



AN EU-SUPPORTED HOME EQUITY RELEASE SCHEME TO ACCELERATE ENERGY RENOVATION OF THE PRIVATE HOUSING STOCK

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Abstract

In the EU, the building sector accounts for 17% of direct fossil CO₂ emissions. This figure jumps to 36% if we add indirect emissions and would be even higher if we factored in transport emissions driven by poor spatial planning. Within the building sector, housing represents 70.8% of direct CO₂ emissions.

Diminishing emissions originating in dwellings is a major challenge because it implies the energy renovation of 75% of the current stock, mostly in the hands of individual homeowners-occupants who cannot always afford such works. Existing measures like preferential loans or tax incentives have so far proven insufficient to renovate the private residential building stock at the pace required to reach carbon neutrality by 2050.

We argue for the creation, at the level of municipalities, of public-backed, EU-supported home equity release schemes. Through special purpose entities, municipalities would buy dwellings from low-income, aged homeowners-occupants according to the liferent mechanism, meaning that current occupants would retain tenancy rights until they pass away or move into residential care and would receive at a same time a pension supplement and/or a contribution to cover home care/home care fees. After having taken possession of those properties, special purpose entities would renovate them and then put them back on the market, either by renting them directly or by selling them to municipal, social or cooperative housing organisations.

In terms of population, the target group is composed of low-income, aged homeowners-occupants, however dwellings should also meet certain criteria, in particular in terms of location in order to avoid further suburban sprawl, reverse the tendency towards land “loss” and densify existing built-up areas. That implies a more active role of EU institutions and agencies in spatial planning and symmetrically, the integration of spatial planning aspects into current EU policies.

Though there is at the moment no comprehensive and accessible database that would allow to cross information about dwellings and their occupants, we estimate, based on some case studies made about the potential for equity release schemes in the EU, that the proposed programme could unlock the energy renovation of about 14 million dwellings (5.5% of the total stock) and pull as many citizens out of old-age poverty. If equity release deals are to restitute 100% of the current value of assets, the programme would cost for the entire EU around 100 billion euros per year for acquisition and renovation of dwellings as well as administrative costs. A large part of this money would be recouped by the sale or rental of refurbished dwellings and by energy savings that can be e.g. traded as certificates or directly marketed to utility companies. We expect the majority of funding to be brought by local and national governments, public agencies, development banks,

private banks and investors, yet the EU can be very instrumental through e.g. a participation of the EIB or the purchase by the ECB of “green” assets.

We are aware it would not be the first time the EU would try to promote equity release schemes as one of the answers to the challenges of ageing population. These attempts have not been very successful so far due to the negative image of reverse mortgages and *viagers*, albeit unpopular for different reasons. By giving to these mechanisms another purpose than the sustainability of pension systems, we hope however to avoid the trap of considering them as a way to limit financial commitments towards older people. On the contrary, our proposal aims at reframing climate and housing problems, sometimes perceived as intergenerational or “class” conflicts, into win-win exchanges between, on the one hand, asset rich but cash poor aged persons, and on the other, younger and larger households in need of affordable housing in well-connected locations.

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Introduction

“We are seeing everywhere a clear demonstration that we are not on track to achieve the objectives defined in the Paris Agreement. The paradox is that as things are getting worse on the ground, political will seems to be fading”, United Nations Secretary-General António Guterres lamented in May 2019 during a visit in New Zealand¹.

Even the European Union (EU), which claims to be *“a global leader in the fight against climate change”*², has its commitments rated as *“insufficient”* by the Climate Action Tracker: *“the “Insufficient” rating indicates that the EU’s climate commitment in 2030 is not consistent with holding warming to below 2°C, let alone limiting it to 1.5°C as required under the Paris Agreement, and is instead consistent with warming between 2°C and 3°C.”*³

For this reason, a few days after his alarming speech pronounced in New Zealand, Secretary-General António Guterres sent a letter to Donald Tusk, President of the European Council, asking the EU to *“enhance its Nationally Determined Contributions, while aiming at a target of 55 cent reduction in emissions [by 2030]”*. He *“would also welcome the announcement of the adoption of its strategic long-term vision for a prosperous, modern, competitive and carbon neutral economy by 2050.”*⁴

Despite the growing salience of ecology and climate-related issues in mainstream politics and among European citizens as well record results of Green parties at the European Parliament elections in May, the adoption at the EU level of a net zero greenhouse gas (GHG) emissions target for the middle of the century was blocked less than one month later by four Member States – the Czech Republic, Estonia, Hungary and Poland –, even if this has not prevented some other capitals from enshrining the goal in their own national policy instruments⁵.

Regarding the increase of the EU 2030 reduction objective, currently set at 40% relative to 1990 levels, it has not been proposed by the incumbent European Commission, but her next president, Ursula von der Leyen, has pledged to the new European Parliament that she would push

1 António Guterres, “Opening remarks at press encounter with James Shaw, New Zealand Minister for Climate Change”, Auckland, 13 May 2019, <https://www.un.org/sg/en/content/sg/speeches/2019-05-13/press-remarks-james-shaw-new-zealand-minister-for-climate-change> (accessed 23 July 2019).

2 European Union External Action, “Climate, Environment & Energy”, Brussels, https://eeas.europa.eu/topics/climate-environment-energy_en (accessed 23 July 2019).

3 Climate Action Tracker, “EU – Fair Share”, Berlin and Cologne, 17 June 2019, <https://climateactiontracker.org/countries/eu/fair-share/> (accessed 23 July 2019).

4 António Guterres, Letter to Donald Tusk, President of the European Council, 23 May 2019, <http://www.caneurope.org/docman/climate-energy-targets/3548-letter-from-un-secretary-general-on-the-eu-s-contribution-to-the-climate-action-summit/file> (accessed 23 July 2019).

5 Peter Teffer, “Four states block EU 2050 carbon neutral target”, *EUobserver*, Brussels, 20 June 2019, <https://euobserver.com/environment/145227> (accessed 23 July 2019).

for a 50-55% target. She also confirmed the Commission's intention to reach "*climate-neutrality*" by 2050⁶.

How do all these political goals translate into practice? At the global level, the 2015 Paris Agreement only mentions a temperature cap (at Article 2: "*holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels*"), not emission limits. It is science, more precisely the Intergovernmental Panel on Climate Change (IPCC), which adds that in order to limit the temperature increase to 1.5°C above pre-industrial levels, humanity needs to cut by 2030 its CO₂ emissions by about 45% from 2010 levels and to "*reach net zero around 2050*"⁷. That is the evidence on which the European Commission based its proposal last year for a "*climate neutral economy*" by 2050⁸.

In 2017, global fossil CO₂ emissions amounted to 36.2 billion tonnes, a figure that had risen almost every single year during the past decades, and "*the peak is not yet in sight*"⁹. The EU-28 accounted for 3.5 billion tonnes, i.e. 10% of the total, however cumulative emissions since 1870 show a different picture in which Europe, leader of the Industrial Revolution, is in reality responsible for more than 20% of the total amount of anthropogenic fossil CO₂ released into the atmosphere. This explains why Europe has a particular obligation to be ambitious in fighting climate change, even if it cannot alone stop the phenomenon.

Another reason is that these statistics ignore consumption-based emissions, driven by consumers in a given territory although production and related CO₂ emissions actually take place somewhere else. If this methodology is adopted, then the EU-28 "real" carbon footprint reaches 4.17 billion tonnes, that is 19% more than its "apparent" emissions, while for China, which

6 Ursula von der Leyen, "Opening Statement in the European Parliament Plenary Session", Strasbourg, 16 July 2019, https://ec.europa.eu/commission/sites/beta-political/files/opening-statement-plenary-session_en_fr_de.pdf (accessed 23 July 2019).

7 IPCC, 2018: Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, Maycock, M. Tignor, and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland, 32 pp.

8 European Commission, *Communication from the Commission. A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, COM(2018) 773 final, Brussels, 28 November 2018.

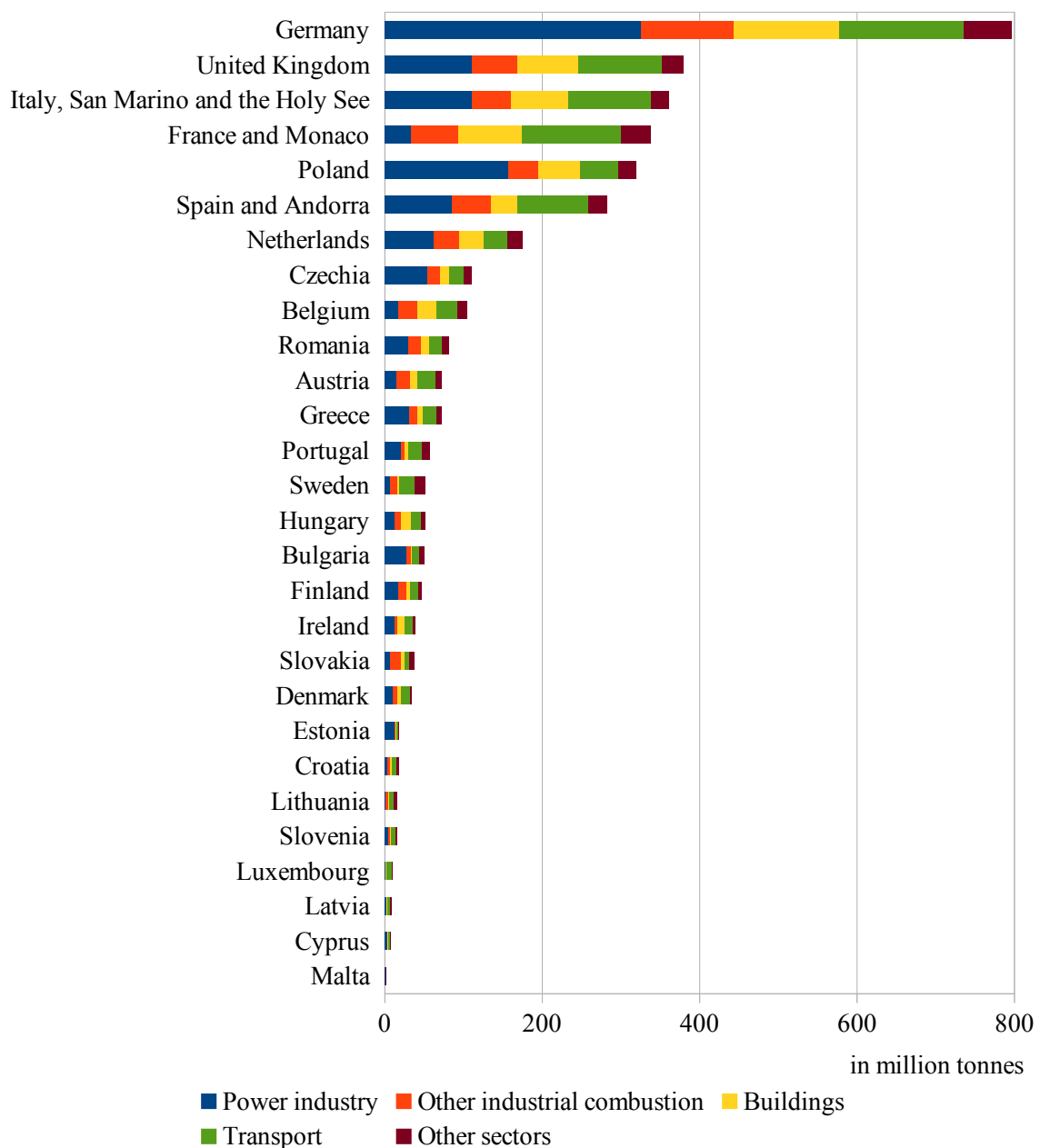
9 Global Carbon Project, "Global Carbon Project 2018", Canberra, 5 December 2018, https://www.globalcarbonproject.org/carbonbudget/18/files/GCP_CarbonBudget_2018.pdf (accessed 23 July 2019).

