H2020 funding
E-FIX	Armenia, Austria, Croatia, Czech Republic, Georgia, Poland, Russia	What sets E-FIX apart from the other projects is that it offers a country-specific approach and is looking towards the long term by implementing training material and establishing experts at the country level. The country-specific approach also allows for flexibility in the financing method, instead of focusing on one type of financing vehicle across countries.	E-FIX has already helped save a total of 54 GWh of energy per year across six countries. A total of 78 projects were implemented which led to additional investments of EUR 31 million.	EPC Crowdfunding Leasing	EUR 2.0 million
ESI Europe	Croatia, Greece, Italy, Portugal, Spain, Switzerland	<p>Financing instruments, such as green loans, are identified and linked to energy efficiency projects. This supports access to collateral. The project acts as an intermediary to bridge market failures due to a lack of information.</p> <p>ESI Europe does this by standardising contracts, creating new products for local providers, as well as linking already existing local market financial instruments to SMEs.</p> <p>Moreover, it assesses the technical possibility of energy efficient investments through independent validators.</p> <p>ESI really tries to get financial institutions and insurance companies on board and not just leaving innovative financing to smaller players.</p>	ESI Europe has trained 1 655 stakeholders during the project and has mobilised between EUR 979 million and over EUR 1.7 million in private investments that generate between 1 582 and 2 766 GWh of energy savings per year.	Green Bonds EPC	EUR 2.3 million

Project name	Country/region	Why is this project successful?	Project performance	Type of financing	Total H2020 funding
TrustEE	Austria, Germany, Portugal, Spain, Sweden	<p>TrustEE works on tailor-made solutions for investors. It handles the whole financing process for them, screens the concerned projects through a technical assessment and offers flexible refinancing to investors.</p> <p>TrustEE focuses mostly on projects with almost no access to external financing and no specific know-how. It uses the results from success stories as a basis for future projects.</p> <p>It is a single tool that handles development, assessment, and financing, taking away risk and exposure from investors.</p>	The project has been commercialised and transferred to a platform which already has an investment volume of EUR 10 million.	Green Bonds	EUR 1.4 million
EuroPACE	Belgium, Finland, Italy, Poland, Spain, UK	<p>EuroPACE is a bit of the odd one out as it allows the homeowners/SMEs to mitigate all risk towards private investors who upfront the investments. The long-term obligation is linked to the property itself and not to the homeowner/SME. This allows for private lenders to grant the loan at lower rates.</p> <p>The municipalities collect the loan repayment through a special levy collected alongside property tax and is funnelled to the private investors.</p>	By 2025, EuroPACE aims to produce 45 000 jobs, EUR 5 billion of capital in local economies across the EU27, 300 000 retrofitted buildings and 3.5 MWh per year of CO2 savings, which equals 1.8 million tons.	On-tax financing	EUR 2.4 million

Project name	Country/region	Why is this project successful?	Project performance	Type of financing	Total H2020 funding
		<p>EuroPACE also acts as an intermediary between homeowners/SMEs, investors, equipment installers and local governments.</p> <p>This reached beyond energy efficient investing and if implemented could result in a self-sustaining business model while allowing structural renovations to be done. The project has also implemented long-term technical assistance and standardisation. This can allow for a democratisation of energy efficient investments in a decentralised way.</p>			
guarantEE	Austria, Belgium, Czech Republic, France, Germany, Ireland, Italy, Lithuania, the Netherlands, Norway, Romania, Slovakia, Slovenia, Spain	<p>This project developed an EPC pre-check tool to ascertain if a project is suitable for EPC contracting, allowing it to work more efficient than its peers do.</p> <p>Another reason is that it tackles the issue from all perspectives, ESCOs, users and building owners (triple-win approach) by letting them share the benefits and costs.</p>	<p>36 pilot projects were able to achieve 724 GWh primary energy savings and 48 000 tons of CO2 savings per year, as well as triggering EUR 190 million of investments.</p> <p>The energy savings were almost tenfold of its ambitions.</p>	EPC	EUR 1.6 million
EPC_PLUS	Austria, Belgium, Bulgaria, Czech Republic, Germany, Greece, Ireland, Italy,	EPC organised SPINS (SME Partnerships for Innovative Energy Services), which are national clusters that jointly agree on common objectives through long-term collaboration. Once again, it	Cumulative investments by EU stakeholders of EUR 3.3 million.	EPC	EUR 1.5 million

Project name	Country/region	Why is this project successful?	Project performance	Type of financing	Total H2020 funding
	Portugal, Slovenia, Spain	<p>brings together all stakeholders instead of pinpointing a certain group.</p> <p>At least one SPIN per participating country was established, for which specialised training depending on the sector/country was provided. EPC_PLUS also established an international platform for SPINs to share best practices.</p> <p>It has standardised EPC contracts and procedures to overcome current barriers.</p>	Electrical energy savings of 2.4 GWh, thermal energy savings of 6.7 GWh and primary energy savings of 13.4 GWh.		