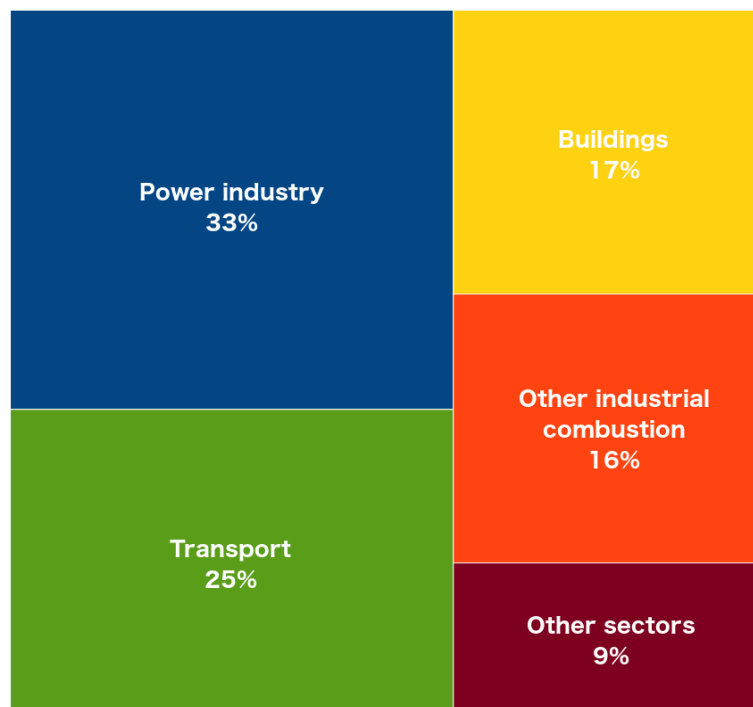
overtook the United States in 2006 as the world's biggest CO₂ emitter, its “real” carbon footprint turns out to be smaller than its territory-based emissions.

After having grossly recalled the global context with which the EU's climate action interacts, we can now take a deeper look at the structure of European fossil CO₂ emissions, both in terms of sector and country of origin. For better readability, we will here just present the data in charts, but complete statistics are available in Annex 1. We have also left aside other GHGs, namely methane and nitrous oxide, mostly specific to agriculture.

Fossil CO₂ emissions in the EU-28 by country and sector, 2017

Source: EDGAR





Fossil CO₂ emissions in the UE-28 by sector, 2017

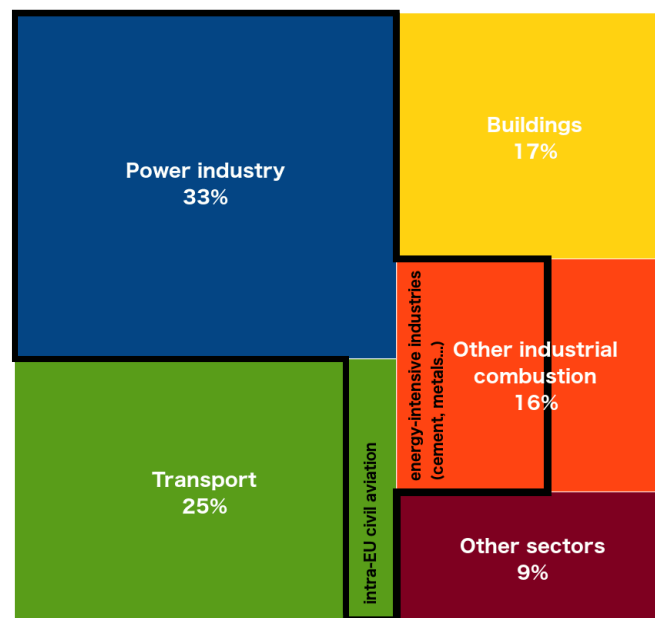
Assuming that reducing anthropogenic CO₂ emissions is one of the main goals of the EU's climate policy and considering the cross-sectoral character of these emissions, shown in the charts above, a horizontal instrument seems to represent a relevant answer and indeed, many economists argue that carbon pricing is the “*most cost-effective lever to reduce carbon emissions at the scale and speed that is necessary*”¹⁰, be it in the form of a tax or tradable emissions permits.

In addition of being able to affect emissions in the entire economy, regardless of the sector or place in value chains – both businesses and consumers would be influenced by the price signal –, carbon pricing is said to generate a double dividend. On the one hand, increasing the price of carbon-intensive goods and services is expected to decrease their consumption and/or encourage their substitution with more climate-friendly alternatives while at the same time, revenues raised by taxation or the sales of emissions permits can be invested in decarbonization technologies and programmes.

At the EU level, we currently do not have a harmonized carbon tax. The Commission has several times come up with such an initiative, although limited to fuels, but it has so far always met with rejection from the Member States or the European Parliament, already back in 1991, and more recently in 2011¹¹. Besides national concerns about sovereignty in tax matters, another motive of refusal was the fear to anger citizens after price hikes. With hindsight, the French *gilets jaunes*

¹⁰ In the USA, “Economists’ statement on carbon dividends”, New York, 17 January 2019, <https://www.econstatement.org>, and in the EU, “Economists’ Statement on Carbon Pricing”, Manchester, 27 June 2019, <http://www.eaere.org/statement/> (accessed 25 July 2019).

movement suggests that this argument was not completely groundless, even if it should not lead to the conclusion that carbon taxation is simply not acceptable in political and social terms.



**EU emissions covered by the ETS
(surrounded by black edges)**

Alike 2050 net zero emissions targets, carbon taxes have been adopted through national legislation in several EU Member States, notably Sweden and France¹². As for the EU, instead of a carbon tax, it has implemented an Emissions Trading System (ETS) that covers 41% of the EU's GHG emissions and 5% of global emissions – the largest scope in the world. The difference with a carbon tax is twofold: first, after having been initially auctioned by states, allowances can be a source of profit for private actors through trade on the secondary market, and second, the price of CO₂ is not set by law. In practice, however, we also have seen in the last years measures taken to drive allowance prices closer to what is considered desirable by public authorities, therefore distinctions between taxation and cap and trade should not be overestimated.

Leaving aside academic debates about the pros and cons of each model, it remains that in the current situation, around half of the EU's emissions – outside the ETS and national carbon taxes – is not covered by carbon pricing. This is illustrated by the treemap below, with ETS-covered emissions surrounded by black edges. National carbon taxes are not represented on the chart because their scope varies from state to state and is still relatively narrow.

11 See European Commission, *Communication from the Commission to the Council. A Community Strategy to limit Carbon Dioxide emissions and to improve energy efficiency*, SEC(1991) 1744, Brussels, 14 January 1991 and *Proposal for a Council directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity*, COM(2011) 169 final, Brussels, 13 April 2011.

12 World Bank, *State and Trends of Carbon Pricing 2019*, Washington, DC, June 2019, Doi: 10.1596/978-1-4648-1435-8.

Non-ETS sectors and emissions are nevertheless addressed at the EU level by other policy instruments. In addition to a general minus 30% emissions objective by 2030 compared with 2005 under the Effort Sharing Regulation¹³, there are more specific, sectoral targets like:

- a 10% share of renewable energy in transport by 2020,
- more stringent emission norms for new road vehicles,
- energy efficiency gains of 20% by 2020 and 32.5% by 2030, mostly in relation to buildings. This is the sector we will focus on in our proposal.

The case for housing

Before explaining why we think that housing, within the building sector, deserves a new EU initiative, we need to clarify what we precisely refer to for the purpose of this paper. First, we concentrate here on the building stock, leaving aside emissions coming from construction activities or materials manufacturing. Emissions of the building stock are understood as those resulting from their “use”, that is mostly energy use needed for maintaining them at a certain temperature, for cooking, heating water, lighting and supplying appliances. Some of these emissions are direct, meaning that energy production takes place in the building itself (for example in a stove), while indirect emissions are driven by building consumption but actually happen in the energy sector. The 17% share of buildings in EU-28 fossil CO₂ emissions presented on the charts above only takes into account direct emissions – if we add indirect emissions, this figure jumps to 36%¹⁴.

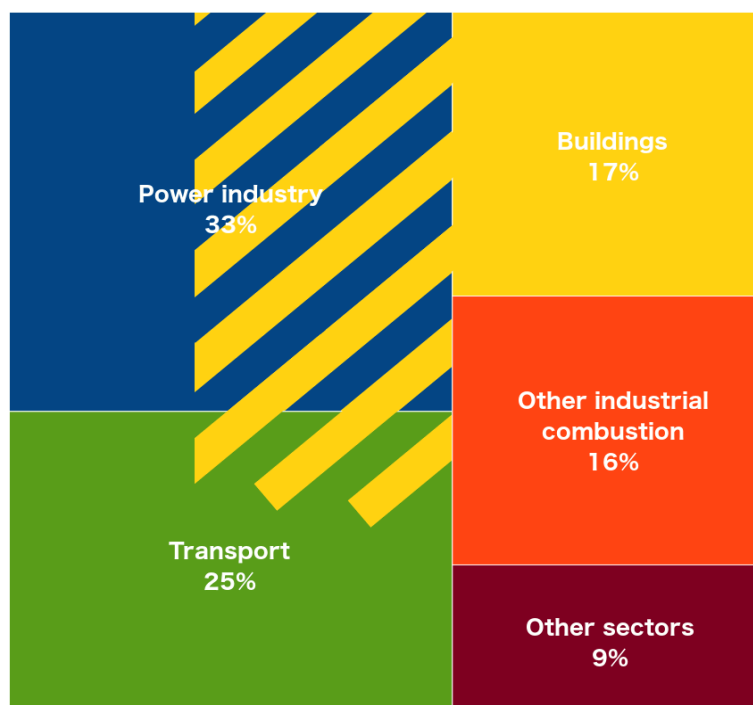
In calculating the carbon footprint of buildings, we should also not forget about their location, since poor spatial planning can encourage suburban sprawl, increase commuting distances and thus, push up transport emissions. As far as we know, this factor has been studied in the United States¹⁵ and in particular case studies in Europe¹⁶, but not yet at the scale of the EU-28. It is worth noticing that in certain situations, emissions deriving from transport needs connected with a house location can exceed those directly generated by the house itself.

13 Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013, 19 June 2018, [2018] OJ L 156.

14 European Commission, “Energy performance of buildings”, Brussels, <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-performance-of-buildings> (accessed 27 July 2019).

15 Nuri Cihat Onat, Murat Kucukvar, Omer Tatari, “Scope-based carbon footprint analysis of U.S. residential and commercial buildings: An input–output hybrid life cycle assessment approach”, *Building and Environment*, vol. 72, February 2014, pp. 53-62, <https://doi.org/10.1016/j.buildenv.2013.10.009>.

16 For instance, Joana Bastos, “Significance of mobility in the life-cycle assessment of buildings”, *Building Research & Information*, vol. 44 no. 4, 2016, pp. 376-393, <https://doi.org/10.1080/09613218.2016.1097407>.



**A part of power and transport emissions
is driven by the building sector**

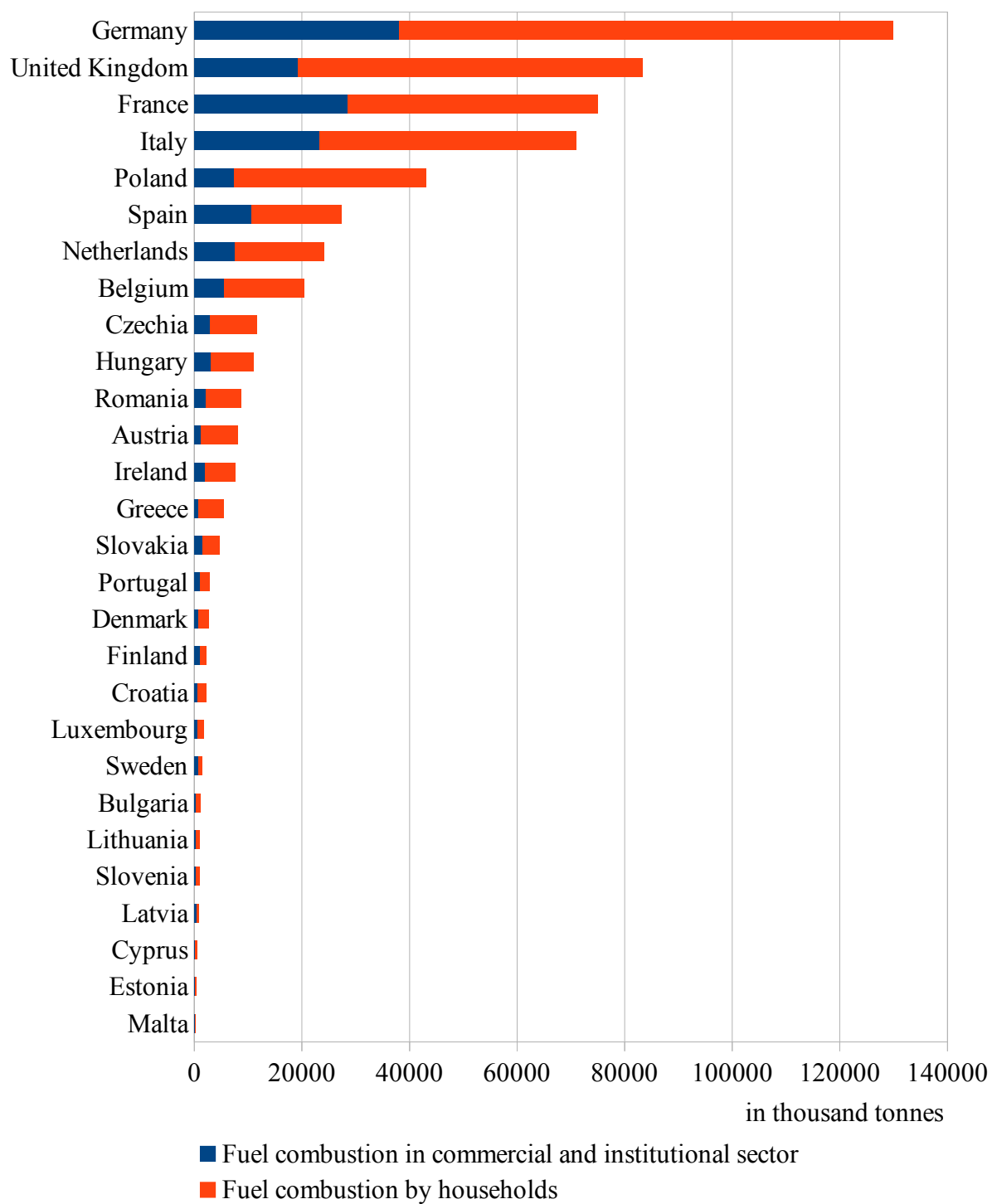
The building stock itself can be divided into two categories, residential and non-residential (commercial or public services). In this paper, we focus on housing, i.e. residential buildings. We will not further differentiate between main and secondary homes, however we will pay attention to some other characteristics, in particular whether they are single- or multi-family (apartments) and public- or private-owned, as this is significant for energy efficiency works. Data are summarized on the charts below and provided in full in annexes.

We see that housing accounts for 70.8% of direct CO₂ emissions of the building sector, that is 12% of the EU-28 total. In terms of surface, single-family dwellings represent about two thirds of the housing stock¹⁷, but if expressed in number of units, their share is on average about the same as multi-family dwellings, with nonetheless major differences between Member States. Almost everywhere in the EU-28, over 80% of dwellings are privately owned.

¹⁷ Buildings Performance Institute Europe, *Europe's buildings under the microscope*, Brussels, 2011.

Direct CO2 emissions of the EU-28 building stock by country and type, 2017

Source: EEA



Number of dwellings in the EU-28 by type, 2014

Sources: EU Buildings Database and Statistics Austria 2011 for Austria

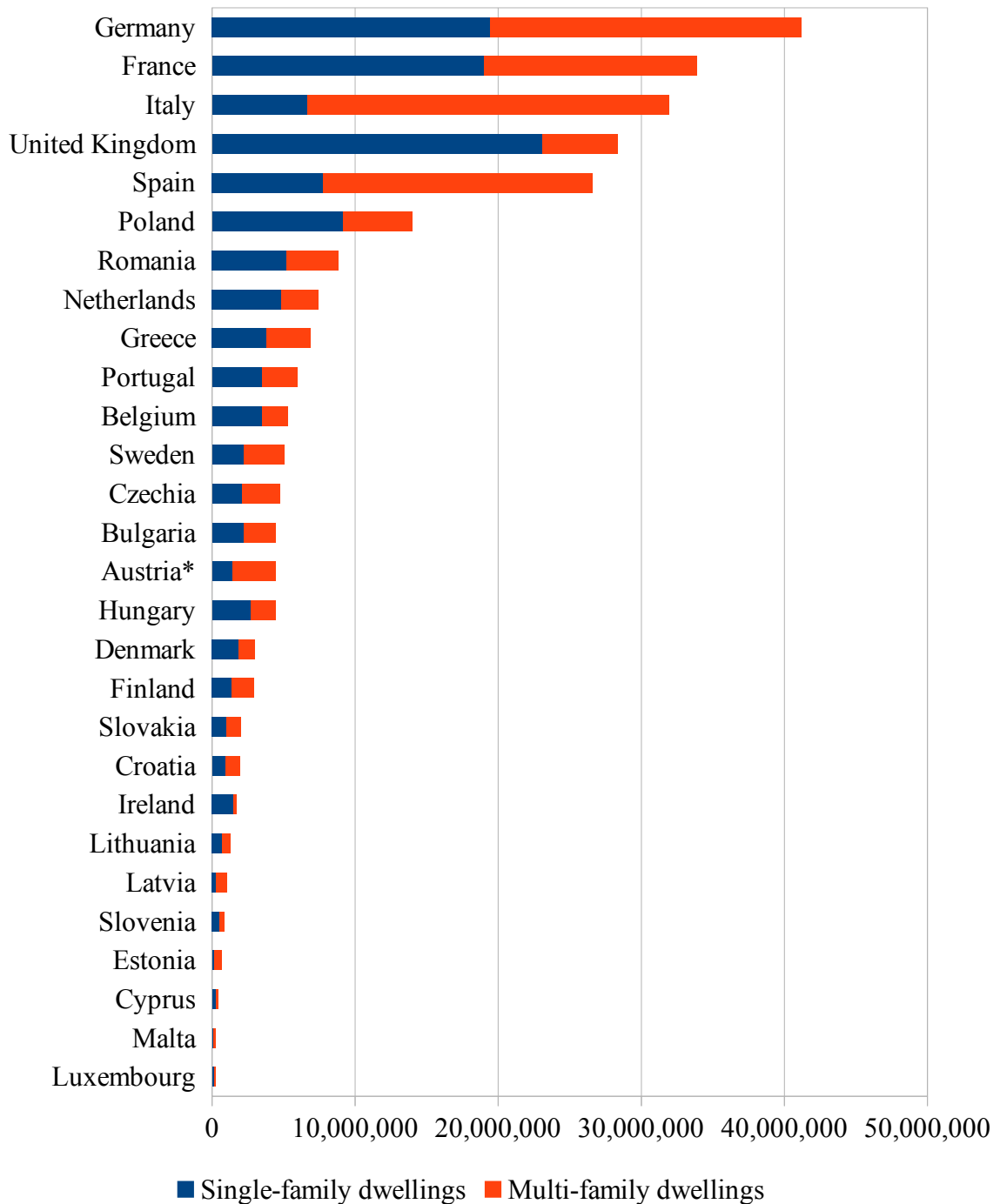
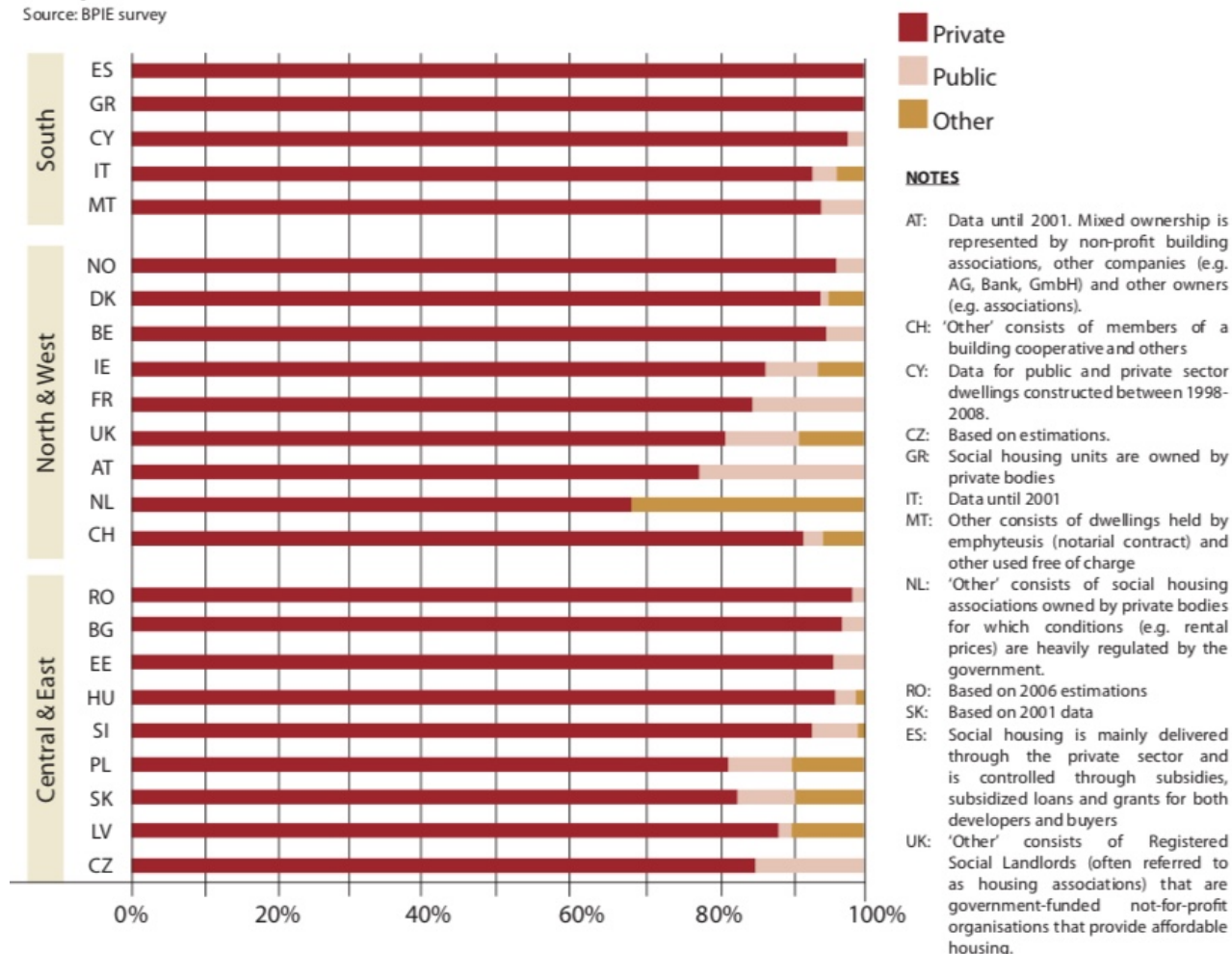