Table 5: Selection of SME-related financing instruments that have been successful under Horizon 2020

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
Energy Performance Contracting	Energy performance contracting is a way of financing when renovations or energy efficient investments are made through cost savings thanks to said renovation/investment. The external organisation, called 'ESCO' (energy service company), is the one implementing the energy efficient renovation. It uses the	Contracts have been standardised, as well as new products implemented. This has led to a decrease in transaction and/or commission fees from the lender. This does	<p>For SMEs the renovations are relatively small, leading to proportionally lower cost savings and thus longer contracts.</p> <p>EPC contracts are subject to performance benchmarks, which</p>	<p>It is an almost risk-free way of financing energy efficient renovations.</p> <p>The cost of the investment becomes much lower for the user and can be spread over a longer term, allowing SMEs/homeowners</p>	<p>The ESCOs usually bear the risk of the investment. It is good for the consumer.</p> <p>The sharing of know-how and standardised contracts can lead to free-rider behaviour. When EPC becomes more</p>

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
	<p>stream of income from the renewable energy produced to repay the investment.</p> <p>This means that the technical risks are mitigated from the client to the ESCO.</p>	<p>not necessarily entail a lower retail cost.</p> <p>EPC has become better known among stakeholders as a low-risk solution, demand has increased which thus leads to more products on the market.</p> <p>Some of these projects, such as EPC_PLUS, focus on EPC from an SME perspective. Working on a smaller scale has led to better quality work and thus, more energy savings.</p>	<p>can decrease investors' willingness. The EE renovations must keep performing and thus need to be maintained.</p> <p>There are still few commercially available products to open EPC for private investments.</p>	<p>with less capital to use EPC.</p> <p>A strong transfer of know-how will only increase the efficiency of Energy Performance Contracting.</p>	<p>democratised this behaviour will increase.</p> <p>EPC is mostly useful when there are energy savings being imposed or for niche ESCOs, since it is usually less profitable than conventional financing.</p>
Crowdfunding	<p>Crowdfunding is the process of raising capital through numerous small contributions from many individuals to fund a specific project or investment. These calls are open and usually time limited. This often happens through online platforms which helps</p>	<p>Very complex legal barriers have been partially lifted thanks to standardising crowdfunding contracts in some of our example projects. Still there are difficulties in</p>	<p>Crowdfunding is still lacking awareness and is still seen as a vehicle mostly for technological consumer goods and not for energy efficient investments or any structural</p>	<p>The risk for the investors is much lower due to the small amounts involved. There is also less involvement required from investors which</p>	<p>There are only a very few crowdfunding platforms focussing on energy efficient investments which currently have very little exposure.</p> <p>Less involvement from investors can also be a bad thing, as they may not care as much when</p>

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
	with campaigning and marketing. There are several types of crowdfunding but for energy efficient investments, the debt platform is used where funders lend money to a company and look for interest payments and an eventual repayment of the principal.	<p>implementing these standard contracts into different national legal frameworks.</p> <p>To implement crowdfunding for EE investments, there must be a very strong collaboration between the stakeholders. The projects have bridged this by bringing local authorities and financial institutions together with the owners.</p>	<p>investments for that matter.</p> <p>Still there are difficulties in implementing these standard contracts into different national legal frameworks.</p> <p>There are potential fiscal benefits that can be used to make crowdfunding even more attractive for larger private investors.</p> <p>More crowdfunding investments are needed to reach the ambitious climate goals.</p>	<p>makes crowdfunding more accessible.</p> <p>There are potential fiscal benefits that can be used to make crowdfunding even more attractive for bigger private investors.</p>	<p>there are barriers for completing the renovation, causing them so to opt out.</p> <p>This method seems useful mostly for public renovations and less so for private renovations. Therefore, this is not a perfect solution for SMEs.</p>
Green bonds	A green bond is a fixed-income financial instrument just like a normal bond, but it has the specific goal of supporting environmental investments and projects.	They use financial instruments that are already available for energy efficient investments. However, the available green	There is no green bond standard yet across the EU, which would greatly benefit	Green bonds help combat climate change by promoting investments in green buildings and renewable energy	Green bonds are good for stimulating sustainable investments but are a potential candidate for greenwashing where investors apply for

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
	Often, these bonds are made fiscally more attractive for investors on the condition that they meet sustainability requirements.	<p>bonds are usually targeted at these kinds of renovations. Therefore, standardised green bonds for EE renovations have made them more widely used, leading to energy savings for SMEs and homeowners.</p> <p>Projects such as TrustEE are some of the first times that major banks, insurance companies, energy providers and companies have collaborated on creating vehicles for more private financing of energy efficient renovations.</p> <p>Independent quality labels have been created to standardise</p>	<p>the spread of green lending and funding.</p> <p>Green bonds still need to become more widespread when it comes to private financing. Often, true green investments are less attractive for private investors but could become more so when tackled by all stakeholders, such as the case with TrustEE.</p> <p>Green bonds require more effort from the issuers of the bond, which could be lessened by standardising the legal requirements. This is a difficult challenge if we want to keep an independent label for green bonds.</p>	<p>which offer less credit risk in the long-run.</p> <p>Green bonds mobilise capital for investments that would otherwise never be funded.</p> <p>In general, green bonds are a safe investment, as is the case with most bonds.</p>	<p>advantageous loans under the guise of being sustainable.</p> <p>Green bonds often provide less yield for investors, but one might argue that the profit can also be expressed in the amount of energy saved. However, this is not very valuable for investment firms and that is one of the main reasons why green bonds remain largely in the public sphere.</p>

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
		<p>green bond qualifications and combat greenwashing.</p> <p>Data collection on a large scale has managed to track and continuously report on the performance of green bonds.</p>			
On-tax financing	<p>The only example project we have for on-tax financing is EuroPACE. On-tax financing allows homeowners/SMEs to mitigate all risk towards private investors who upfront the investments. The long-term obligation is linked to the property itself and not to the homeowner/SME. This allows for private lenders to grant the loan at lower rates.</p> <p>The municipalities collect the loan repayment through a special levy collected alongside property tax and is</p>	<p>It has reduced the reliance on grants and subsidies.</p> <p>Through aggregation and technical standardisation this is scalable within the limits of different legal frameworks.</p> <p>A very strong pre-selection mechanism has been able to determine the most suitable regions/municipalities where on-tax financing is almost certain to</p>	<p>On-tax financing is dependent on public private partnerships (PPPs). This again depends on a country's specific markets. Potential CMU developments could tackle this barrier.</p> <p>In some participating countries, such as Greece, property tax regulation does not allow for on-tax financing and needs to be reformed to allow for it. This is</p>	<p>By linking the loan to the property instead of the person, the risk is mitigated, and credit-constrained SMEs are also able to invest in energy efficient solutions.</p> <p>Compared to subsidies or rebates, on-tax financing incentivises less free-riding behaviour.</p>	<p>Property taxes differ significantly depending on the Member State. This requires a country-by-country approach and makes transferring know-how and standardised contracts to different Member States difficult. In several Member States, property taxes are even regulated on a municipal level.</p> <p>Moreover, enforcement procedures are also very heterogenous across countries, leading to varying degrees of effectiveness of on-tax financing.</p>

Financing instrument	Definition	Barriers overcome	Barriers still to overcome	Advantages	Disadvantages
	funnelled to the private investors.	succeed. Through best-practices it has been possible to identify specific barriers for other municipalities.	subject to politics and is therefore unpredictable.		On-tax financing is heavily dependent on the public sector which can often be slow or quite complex to navigate.

4. POLICY CONCLUSIONS

KEY FINDINGS

The second CMU Action Plan is likely to have a limited impact on SMEs, as defined under the official EU definition (based on Recommendation 2003/361).

Specific measures, sometimes in combination with public support, are necessary, to enhance SMEs' access to capital markets.

SMEs play a crucial role in implementing the energy savings needed in the residential housing sector to reach the 'Fit for 55' goals.

But residential energy savings investment requires a relatively large initial outlay with a delayed pay-off, which is often difficult to ascertain and even more difficult to finance.

More financing might be needed for larger, more cross-border schemes to reach the economies of scale required for an integrated European capital market.

A vibrant and integrated capital market, which provides alternative sources of financing for SMEs, would not only help them but also turbocharge the green transition. The latest plans launched under the CMU as part of the second CMU Action Plan (unveiled in September 2020) included six specific actions targeting SMEs meeting the capital markets definition (less than EUR 200 million market capitalisation). For most of these actions, any tangible impact on SMEs is yet to be seen. More specifically, none of the actions have had any impact on micro companies or other SMEs as of the end of 2021. This is understandable, as many of the actions have not (yet) been implemented, lacking until recently even concrete legislative proposals. Upon implementation, we anticipate a potential future impact on micro companies and other SMEs, especially for start-ups and high growth companies. The extent of the impact is still largely uncertain without detailed information on how the various actions are going to be implemented.