Figure 1B2 – Ownership of residential buildings in Europe by number of dwellings (except France which is in m²).

Source: BPIE survey



From a climate perspective, as we have seen, housing in the EU is a large source of CO₂ emissions but poorly covered by European policy instruments. For this reason, if current trends continue, the EU will not meet its 2020 target of 20% energy efficiency gains¹⁸. Indeed, under this general objective, concrete obligations that affect buildings concern either public buildings, either new constructions, though we have shown that the vast majority of the EU building stock is composed of private-owned dwellings. Also, in the past years, according to the EU Buildings Database, new constructions have never represented more than 1% of the total residential stock. At the same time, the proportion of existing dwellings undergoing “major renovation” is slightly above 1% per year with 75% of the stock being “energy inefficient”¹⁹. Again, if this does not speed up, it is

¹⁸ European Commission, *Report from the Commission to the European Parliament and the Council. Report 2018 assessment of the progress made by Member States towards the national energy efficiency targets for 2020 and towards the implementation of the Energy Efficiency Directive as required by Article 24(3) of the Energy Efficiency Directive 2012/27/EU*, COM(2019) 224 final, Brussels, 9 April 2019.

¹⁹ Buildings Performance Institute Europe, *op. cit.*

very unlikely that the EU will be able to cut CO₂ emissions in the building sector at the required pace.

That is not to say that nothing has been done in this realm. In many Member States, national or local public authorities have launched programmes aiming at encouraging private owners to renovate their buildings. Some of the funding already comes from European financial instruments, e.g. the European Regional Development Fund (ERDF) or the Cohesion Fund (CF) channelled through operational programmes, yet in such cases the visibility of the EU is relatively weak, and low renovation rates provide the best evidence that for now, all these measures are simply not up to the scale of the challenge.

Cutting emissions in the private residential building stock: review of existing measures and barriers to renovation

How to reduce CO₂ emissions of existing private-owned dwellings? We have explained above that a major share of these emissions comes from the use of energy for maintaining homes at a certain temperature, for cooking, heating water, lighting and supplying appliances. Therefore, cutting emissions implies to reduce energy consumption in the first place, through a range of actions such as:

- improving thermal insulation of buildings (walls, roof, floors, doors, windows, ventilation) to avoid heat leaks or, when the external temperature is high, to keep the interior cool;
- installing new, low-carbon, often renewable energy systems to receive or produce heat, hot water or power;
- replacing lamps and domestic appliances with more energy-efficient versions that can offer a similar level of comfort while consuming less power.

Energy consumption and CO₂ emissions of residential buildings can also be diminished by behavioural changes (for instance by setting lower temperatures on a thermostat or turning off certain equipments while being away from home), but this will not be here our main focus. We will however take into account indirect energy consumption and CO₂ emissions connected with the location of buildings and partly avoidable thanks to better spatial planning and land use densification.

Energy renovation of private-owned residential buildings has already a very complex and dynamic landscape of policy measures and involved actors. Regarding measures, an up-to-date summary is provided by MURE, a database that keeps track of “*energy efficiency policies and*

*measures that have been carried out in the Member States of the European Union*²⁰. Without going into details, we can simply mention here a typology of those measures:

- technical norms and standards;
- informative obligations and actions (labelling of equipment, energy audits, passports and certificates, communication campaigns);
- financial and fiscal instruments (tax rebates and credits, energy pricing, loans and subsidies, including direct interventions like appliance replacement programmes).

The typology of actors is also very diverse and covers national and local governments, public agencies and funds, technical and scientific advisory bodies, nonprofit organizations, equipment producers or their associations, construction companies, utilities, banks... In a way, the abundance of measures and actors can be more of an obstacle than a support because it makes difficult for dwelling owners – the persons legally responsible for deciding to carry out renovation – to factor in all the available instruments in the final bill and to know to whom to address.

In the case of rented dwellings, another barrier lies in split incentives between landlords and tenants. While the first are legally and financially responsible for deciding to carry out renovation, energy costs and possible discomforts connected with the poor state of the building are usually only incurred by tenants. Symmetrically, renovation works immediately bring an improvement of the tenant's situation whereas gains for the landlord through a higher property value remain virtual until the house is sold or used to take out a mortgage. Also, it is not always possible for landlords to pass renovation costs on higher rents due to rent regulations.

Even for owner-occupied dwellings, though they are not affected by the problem of split incentives, the fact that energy renovation usually pays off thanks to lower bills and higher property value in the future is not sufficient to trigger the decision to carry out works. Related

20 ODYSSEE-MURE, “About the MURE database”, <http://www.measures-odyssee-mure.eu> (accessed 2 September 2019).

literature^{21,22,23,24,25,26} lists a number of obstacles why, despite real financial benefits, private owners of residential buildings are still reluctant to invest in energy renovation:

- most support schemes rely on incentives and voluntary participation, obligations are exceptional;
- energy remains relatively cheap, even if it can already be a major burden for low-income households;
- the market is very fragmented, with tens of millions of homeowners on the one hand, and millions of construction companies on the other, often very small²⁷ and not always trained with the latest renovation techniques;
- homeowners may not want to borrow in order to invest in a property they may resell before the repayment of the loan, and loans are generally linked to homeowners, not the property itself;
- homeowners may not trust new technologies and the benefits they are expected to generate;
- most importantly, upfront costs are high and payback periods can be long. This is the main barrier we are going to address in our proposal.

21 Irati Artola, Koen Rademaekers, Rob Williams, Jessica Yearwood, *Boosting Building Renovation, What Potential and Value for Europe? Study for the European Parliament's Committee on Industry, Research and Energy*, European Union, Brussels, 2016.

22 Yamina Saheb, Aurélien Saussay, Vida Rozite, Charlotte Johnson, Alastair Blyth, *Innovative Market Framework to Enable Deep Renovation of Existing Buildings in IEA Countries*, International Energy Program Evaluation Conference, Chicago, 2013, <https://www.iepec.org/conf-docs/conf-by-year/2013-Chicago/061a.pdf> (accessed 3 September 2019).

23 Jenny Palm, Katharina Reindl, "Understanding barriers to energy-efficiency renovations of multifamily dwellings", *Energy Efficiency*, vol. 11 no. 1, 2018, pp. 53-65, <https://doi.org/10.1007/s12053-017-9549-9>.

24 Vesna Bukarica, Alenka Kinderman Lončarević, Damir Pešut, Margareta Zidar, *Renovation in Buildings*, ODYSSEE-MURE, February 2017, <https://www.odyssee-mure.eu/publications/policy-brief/renovation-building-policy-brief.pdf> (accessed 3 September 2019).

25 Simona D'Oca, Annarita Ferrante, Clara Ferrer, Roberta Perneti, Anna Gralka, Rizal Sebastian, Peter op't Veld, "Technical, Financial, and Social Barriers and Challenges in Deep Building Renovation: Integration of Lessons Learned from the H2020 Cluster Projects", *Buildings*, vol. 8 no. 12, 174, <https://doi.org/10.3390/buildings8120174>.

26 Hugo Grasset, Enrico Scoditti, *Energy Efficiency renovation market mechanisms, trends and barriers*, STUNNING project, 2019, <https://renovation-hub.eu/downloads/> (accessed 3 September 2019).

27 Yamina Saheb, *Energy Transition of the EU Building Stock. Unleashing the 4th Industrial Revolution in Europe*, OpenExp, Paris, 2016, p. 4.

Our proposal: a public-backed, EU-supported home equity release scheme for accelerating energy renovation of the private building residential stock

1) Reasons for the proposal

Despite the fact that the EU has no explicit competence in housing policy matters, in our view, three arguments justify a EU-coordinated action in this field, even if its formal legal basis would be first and foremost energy and subsidiarily environment for certain aspects. The first reason has already been exposed: it is the role of housing in climate change and the insufficiencies of existing policies in this regard, notably to achieve EU energy efficiency goals.