At present, SMEs meeting the official definition (less than 250 employees and either up to EUR 43 million assets and/or up to EUR 50 million turnover) remain highly dependent on bank credit for external financing, which often requires a personal guarantee by the owner/operator. Although widening SMEs' access to capital markets is one of the objectives of the CMU initiatives, this will remain challenging due to – among other reasons – high (size independent) fixed costs for listings. This implies that to succeed, proposals to stimulate SMEs' access to capital markets need to be tailored to SMEs' specific needs and requirements.

This study focuses on the residential construction sector where SMEs are particularly important, as improvements in the energy efficiency of housing constitute one key element of the goals set out in the 'Fit for 55' programme. Innovative financing mechanisms to increase investment and improve the energy efficiency of housing are needed so that households are able to afford the necessary renovations. SMEs themselves are not able to take the lead on this due to their limited access to financing.

The energy efficiency of housing is an area where the CMU initiatives could become important, but only if there are financing schemes that acquire a certain scale to make them interesting enough for pan-European investors. This is challenging when there are substantial differences in conditions across Member States. Nevertheless, some general lessons can be drawn.

First, assistance and advice for stakeholders should be available throughout the whole process, including planning, project development, financing and implementation.

Standardising and easy access to contracts and/or legal guidance are also elements of this. Intermediaries are needed between the three main parties: i) SMEs, ii) financial institutions/insurance companies, and iii) installing/renovating parties. Second, there must be a diverse mix of financing options.

Existing pilot projects have considered energy performance contracting, crowdfunding, Green bonds and on-tax financing, which all seem to contribute to alleviating the challenges faced by SMEs in the sector. In addition, measures to limit the use of personal guarantees provided by owners/operators should also be considered. Doing so would make it easier for SMEs to grow and for new entrepreneurs to start operating.

Many initiatives to finance housing improvements, especially small-scale PV, have been piloted under Horizon 2020. However, the amount of financing provided has been limited and few of the implemented schemes were of a cross-border nature. Larger and more cross-border schemes for innovative financing would be needed to achieve the economies of scale required to create an integrated market for the necessary financial products. Unlike most of the existing initiatives under the CMU, this would besides legislation also require public funds.

The increased urgency to make the EU less dependent on fossil fuels has only increased the importance of promoting energy efficiency investment in existing and new buildings. In principle, this kind of investment should become interesting from a purely financial viewpoint given the much higher energy prices, especially for gas, which are likely to persist for some time yet. However, as mentioned above, it seems that prices are not the main determinant of energy efficiency investment by households. Substantially more public and private sector investments might thus be necessary for energy efficiency investment to reach the scale needed to reach the EU's green targets. One way to mobilise this financing might be for the EIB to scale up its existing initiatives and then repackage and securitise its loans, which would also power the development of the CMU. But such initiatives would require extensive additional financial support, mostly in the form of credit guarantees. As such, this would only be possible if substantial amounts from the EU budget were dedicated to this aim.

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ANNEX 1: OVERVIEW OF CMU ACTIONS CONCERNING SMEs

This annex provides a tabular overview of the pending CMU Actions. The first table shows only those six actions which are relevant (or potentially relevant) for SMEs, the second table lists all the others, which concern other aspects (financial literacy, investment activities, etc.).

Table 6: Overview of CMU actions concerning SMEs

Nr	Action	Concrete content	Implementation so far	Expected impact (as of end-2021)	Potential impact upon implementation on SMEs/micros
1	Making companies more visible to cross-border investors	European single access point (ESAP)	Legislative proposal adopted in November 2021.	No	Yes/Minimal
2	Supporting access to public markets	Listing act – making public capital markets more attractive for EU companies and facilitating SMEs' access to capital	Listing review planned for Q3 2022	No	Yes/Minimal
3	Supporting vehicles for long-term investment	Long-term investment funds (ELTIF)	Legislative proposal amending the ELTF Regulation adopted in November 2021.	No	Yes/Minimal
4	Encouraging more long-term and equity financing from institutional investors	<ul style="list-style-type: none"> Banking rules: Basel III implementation Insurance rules: Solvency II review 	<ul style="list-style-type: none"> Legislative proposal amending the Capital Requirements Regulation adopted in October 2021 Solvency II review package adopted in 2021 	No	Yes/Minimal

Nr	Action	Concrete content	Implementation so far	Expected impact (as of end-2021)	Potential impact upon implementation on SMEs/micros
5	Directing SMEs to alternative providers of funding	Bank referral scheme	Report presenting the conclusions of the feasibility assessment is due for publication in Q1 2022.	No	Yes/Yes
6	Helping banks to lend more to the real economy	Securitisation	Report on the functioning of the EU securitisation framework for both STS and non-STs by Q1 2022.	No	Yes/Yes

Note: These are the first six actions proposed by the new CMU action plan, adopted by the Commission on 24 September 2020.

Source: [Capital markets union 2020 action plan: A capital markets union for people and businesses.](#)

Table 7: Other actions of the New CMU Action Plan (no expected impact on SMEs)

Nr	Action	Concrete content	Implementation so far
7	Empowering citizens through financial literacy	<ul style="list-style-type: none"> Financial competence framework Extension of the principle enshrined in Article 6 of the Mortgage Credit Directive to relevant sectoral legislation 	<ul style="list-style-type: none"> Financial competence framework for adults published in January 2022. Work on the youth competence framework will begin in Q1 2022. This action will be further refined in the context of the Retail Investment Strategy to be adopted in Q4 2022.
8	Building retail investors' trust in capital markets	<ul style="list-style-type: none"> Inducements and disclosures Categorisation of investors New requirements for advisors Pan-EU label for financial advisors 	<ul style="list-style-type: none"> Comprehensive study on Retail Investment Strategy to be published in Q1 2022. Action to be further refined in the context of the Retail Investment Strategy to be adopted in Q4 2022. Collection of evidence and preparatory work is ongoing. Action to be further refined in the context of the Retail Investment Strategy to be adopted in Q4 2022. Collection of evidence and preparatory work is ongoing. Report on the feasibility assessment to be published in Q1 2022.
9	Supporting people in their retirement	<ul style="list-style-type: none"> National pension tracking systems and pension dashboard Auto-enrolment 	<ul style="list-style-type: none"> Report by the EIOPA on the development of best practices for national pension tracking systems and pension dashboards published in December 2021. Study on auto-enrolment published in November 2021.
10	Alleviating the tax associated burden in cross-border investment	Withholding tax	An inception impact assessment published in September 2021 and an open public consultation is still to be launched. Legislative proposal planned for Q4 2022.

Nr	Action	Concrete content	Implementation so far
11	Making the outcome of cross-border investment more predictable concerning insolvency proceedings	<ul style="list-style-type: none"> Initiative for minimum harmonisation or increased convergence in targeted areas of core non-bank insolvency. Analyse the possibility of legal amendments to the reporting frameworks for regular insolvency benchmarking 	<ul style="list-style-type: none"> The Commission will propose an initiative by Q3 2022. Ongoing work with the European Banking Authority and European Central Bank to explore various data access/collection options.
12	Facilitating shareholder engagement	<ul style="list-style-type: none"> Definition of shareholder – voting rights and corporate action processing. Use of new technologies. 	<ul style="list-style-type: none"> An assessment will be completed as part of the evaluation of the implementation of the Shareholder Rights Directive II (SRD2) in Q3 2023. Technical assessment will be published in Q1 2022.
13	Developing cross-border settlement services	CSDR Review	REFIT legislative proposal on CSDR to be adopted in Q1 2022.
14	Consolidated tape	Put a consolidated tape in place	The legislative proposal amending MiFIR that includes the creation of a consolidated tape was adopted on 25 November 2021.
15	Investment protection and facilitation	Legislative proposal to strengthen investment protection and the facilitation framework in the EU	Evidence gathering is still ongoing.
16	Supervision	Supervisory convergence	<ul style="list-style-type: none"> Report to assess the need for further harmonisation of EU rules and monitor progress towards supervisory convergence to be published in Q1 2022. Public consultation on the quality and enforcement of corporate reporting launched in November 2021.

Notes: These are the remaining actions proposed by the new CMU action plan, adopted by the Commission on 24 September 2020. For these actions, we did not anticipate any immediate and/or significant impact on SMEs and micros.

Source: [Capital markets union 2020 action plan: A capital markets union for people and businesses.](#)

ANNEX 2: INNOVATIVE FINANCING PROJECTS FOR RESIDENTIAL ENERGY SAVINGS MEASURES

In this annex, we provide a list of the financing schemes already implemented. We note that (see this [interview report on PV Financing Schemes](#)) the most common financing schemes for PV financing revolve around different combinations of equity (including leasing) and debt, often via project finance.

The following studies were used in our desk research:

[Bertoldi et al](#) (as well as [another one](#)), assesses the need for new types of financing in the residential sector given the ambitious 2050 carbon neutrality goal. This includes both traditional types of financing, as well as innovative financing. These types can be found in Table 2 on page 1317.

A [paper by Climate & Strategy partners](#), a Spanish energy consultancy, discusses the financing needs for European buildings and uses existing mechanisms in Germany and the UK as case studies. It also provides some recommendations for new funding mechanisms.