The second reason is less direct and more political – housing and living costs are one of the top concerns for European citizens²⁸. The problem is twofold. On the one hand, access to affordable housing is increasingly difficult, in particular for younger people, because supply does not keep up with a growing and more concentrated demand resulting from family structure changes and metropolitanization. On the other hand, indirect housing costs, especially energy bills, eat up a rising share of household incomes, sometimes leading to situations called “energy poverty”. As there is no single definition of this phenomenon at the EU level, estimations of the number of affected persons vary, but the European Commission usually talks about “*more than 50 million households*”²⁹, that is about 22% of the total. Though political salience of an issue is not *per se* a legal basis for action, if European institutions and Member States want the EU to get more support among citizens, they should develop more initiatives from which people can benefit directly, alike Erasmus or direct payments of the Common Agricultural Policy (CAP), even when the cross-border dimension is not obvious.

And yet it exists, not only in relation to climate, which is by definition transboundary, but also in connection with freedom of movement. In the economic literature, the role of labour mobility in strengthening the cohesion of a common currency area³⁰ and fostering employment³¹ – two objectives of the EU – is well-established and has been partly translated into policy measures, with free movement of workers in the first place. Since housing is one of the key determinants of

28 European Commission, *Standard Eurobarometer 90. Public opinion in the European Union*, Brussels, 2018.

29 EU Energy Poverty Observatory, “What is energy poverty”, Brussels, <https://www.energypoverty.eu/about/what-energy-poverty> (accessed 31 July 2019).

30 Robert A. Mundell, “A Theory of Optimum Currency Areas”, *The American Economic Review*, vol. 51 no. 4, 1961, pp. 657-665.

31 Mikkel Barslund, Matthias Busse, *Making the Most of EU Labour Mobility*, Centre for European Policy Studies, Brussels, 2014.

labour mobility³² and as our proposal also aims at improving housing availability where it is needed, this gives in our opinion an additional basis for the EU to intervene on this ground.

2) The core policy mechanism: equity release

The core mechanism of our proposal is equity release, that is a financial technique enabling asset owners, usually retired homeowners, to receive money – regular payments and/or a lump sum – against the value of their property. Equity release can take the form of a loan or a sale³³.

In the United Kingdom (UK) and the United States, where financial services are more developed, reverse mortgages (called this way because they work as a mirror of a classic mortgage through which a person buys upfront a property thanks to a loan secured by the property itself and paid back with future incomes) are relatively popular and function like loans to be repaid when the borrower dies or moves out, possibly by selling the property. They do not automatically imply a transfer of ownership because borrowers or their heirs retain the possibility to pay back the money, like an ordinary loan, and keep the property. Yet the British market also offers products such as lifetime mortgages – loans to be ultimately repaid by the sale of the property to a third party – and home reversion plans, a mix of a loan and a sale whereby the lender acquires shares of the estate at the beginning of the contract.

Civil law European countries like France and Belgium have for their part the institution of *viager* (also known as *liferent* in Scotland), a kind of deferred sales contract by which the buyer starts to pay for a property at the beginning of the contract, but becomes owner of the estate only at the end of the *viager* period, generally when the seller dies, with the actual amount of money transferred depending essentially on how long the seller lives.

In any case, an important common feature of all these schemes is their “negative equity protection”, meaning that the property is the only collateral of the loan, with no possibility for the lender or future buyer to turn to the borrower or heirs in a situation where the actual amount of money transferred exceeds the value of the estate. Though equity release often has a bad image of being a bet on a person’s lifetime, the protection makes it actually safe for borrowers/sellers and their heirs. For our proposal, the privileged model is the *viager* because it is more suitable to our target group’s needs (see below), but for homeowners-occupants who do not plan or need to move out, loans can also be a working solution.

32 Dan Andrews, Aida Caldera Sánchez, Åsa Johansson, *Housing Markets and Structural Policies in OECD Countries. Economics Department Working Papers No. 836*, OECD, Paris, 2011.

33 Prof. Dr. Udo Reifner, Sebastien Clerc-Renaud, Dr. Elena F. Pérez-Carrillo, Dr. Achim Tiffe, Michael Knobloch, *Study on Equity Release Schemes in the EU*, Institut für Finanzdienstleistungen e.V., Hamburg, 2009.

3) The main target group: low-income aged homeowners-occupants

In the section “The case for housing”, we have recalled that in most EU countries, over 80% of dwellings are privately owned. Eurostat adds that about 70% of EU citizens live in owner-occupied dwellings³⁴, however we don’t know exactly how this translates into the proportion of dwellings that are occupied by their owner (dwelling approach)³⁵. As a proxy, we can nevertheless assume that a majority of existing dwellings are owner-occupied.

This segment of the building stock is probably the most difficult to renovate because it cumulates many of the barriers we have listed above. First, by definition, it is deeply fragmented with a number of owners – again, legally responsible for deciding to carry out renovation – ranging in tens of millions. In contrast, for public, social or simply private institutional rental housing, responsible entities are less numerous, easier to identify and have stronger financial resources, including access to credit.

Individual private landlords can also be more or less gently “encouraged” to undertake renovation works for their own profit and their tenants’ through e.g. legal bans on renting sub-standard houses and flats (already in force in the UK, under discussion in France) and financial obligations covered by rents. This does not apply to individual homeowners-occupants, even with a high-value property. Indeed, in Europe, due to a combination of historical factors and the weakness of wealth taxes (property and/or inheritance tax), it is possible for a household to be asset rich, but cash poor. Without finance to bridge the gap and tap dormant equity, it is nearly impossible for such households to pay upfront the costs of energy renovation, despite long-term gains deriving from energy savings. Such financial difficulties are aggravated by the use value of dwellings for their owners-occupants because renovation works can imply inconvenience and a temporary relocation that also comes at a cost.

These obstacles are all the more serious for “older” (50+) people, among whom the home ownership rate is the highest. Here again, we have to rely on some proxies because of the lack of harmonized data for the whole EU-28. The first hypothesis is that we can extend to the entire EU the positive correlation between age and the home ownership rate observed in a majority of

34 Eurostat, “Housing statistics”, Brussels, June 2019, https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics (accessed 4 September 2019).

35 Sylvain Bouyon, *Recent trends in EU home ownership*. ECRI Commentary No. 15, European Credit Research Institute, Brussels, 2015, https://www.ceps.eu/wp-content/uploads/2015/06/ECRI%20Commentary%20No%2015%20SB%20Recent%20Trends%20in%20Home%20Ownership%20in%20the%20EU-28%20final_0.pdf (accessed 4 September 2019).

Member States. The second hypothesis is that a significant share of owner-occupied dwellings belong to older people.

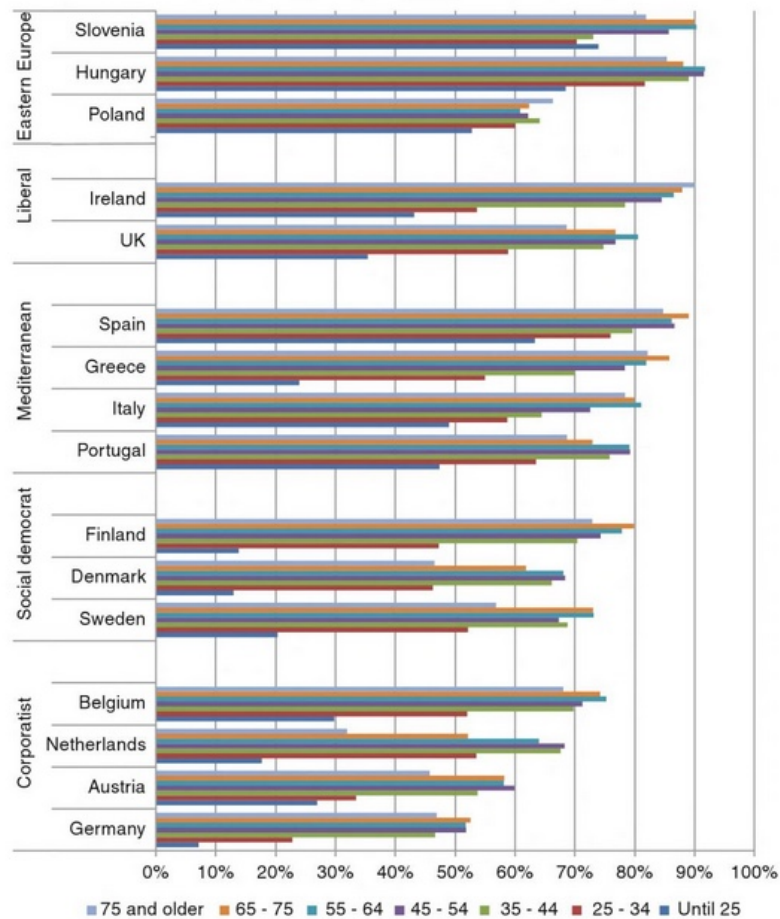
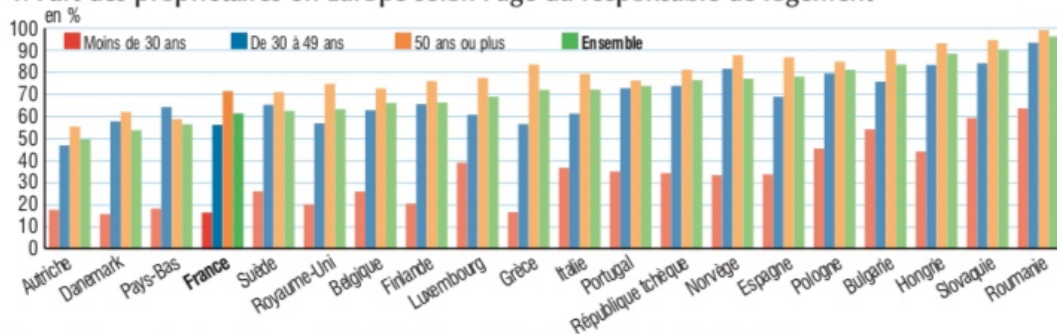


Fig. 2.5 Age profile of homeowners in 2008 across the EU (Source: EU SILC 2008)

From John Doling, Marja Elsinga, *Demographic Change and Housing Wealth*, Dordrecht, Springer, 2013, p. 40.

1. Part des propriétaires en Europe selon l'âge du responsable de logement



Champ : Union européenne hors Allemagne, Irlande, Malte, Chypre, Estonie, Slovaquie, Croatie, Lituanie, Lettonie.
Lecture : les pays ont été classés par ordre croissant de la proportion de ménages propriétaires. En 2014, 26 % des ménages suédois dont le responsable du logement a moins de 30 ans sont propriétaires de leur logement.
Notes : la définition européenne du ménage utilisée par EU-SILC s'appuie sur la communauté de budgets. Il se compose d'une personne vivant seule ou d'un groupe de personnes non obligatoirement liées par un lien de parenté résidant à la même adresse et consommant collectivement certains biens ou services, c'est-à-dire partageant au moins un repas par jour ou partageant un salon ou une pièce de séjour.
Le responsable du logement est la personne la plus âgée d'entre les propriétaires ou locataires du ménage. Si le logement est fourni à titre gratuit, la personne responsable de logement est celle qui en bénéficie.
Le taux de propriétaires français est plus élevé dans SILC 2014 (61 %) que dans l'enquête Logement 2013 (58 %). L'enquête Logement détaille finement le statut d'occupation des logements. Elle permet de distinguer les sous-locataires des locataires, les ménages logés gratuitement, occupants de meubles, fermiers ou métayers. L'enquête SILC ne permet pas une partition aussi détaillée. Ce faisant, elle sous-estime certainement la part des locataires.
Source : EU-SILC 2014.

From INSEE, *Les conditions de logement en France*, INSEE, Paris, 2017, p. 189.

Two more arguments plead for targeting older people as a priority group for policies aimed at retrofitting residential buildings. The first has to do with the average features of the dwellings they own and occupy. Because of the lack of data that connect dwelling and population approaches, we again have to rely on some heuristics, nevertheless available case studies in Europe confirm the logical intuition about a positive correlation between the age of a homeowner-occupant and the age of her/his dwelling, like in Ireland³⁶, Germany³⁷, France^{38,39} and other Mediterranean countries⁴⁰.

At the same time, with the exception of pre-war buildings, there is a positive correlation between the energy use of a building and its age⁴¹ since many European countries started to adopt energy efficient construction codes only in the 1970s in reaction to the oil crises. In post-communist countries, dwellings built in the period between the end of the Second World War and the late 1980s even represent the majority of today's residential building stock⁴², often with poor energy standards⁴³. Targeting older people is therefore a way to approach the segment of the existing building stock that is the most in need of energy renovation and with the highest potential of energy savings. We will also see in the next section that this segment has very valuable characteristics in terms of location.

The second argument is connected with the socio-economic profile of aged homeowners-occupants, especially retired people. Although on average, older people in the EU are less exposed than younger age groups to the risk of poverty or social exclusion⁴⁴, we can notice a certain divide

36 Joanna Orr, Siobhan Scarlett, Orna Donoghue, Christine McGarrigle, *Housing conditions of Ireland's older population. Implications for physical and mental health*, The Irish Longitudinal Study on Ageing, Dublin, 2016, https://tilda.tcd.ie/publications/reports/pdf/Report_HousingConditions.pdf (accessed 5 September 2019).

37 Aging Readiness and Competitiveness, *The Aging Readiness & Competitiveness Report: Germany*, 2017, p. 8, <https://arc.aarpinternational.org/File%20Library/Full%20Reports/ARC-Report---Germany.pdf> (accessed 5 September 2019).

38 Julia Faure, "Mal-logement et vieillissement", *Gérontologie et société*, vol. 34 no 136, 2011, pp. 255-267, <https://doi.org/10.3917/gs.136.0255>.

39 Erwan Auger, Thomas Ducharne, Sophie Villaume, "Isolement, état de santé, conditions de logement : des risques de fragilité plus élevés pour les femmes après 60 ans", *INSEE Analyses Grand Est n° 36*, INSEE, Strasbourg, 2017.

40 Aurora Monge-Barrio, Ana Sánchez-Ostiz, *Passive Energy Strategies for Mediterranean Residential Buildings. Facing the Challenges of Climate Change and Vulnerable Populations*, Cham, Springer, 2018, p. 25.

41 Buildings Performance Institute Europe, *op. cit.*, p. 35.

42 Kees Dol, Marietta Haffner, *Housing Statistics in the European Union*, Ministry of the Interior and Kingdom Relations, The Hague, 2010, p. 54.

43 Yamina Saheb, Katalin Bódis, Sándor Szabó, Heinz Ossenbrink, Strahil Panev, *Energy Renovation: The Trump Card for the New Start for Europe*, Joint Research Centre, European Union, Luxembourg, 2015, pp. 53-54.

44 Eurostat, "People at risk of poverty or social exclusion", Brussels, January 2019, https://ec.europa.eu/eurostat/statistics-explained/index.php/People_at_risk_of_poverty_or_social_exclusion (accessed 5 September 2019).

between Western Member States, where retirees benefit from relatively generous pension systems, and Eastern Member States, where the poverty rate among the elderly can even exceed 40%.

In addition, the prospects of improvement for older people by other means than public support are rather bleak as they are unlikely to return to the labour market and have little influence on the level of pensions. On the contrary, the death of a spouse, statistically the male with a lower life expectancy but a higher retirement pension deriving from gender inequalities in wages and career opportunities, can quickly deteriorate the financial and material situation of the surviving partner. In a context of low fertility rates and high life expectancy, family solidarity cannot either be a solution since many couples simply don't have children, or their children may be retired already.

Combined with dwellings older than the average, these specificities explain why aged households are disproportionately hit by energy poverty. In France, despite the fact that retirees are statistically better off than younger age groups, 55% of the 12 million individuals (5.1 million households) concerned by fuel poverty are over 60 years old⁴⁵. In Denmark, pensioners are considered as a vulnerable group and are entitled to energy checks⁴⁶. In Poland, retirees and pensioners account for 44.5% of energy-poor households – the largest share – whereas they represent one third of the total number of households⁴⁷. Based on a different methodology, a study carried out in Belgium concludes that 28.2% of small aged households experience “*energy difficulties*” against 12.2% for the rest of the population⁴⁸. Interestingly, this research explains this overrepresentation not by older people's energy consumption habits or income levels, but firstly by the features of their dwellings – older, therefore less energy efficient, and also often oversized because children have moved out. We will come back later to this point.

Once again, due to the lack of consistent data at the EU level, we cannot measure the exact number of households and dwellings that belong to our target group. Differences between Member States in terms of retirement age, financial situation and health conditions of older people are another reason why we should allow some flexibility for national or local authorities setting personal eligibility criteria to the proposed home equity release scheme. Overall, we assume that

45 ADEME, “La précarité énergétique”, Paris, August 2018, <https://www.ademe.fr/expertises/batiment/quoi-parle-t/precarite-energetique> (accessed 5 September 2019).

46 Sam Nierop, “Energy poverty in Denmark?”, *EU Energy Poverty Observatory*, Brussels, 2 July 2014, <https://www.energypoverty.eu/news/energy-poverty-denmark> (accessed 6 September 2019).

47 Jakub Sokołowski, Piotr Lewandowski, Aneta Kielczewska, Stefan Bouzarovski, *Measuring energy poverty in Poland with the Multidimensional Energy Poverty Index. IBS Working Paper 07/2019*, Institute of Structural Research, Warsaw, p. 10.

48 Xavier May, *Analyse de la facture énergétique des ménages et mesure des difficultés rencontrées par les personnes âgées*, Université libre de Bruxelles, Brussels, 2013, http://igeat.ulb.ac.be/fileadmin/media/projects/GAG/Rapport_final_prekarite_energetique.pdf (accessed 6 September 2019).

homeowners-occupants on retirement have the most suitable profile, however we should not exclude the possibility to open up the scheme to pre-retirees or to set a higher age threshold than the retirement age if “younger” seniors are still active and are not too much in need of additional cash or care. Income tests may also be appropriate in countries with large inequalities between pensioners. In any case, while personal eligibility can be defined widely, criteria regarding eligible dwellings should be set more stringently.

4) Dwelling eligibility criteria

In the previous section, we have several times referred to differences between dwelling and population approaches. Both are useful to us because our proposal actually has two target groups: on the one hand, dwellings to be renovated in order to decrease their energy consumption and related CO₂ emissions, on the other hand, their owners-occupants who should be incentivised to take the decision of undertaking renovation works. Though old-age poverty, whose fuel poverty is only one of the aspects, can be a serious social problem in certain European countries, we should keep in mind that at least for the purpose of this paper, climate and energy objectives are our top priority. That is why, in articulation with personal eligibility criteria for potential beneficiaries of the home equity release scheme, we need dwelling eligibility criteria to ensure that public means are invested in renovation works that make sense from a climate and energy perspective. Not all existing dwellings meet this condition.

It is now time to recall what we mentioned earlier about indirect CO₂ emissions of the housing sector resulting from poor spatial planning. Not only does it induce additional costs in terms of commuting and infrastructure connections, but it also drives land-use change at the expense of forests, agricultural land or wildlife areas. According to the European Environmental Agency (EEA), between 2002 and 2012, the EU “lost” every year 926 km² of natural and semi-natural areas, three quarters of it being arable land, permanent crops or pastures⁴⁹. For the reminder, the EU has a zero net land take goal by 2050 that requires the reduction of land take “*to an average of 800 km² per year in the period 2000-2020*”⁵⁰. It is already certain we are not going to reach it. Among the drivers of land take, housing, services and recreation do no longer rank first but still “*made up 18 % of the overall increase in urban and other artificial areas* [between 2006 and

49 European Environmental Agency, “Urban land take”, Copenhagen, November 2018, <https://www.eea.europa.eu/airs/2018/natural-capital/urban-land-expansion> (accessed 6 September 2019).

50 European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, Brussels, 20 September 2019.

2012]”⁵¹, with a peak of 42% in France between 2005 and 2013 for housing only, not counting related transport infrastructure⁵².

Yet suburban sprawl started long before we entered the 21st century. The EEA finds traces of it back to the 1950s⁵³, although there is here a cleavage between Western and Eastern countries due to differences in wealth, car ownership rates and spatial planning regulations. This means that a certain number of older dwellings, potentially owned and occupied by older people, are located in areas that are far from optimum from a spatial planning point of view. This in turn is not only a source of environmental damages, but in a context of strained public finances and a tendency towards metropolitanization⁵⁴, such territories lose inhabitants, especially younger people, and access to both public and private services like health care, post offices and shops. Since energy renovation can extend the lifetime of buildings by decades, its relevance is conditional upon the attractiveness of such dwellings in ten or twenty years’ time. If this attractiveness, and therefore the value of the property was to fall dramatically in the future, the proposed equity release scheme would not make sense either.

We also have to keep in mind that climate change is already on going, with impacts on the attractiveness, or even the liveability of certain regions. This concerns of course coastal areas because of sea level rise, but the map of flood zones and territories exposed to the risk of forest fire has been quickly evolving as well due to increasing frequency of extreme weather events. Extending the lifetime of buildings in such regions requires at least the inclusion of climate adaptation measures, yet we cannot exclude that some of them will have to be abandoned altogether as they become simply too unsafe for human life, especially the elderly.