A [working document by the Commission](#) provides a preliminary analysis of the long-term renovation strategies for 13 Member States. In section 2.2 specifically (pp. 21-25), it discusses the issue of adequate and well-targeted funding in those Member States.

In a [study published by the Energy Coalition](#), there are some indicative numbers on potential energy savings because of more innovative financing options for SMEs. For example, in Poland the Thermo-Modernisation and Repair Fund can cover up to 20 % of a bank loan when it is planned to be used for thermal renovations. The Fund can grant partial financial support for projects that reduce annual energy consumption by at least 10 % for heating and 25 % for thermal insulation.

[Citynvest](#) also describes the potential innovative financing methods have in helping to reduce energy consumption in cities. Some examples include Energy Performance Contracts (EPCs) and a Programme Delivery Unit, both provided by Vlaams EnergieBedrijf (Flanders, Belgium). They have the ambition to decrease energy consumption by 35 %. Other financing vehicles are REScoop MECISE and the WiseGrid project in Gent (Belgium). In Oostende (Belgium), Direct Heating is helping to install local heating pipes.

The desk research yielded a non-exhaustive list of examples of innovative financing presented in Table 8, with mostly EU Horizon 2020 funded projects included. In total, these projects amount to just over EUR 40 million of funding, or less than 0.1 % of the total Horizon 2020 fund of over EUR 67 billion. Of course, many of these projects have been already completed. However, they do provide some insightful examples of how innovative financing could be used to incentivise sustainable renovations and reduce (household) greenhouse gas emissions for future post-Covid-19 EU-funding initiatives.

Table 8: Overview of innovative financing projects for residential energy savings measures (EU-funded, Horizon 2020)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
TrustEE	Austria, Germany, Portugal, Spain, Sweden	TrustEE is a platform for tech suppliers to help develop and install energy efficient solutions and renovations.	Green bonds	Technology suppliers and project developers, with a focus on SMEs.	Waste heat recovery, solar thermal, biogas, biomass, heat pumps.	EUR 1.4 million (2016-2020)
E-FIX	Armenia, Austria, Croatia, Czech Republic, Georgia, Poland, Russia	E-FIX addresses legal and institutional barriers which could hinder investments in the energy efficiency sector. It helps stakeholders with crowdfunding, energy performance contracting and leasing.	Green bonds	Stakeholders	All types of investments in the energy efficiency sector.	EUR 2 million (2018-2021)
ESI Europe + ESI Europe 2.0	Croatia, Greece, Italy, Portugal, Spain, Switzerland	ESI model comprises four elements: - Offering standardised contracts between firms and financial institutions - Energy savings insurance to reduce SME credit risk - Independent technical validation - Financing instruments such as green loans are	Energy Performance Contracting Crowdfunding Leasing	SMEs	All types of energy efficiency projects.	EUR 2.3 million (2018-2022) + EUR 1.5 million (2021-2024)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
		identified and linked to energy efficiency projects. This supports access to collateral.				
eEaaS (Efficiency as a service)	Belgium, the Netherlands, Spain	Pay-per-use service which tries to make energy consumers only pay for the energy they actually use. It aims to facilitate SME access to energy efficient technologies, as well as allowing the technology provider to capitalise and access competitive financing which reduces investment risk.	Servitisation financial model	SMEs	Energy efficient equipment	EUR 1.6 million (2020-2023)
EuroPACE	Belgium, Finland, Italy, Poland, Spain, UK	Tailoring public-private financing solutions to increase access to home renovation by bringing private capital into the home renovation market through affordable financing. Investors lend money up-front and get repaid through an additional charge on a property-related tax bill.	On-tax financing	Municipalities and cities	Home renovations	EUR 2.4 million (2018-2021)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
Ren-on-bill	Belgium, Germany, Italy, Latvia, Spain	Scaling up investments for energy renovations of residential buildings through the implementation of on-bill financing between energy utilities and financial institutions	On-bill financing	Construction companies, energy services and investors	Residential renovations	EUR 1.7 million (2019-2022)
SEIFA (Sustainable Energy Investing and Financing Activation)	Bulgaria, Croatia, Estonia, Germany, Italy, Latvia, Lithuania, Luxembourg, Poland, Slovakia	Private equity fund, providing equity and mezzanine financing for industrial sustainable energy investments.	Private equity and mezzanine financing	Industrial projects, energy suppliers, energy service companies	Deep renovation industrial projects	EUR 1.5 million (2021-2023)
SER (Social Energy Renovations)	Bulgaria, France, Italy, Spain	SER aims to lift barriers to renovation for the non-profit sector by offering integrated renovation solutions comprised of affordable financing and technical assistance. Increasing the flow of private capital in the non-profit sector.	De-risking mechanism	Social enterprises and ESCOs	Residential buildings' renovation	EUR 1.8 million (2021-2024)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
SUPER-i	Belgium, Denmark, Italy, Slovenia, Spain, UK	Establishing a direct dialogue between financial institutions, private investors and social housing managers. This aims to increase investments and data collection on renovations in social housing to reduce energy poverty.	Energy efficient public-private partnerships	Social housing	Social housing energy renovations.	EUR 1.5 million (2021-2024)
SUNSHINE	Latvia, the Netherlands	SUNSHINE aims to lower transaction costs and increase access to finance for residential energy deep renovations. It uses financing methods, such as Energy Performance Contracting to achieve this.	Energy Performance Contracting	Residential renovators	Deep renovation projects	EUR 1.6 million (2015-2020)
FinEERGo-Dom	Austria, Bulgaria, Poland, Romania, Slovakia	Guaranteed financing for energy efficient deep renovations. Builds a platform (SHAREX) for all stakeholders involved.	Energy Performance Contracting	Residential and non-residential buildings	Deep renovation projects	EUR 1.7 million (2019-2023)
GREENFOOT	Austria, Azerbaijan, Belgium, France, Ireland,	Finance energy efficient renovations for buildings used for sport through crowdfunding schemes.	Crowdfunding	Buildings used for sport, mainly	Energy efficient renovations of sports facilities	EUR 1.5 million (2020-2023)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
	Italy, the Netherlands			football stadiums		
SUPER-HEERO	France, Italy, the Netherlands, Spain,	Enable upfront cost reduction for energy efficient investments in supermarkets.	Energy Performance Contracting Crowdfunding	Small and medium-sized supermarkets	Energy efficient investments	EUR 1.4 million (2020-2022)
CitizEE	Belgium, Croatia, Lithuania, Germany, Portugal	Increase investments for energy efficient building renovations through a combination of private (citizen financing, crowdfunding, cooperative financing) and public financing. It builds national and regional investment platforms to set up these private/public collaborations.	Energy Performance Contracting Crowdfunding	EU citizens	Energy efficient building renovations	EUR 1.5 million (2019-2022)
CITYinvest	Austria, Belgium, Bulgaria, Hungary, Italy, Spain	Replicate the RenoWatt project on a larger scale across Europe.	Energy Performance Contracting	Municipalities	Energy efficient renovations in local building stock	EUR 1.5 million (2015-2018)
RenoWatt	Belgium	ESCOs implement energy efficiency projects or investments and use the income (reduced cost)	Energy Performance Contracting	Municipalities	Energy efficient renovations in local building stock	Funded through CITYinvest

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
		gained from energy savings to repay the cost of the project/investment.				
REScoop MECISE (Renewable Energy Sources cooperatives) + REScoop Plus	Belgium, Denmark, France, Greece, Italy, the Netherlands, Portugal, Spain, UK	Citizens of a municipality co-own and participate in projects which support energy efficiency and savings.	Local energy cooperative	Cooperative participants	Municipal energy efficient renovations	EUR 2.2 million (2015-2019) + EUR 1.5 million (2016-2019)
EnPC-INTRANS	Croatia, Germany, Greece, Romania, Serbia, Slovakia, Slovenia, Ukraine	Increase the market uptake of technologies for the improvement of energy efficient renovations in public buildings and SMEs through jointly set-up EPC models.	Energy Performance Contracting	Municipalities /SMEs	EE renovations of public buildings and SMEs	EUR 1.9 million (2015-2017)
guarantEE	Austria, Belgium, Czech Republic, France, Germany, Ireland, Italy,	Because public budgets are often strained, guarantEE aims to mobilise private capital to implement energy savings measures through EPC models for ESCO	Energy Performance Contracting	Users, ESCOs and building owners	Energy efficient building renovations	EUR 1.6 million (2016-2019)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
	Lithuania, the Netherlands, Norway, Romania, Slovakia, Slovenia, Spain	projects. It aims at a triple-win scenario where the costs are shared between the user, building owner and ESCO.				
EPC_PLUS	Austria, Belgium, Bulgaria, Czech Republic, Germany, Greece, Ireland, Italy, Portugal, Slovenia, Spain	There are still some barriers for the implementation of EPC by SMEs, such as high transaction costs, too small project sizes and access to finance for smaller projects which leads to high costs of guarantees. EPC+ aims to reduce transaction costs by heavily standardising energy services contracts.	Energy Performance Contracting	SMEs	Standardising energy services contracts	EUR 1.5 million (2015-2018)
EnerSHIFT	Italy	EnerSHIFT aims to reduce energy consumption and boost the local economy through a public tender process for ESCOs, after which Energy Performance Contracts will be signed.	Energy Performance Contracting	Public housing inhabitants	Energy refurbishment of public/social housing	EUR 1 million (2016-2020)
PV FINANCING	Austria, Belgium, France,	PV FINANCING aims to remove barriers in the photovoltaic market. It	<u>Equity financing:</u> crowdfunding, energy	Residential buildings	Photovoltaic Systems	EUR 2.1 million (2015-2017)