While we are aware that at the present time, the EU has no formal competence in spatial planning, we have to acknowledge that it will be more and more difficult to design and execute common policies in such fields as agriculture, regional development or transport without some shared and realistic vision of what the EU territory will look like in the next decades, taking into account long-term trends like demographics, climate change, or metropolitanization.

At the national or local level, many existing land use plans are completely not in line with these prospects. For instance, in Poland, only 30% of the territory is covered by zoning plans, and even when they exist, they often ignore flood risk despite the fact it is a major threat in the

51 European Environmental Agency, *op. cit.*

52 Julien Fosse, Julia Belaunde, Marie Dégremont, Alice Grémillet, *Objectif « Zéro artificialisation nette » : quels leviers pour protéger les sols ?*, France Stratégie, Paris, 2019.

53 European Environmental Agency, *Urban sprawl in Europe. Joint EEA-FOEN report*, Luxembourg, Publications Office of the European Union, 2016, p. 17.

54 Housing Europe, *The state of housing in the EU 2017*, Brussels, 2017, p. 27.

country⁵⁵. Considered together, they reserve more than 10% of the communes' territory for residential purposes, essentially single-family dwellings, and this would be enough to accommodate 76 million people⁵⁶ – the double of today's population of Poland. In Germany, despite more stringent zoning regulations, a perverse phenomenon of “*shrinking sprawl*” has been joining urban sprawl and shrinking population at the expense of existing cities, whose infrastructure maintenance costs per capita have been rising accordingly⁵⁷. Comparatively, the UK has been doing better thanks to “*central planning systems*”, “*the use of ‘green belts’*”⁵⁸ and a target already adopted in 1998 of at least 60% of new homes to be built on brownfield sites.

Though it would be politically unrealistic to imagine a kind of EU-wide binding spatial masterplan, an intermediate solution could consist in making EU support and funding for regions, cities and towns conditional upon the adoption and effective implementation of land use plans compatible with EU objectives and standards, in particular zero net land take by 2050 and the preservation of the most valuable arable land, natural habitats and cultural heritage. This measure could be accompanied with an instrument comparable to the British National Trust or the French *Conservatoire du littoral*, that is a public entity financed by public subsidies and private donations to acquire and protect valuable areas. At the EU level, this instrument could be either a new pan-European entity or, more desirably, a network of existing and future institutions entrusted with the same mission.

Coming back to housing, it is clear that dwellings eligible for the public-backed, EU-supported equity release scheme for energy renovation also need to fit reasonable and sustainable land use plans. This gives a preference to multi-family buildings in urban areas already well equipped with public infrastructure (transport, electricity, water, gas, heating...), but does not exclude from the very start single-family houses if they are located in areas where public amenities are or can be provided at a rational cost by the collectivity. As an option, owners-occupants of

55 Najwyższa Izba Kontroli (Supreme Audit Office), *System gospodarowania przestrzenią gminy jako dobrem publicznym* (Spatial planning system of communes as a public good), Warsaw, 2017, <https://www.nik.gov.pl/plik/id,13209,vp,15626.pdf> (accessed 7 September 2019).

56 Przemysław Śleszyński, Aleksandra Deręgowska, Łukasz Kubiak, Paweł Sudra, Beata Zielińska, *Analiza stanu i uwarunkowań prac planistycznych w gminach w 2017 roku* (Analysis of the state and context of zoning works in communes in 2017), Instytut Geografii i Przestrzennego Zagospodarowania PAN na zlecenie Ministerstwa Inwestycji i Rozwoju (Polish Academy of Sciences, Institute of Geography and Spatial Planning, ordered by the Ministry of Investments and Development), Warsaw, 2018, p. 14.

57 Stefan Siedentop, Stefan Fina, “Urban Sprawl beyond Growth: the Effect of Demographic Change on Infrastructure Costs”, *Flux*, vol. 1-2 no 79-80, 2010, pp. 90-100, <https://doi.org/10.3917/flux.079.0090>.

58 Andreas Schulze Baing, “Containing Urban Sprawl? Comparing brownfield reuse policies in England and Germany”, *International Planning Studies*, vol. 15 no 1, pp. 25-35, <http://doi.org/10.1080/13563471003736910>, in European Commission, “Science for Environment Policy. Policies to limit urban sprawl compared”, DG Environment News Alert Service, Brussels, https://ec.europa.eu/environment/integration/research/newsalert/pdf/39si3_en.pdf (accessed 7 September 2019).

dwelling that do not meet these criteria may also be offered equity release, but for the building to be ultimately destroyed and the plot returned to farming or transferred to a land protection trust.

Going down from location to the features of the dwelling itself, age or the technical state of buildings should not necessarily be treated as eligibility criteria, but they determine solutions offered to owners-occupants and the buildings themselves as in certain cases, it may turn out that from an economic and environmental point of view, renovation is more costly than demolition and construction of a new building.

Specific attention should be paid to large concrete apartment blocks, the dominant form of housing in post-communist countries. Although Central and Eastern Europe represents a relatively small share of the EU total residential building stock⁵⁹, it combines many factors that resonate with our proposal: above-average energy consumption and CO₂ emissions per square meter (partly due to a continental climate with more extreme temperatures), high percentage of owners-occupants and apartment buildings, prevalence of old-age poverty. In spite of a questionable design and comfort as well as poor quality construction, these large concrete apartment blocks, mostly built in the years 1960-1980, are still home to millions of citizens and usually have good location and public infrastructure.

Many of them are now approaching the end of their life span, and both authorities and individuals are wondering whether to demolish or to refurbish them. Pilot projects carried out in the region⁶⁰ suggest that it is technically possible to modernise these buildings in a way to make them both energy efficient and more comfortable, including from an aesthetic point of view, for their inhabitants. In Poland, the government plans to cofinance energy renovation works and the installation of renewable energy sources for some of the 60,000 concrete large panel apartment blocks still standing in the country, that is 2.5 million dwellings where 12 million persons live⁶¹ (almost a third of the total population!). Since construction technologies were similar across the former Eastern bloc, it would be beneficial for countries and local authorities to share experience on retrofitting such buildings, so that modernisation could be quickly scaled up at falling costs. This cooperation could also extend to Russia and Eastern Partnership countries (Armenia, Azerbaijan,

59 Buildings Performance Institute Europe, *op. cit.*, pp. 28-29.

60 For example, Rein Ahas, Veronika Mooses, Pilleriine Kamenjuk, Raimond Tamm, "Retrofitting Soviet-Era Apartment Buildings with 'Smart City' Features: The H2020 SmartEnCity Project in Tartu, Estonia", in D. B. Hess, T. Tammaru (eds.), *Housing Estates in the Baltic Countries*, The Urban Book Series, Cham, Springer, 2019, pp. 357-375, https://doi.org/10.1007/978-3-030-23392-1_17 (accessed 7 September 2019).

61 "Kwieciński: Około 60 tys. budynków z wielkiej płyty może być zmodernizowanych" (Around 60,000 concrete large panel buildings can be modernised, says minister Kwieciński), *Dziennik Gazeta Prawna*, Warsaw, 4 August 2019, <https://biznes.gazetaprawna.pl/artykuly/1424754,kwiecinski-budynki-z-wielkiej-plyty-moga-byc-zmodernizowane.html> (accessed 7 September 2019).

Belarus, Georgia, Moldova and Ukraine) as they have a close architectural legacy and face the same energy and climate challenges.

5) Policy operators and execution

After having delimited the target group of our proposal in terms of persons and dwellings, we need to describe the other side of the equity release scheme, that is the offeror's. In our view, the first points of contact and entities responsible for managing the programme should be municipalities because they are more likely to have the best available knowledge about the state of the building stock, spatial development on their territory, and their inhabitants' socio-economic profiles. Moreover, in the EU, local public authorities are on average the most trusted political institutions⁶², an important element to overcome psychological reluctance towards equity release (see below the section "Obstacles").

In many countries, municipalities are already on the frontline to promote energy efficiency in buildings and fight against fuel poverty, cooperating with other relevant stakeholders (utility companies, public agencies and funds, non-profit organisations...) and contributing to or directly running one-stop-shops for energy matters⁶³. Where they exist, these structures should be in our opinion the main contact point for structuring, promoting and "selling" energy renovation equity release deals. Of course, in smaller towns, they can be shared between several municipalities.

What would the transaction be about? Offerees (low-income aged homeowners-occupants of eligible dwellings) could choose between:

- for inhabitants who do not plan or need to move out, a classic loan (reverse mortgage) to finance immediate energy renovation works and to be repaid from energy savings, and if it is not sufficient, after the borrower's death, by the sale of the property or by heirs if they want to keep the estate – alike the French *prêt avance mutation*⁶⁴;
- a non-transferable – except between spouses/significant others – pension supplement until the end of their life, with the possibility to stay in the property until the end of their life (liferent) or until they decide to move e.g. into a care home, with ownership transfer and renovation works taking place after occupants move out or pass away;

62 European Commission, *Standard Eurobarometer 90...*, *op. cit.*, p. 41.

63 Benigna Boza-Kiss, Paolo Bertoldi, *One-stop-shops for energy renovations of buildings*, European Commission, Ispra, 2018, JRC11330.

64 Article L315-2 of the Consumer Code, <https://www.legifrance.gouv.fr/affichCode.do?idArticle=LEGIARTI000032225775&idSectionTA=LEGISCTA000032225777&cidTexte=LEGITEXT00006069565&dateTexte=20190911> (accessed 11 September 2019).

- a lump sum, pension supplement and/or contribution to home care or care home fees (the residence can be public or private) as well as relocation assistance for occupants who decide to move right away into a care home, to a relative or to senior-friendly housing, so that ownership transfer and renovation works can take place immediately afterwards.

Generally speaking, the consideration for the offerees should first depend on their personal preferences, which in turn are influenced by factors such as their state of health, age, family situation, cultural context, income level and state and location of their current dwelling. For example, there is a common thought that older people prefer to stay in their own homes as long as they can, and indeed, in Europe, residential mobility of the elderly is “*very low*”⁶⁵. Nevertheless, determinants like accessibility of healthcare services and architectonic barriers in the dwelling or the building (absence of lift) can make the option of staying at home practically very inconvenient, or even dangerous with “*falls [being] the major cause of injury-related fatalities in the elderly population of Europe (accounting for 28% of all cases)*”⁶⁶.

While offerees’ personal preferences are to be given the highest priority in designing equity release transactions, the decision should be recorded only after a dialogue involving family members and social services. The choice of the type of compensation should also be subject to revision in the future, as a deterioration of health conditions or the death of the spouse can alter initial preferences for staying at home. As for the total value of the compensation, it should not only derive from the value of the property or the offeree’s life expectancy because even without the mechanism of reverse mortgage, the collectivity would have to bear some costs for elderly care. Therefore, this social and financial liability should also be taken into account in the calculation so that all ageing people, including those with low-value assets, can be ensured decent living conditions.