Initiative name	Countries	Description	Type of financing	Beneficiary	Renovation/ investment	Horizon 2020 Funding (EUR) (funding period)
	Germany, Italy, Spain, Turkey, UK	identifies and implements the most suitable business models and financing schemes for PV Systems. It bridges the gap between banks, insurance companies and private investors.	cooperatives, shared ownership, bonds, mezzanine capital, leasing <u>Debt financing:</u> on balance sheet financing, project financing, promotional loans			
SMARTER Finance for Families	Belgium, Bosnia and Herzegovina, Bulgaria, Czech Republic, Denmark, Georgia, Greece, Ireland, Italy, Romania, Slovakia, Turkey, Ukraine,	SMARTER has brought financial institutions and residential developers together to co-design a green mortgage product for new properties.	Green mortgages	House buyers	New residential properties	EUR 1.6 million (2019-2021)

Table 9: Overview of innovative financing projects for residential energy savings measures (Public/private-funded)

Initiative name	Country/region	How it works	Type of financing	Benefactor	Beneficiary	Renovation/investment
Green municipal bonds	Gothenburg, Hannover, Malmo, Paris, Stockholm,	Funding projects with a positive environmental impact. The bonds are issued by the municipality. These bonds can often be traded on capital markets.	Debt financing	Bonds issued by the municipality	All sectors covered by SECAP	Any environmentally positive project.
Care-free energy renovation package	Stuttgart, Germany	Residential renovations are not paid by the homeowner but by third-party investors. The homeowners do not have to take on debt but instead pay a service fee to the investor. This can be done through an energy performance contract where the costs are repaid through guaranteed energy savings.	Equity financing/Energy Performance Contracting	Third-party investors	Homeowners	Residential renovations
EFU (Energy Fund Utrecht)	Utrecht, the Netherlands	A financial reserve is used to finance environmentally positive investments by lending	Revolving Funds	Revolving Fund, funds guaranteed by Bank	Borrowers, in this case SME projects	Energy savings and energy efficiency investments

Initiative name	Country/region	How it works	Type of financing	Benefactor	Beneficiary	Renovation/investment
		to one or several borrowers. Through periodical repayments, the revolving fund is restocked. Interest is usually charged to the borrower as a fee.		Nederlandse Gemeenten (BNG)		
Thermo-Modernisation and Repair Fund	Poland	Support is granted for thermo-modernisation and renovation. It is in the form of a repayment of credit granted to the investor by a commercial bank or as part of the costs of a project financed with own funds.	Revolving Funds	Revolving Fund	Microcompanies, SMEs, municipalities	Residential heating renovations and local heating networks and heat sources
Nordea Green Corporate Loans	Finland, Sweden	Nordea grants attractive loans and advice to SMEs who want to invest in sustainable transformations. Existing loans can also be transformed into green loans. The rates for these green loans are lower than usual. This is also funded by the EIF.	Green Loans	Nordea/EIF	SMEs	Sustainable investments

Sources: [Nordea introduces green corporate loans at reduced rates with the European Investment Fund;](#)
[EU Platform Transition Finance 2021 Report;](#)
[Common insulation requirements for industry in European Union;](#)
[Promoting healthy and highly energy performing buildings in the European Union;](#)
[Promoting Digital and Innovative SME Financing;](#)
[EuroAce Factsheet on Finance;](#)
[ELENA – European Local ENergy Assistance;](#)
[European Regional Development Fund.](#)

SMEs will play a key role in the green transition, especially in improving the energy efficiency of housing. Innovative financing models in this sector would contribute towards achieving the 'Fit for 55' goals and support the business environment of the SMEs that will implement a myriad of small energy improvement projects.

This document was provided by the Policy Department for Economic, Scientific and Quality of Life Policies at the request of the Committee on Economic and Monetary Affairs (ECON Committee).

PE 703.360

IP/A/ECON/2021-04

Print ISBN 978-92-846-9447-1 | doi: 10.2861/510618 | QA-05-22-142-EN-C

PDF ISBN 978-92-846-9448-8 | doi:10.2861/57 | QA-05-22-142-EN-N