Subordinate to the respect of the offeree’s personal preferences, it remains true that public authorities have an interest in taking over the property as soon as possible. First, the sooner it happens, the faster renovation works can be done and start delivering their effects in terms of energy consumption and CO₂ emissions reduction, especially in the case of multi-family buildings where the decision process is often blocked by the lack of agreement between flat owners. Renovation may also be carried out without relocation of occupants, however this can be technically difficult and even temporary relocation, likely to last months, would simply suppress the

65 Viola Angelini, Anne Laferrère, *Residential Mobility of the European Elderly*. CESifo Working Paper No 3280, CESifo, Munich, 2010.

66 Marek Majdan, Walter Mauritz, “Unintentional fall-related mortality in the elderly: comparing patterns in two countries with different demographic structure”, *BMJ Open*, vol. 5 no 8, 2015, <http://doi.org/10.1136/bmjopen-2015-008672> (accessed 9 September 2019).

benefits for older inhabitants to stay in their homes. Second, since relocation of the elderly often implies downsizing, it frees up larger dwellings that can after renovation better serve e.g. big families' needs.

Notwithstanding the fact that municipalities or their agencies are expected to be the main contact points for energy renovation equity release deals, the programme itself should be run by a distinct legal entity in order to allow for the participation of various sources of funding and to avoid burdening local public budgets. In France, they could be *sociétés d'économie mixte locales*, *sociétés civiles immobilières* or *viager mutualisé* funds like CERTIVIA⁶⁷, in the UK, urban regeneration companies or trusts⁶⁸, in Poland, *spółki celowe* (special purpose companies), elsewhere municipal companies, real estate investment funds and trusts (REITs) or public-private partnerships. These entities would be responsible for paying compensations to property sellers and would become the formal asset owners, carrying out energy renovation works and putting back the dwellings on the market through direct rental or transfer to housing cooperatives or other forms of social or municipal housing⁶⁹.

In designing financial offers, these special purpose companies could be assisted by commercial banks or other financial institutions with experience in equity release. Such institutions could also lend money to special purpose companies, however they would not be entitled to direct rights on the company's assets. The loans would be paid back by property rents and energy savings that can be marketed as certificates where this mechanism exists (currently in half of the Member States⁷⁰), and/or directly sold as “negawatts” to utility companies for them to reduce their capacity needs and related costs.

6) The role of the EU

A feature of our proposal is that from a financial and legal perspective, in many Member States, it can already be implemented by single municipalities without additional funding or legislative changes at the national or EU level. Indeed, public-owned special purpose companies do exist and have been functioning for instance in the realm of urban regeneration, where they are used

67 Fonds viager CERTIVIA, <http://www.certivia.fr> (accessed 11 September 2019).

68 In the 2000s, in Nottingham, the Houseproud scheme, in cooperation with the Home Improvement Trust, used to offer equity release to older homeowners in order to finance renovation of non decent properties. It was abandoned in 2013 due to national budgetary cuts.

69 In Budapest, Hungary, one district has been directly running its own equity release scheme, paying a lump sum and monthly instalments in exchange for flats. See Institut für finanzdienstleistungen e.V., *Integrating Residential Property with Private Pensions in the EU. Final Report*, Hamburg, 2018, p. 124.

70 ATEE, *Snapshot of Energy Efficiency Obligations schemes in Europe: 2017 update*, Arcueil, June 2017, http://atee.fr/sites/default/files/part_6_2017_snapshot_of_eeos_in_europe.pdf (accessed 9 September 2019).

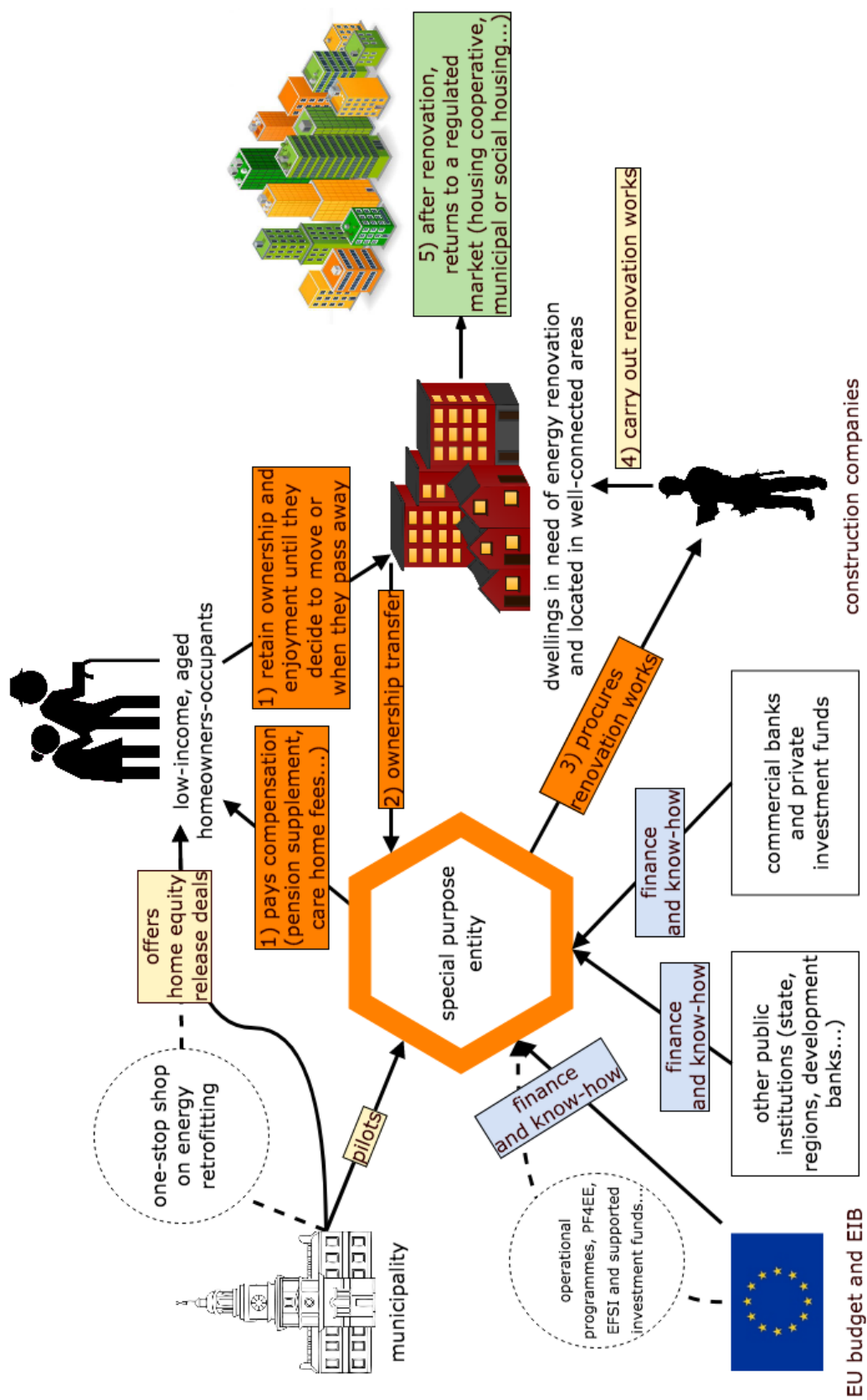
to buy and redevelop brownfield sites before reselling plots or buildings to private entities. The main difference here is the initial acquisition mode, that is through a *viager*.

Nonetheless, an intervention of the EU would greatly facilitate the scaling-up of the mechanism across the continent. First, a financial contribution – e.g. an equity investment, a loan or a credit enhancement guarantee of the European Investment Bank (EIB) and/or the EU budget – would, together with a local, regional or national endowment, help constitute for the start a housing stock to facilitate the conclusion of the first transactions and attract private capital. Second, in the field of communication, an EU label would stress that the main purpose of the programme is climate protection and energy efficiency. Third, the EU would continue to support research, training and knowledge exchange projects between local authorities and other stakeholders in order to better overcome potential difficulties met during the implementation phase and to spread the most cost-effective energy renovation techniques. Fourth, a directive alike the Residential Property Directive⁷¹ would build up trust around the financial product by setting clear consumer protection rules.

At the same time, as we have seen earlier, the EU should be able to control whether investments made within the scope of this programme are in line with the EU's overarching goals – notably zero net land take by 2050 – and long-term demographic trends. More concretely, national executives should ensure the coherence of local land use plans between each other while the European Commission should check in turn whether national and/or regional spatial development strategies respect certain criteria regarding the protection of arable land, natural habitats and cultural heritage. Additionally, the EU could, as mentioned before, establish a European Land Trust as a distinct new entity or a network of existing institutions like the British National Trust and the French *Conservatoire du littoral*.

71 Directive 2014/17/EU of the European Parliament and of the Council of 4 February 2014 on credit agreements for consumers relating to residential immovable property and amending Directives 2008/48/EC and 2013/36/EU and Regulation (EU) No 1093/2010, 28 February 2014, [2014] OJ L 60.

A public-backed, EU-supported home equity release scheme for accelerating energy renovation of the private building residential stock



7) Benefits

Although the main objective of the proposed mechanism is to accelerate the renovation of the private residential building stock in order to help the EU meet its climate and energy policy targets, it also pursues two social and two political objectives.

The first social objective is to provide an answer to old-age poverty in a way that does not create a disproportionate burden on younger generations, e.g. through higher taxes and social contributions. More broadly, we think the proposed mechanism can improve living conditions of the elderly not only through increased pensions and income, but also by actively supporting the adaptation of dwellings to make them safer for older occupants against home accidents and climate-related risks, in particular heat waves.

The second social objective is, for the economically active population, to boost the supply of affordable housing in areas that are attractive to them and sustainable from an environmental and land planning point of view. Indeed, older constructions tend to be located in areas already well-equipped with infrastructure, including public services like schools. While some families move to areas under development because they want to live in stand-alone houses, others do so because housing prices closer to city centres, either for sale or for rent, far exceed their budget.

Encouraging older homeowners-occupants to move and downsize frees up larger dwellings for bigger households, and energy renovation works can also be carried out together with densification, for example by building an additional floor. In Brussels, the company Skyhome offers renovation works for free in exchange for the possibility to build up and rent one or two additional flats in existing buildings⁷². Combined with the transfer of renovated dwellings to nonprofit housing organisations (social, municipal, cooperatives...), densification efforts are expected to alleviate some of the upward pressure on housing prices.

By presenting benefits for both the elderly and younger people, our proposal tries as well to avoid the political trap of intergenerational conflict. Although for different reasons, housing and climate issues are often framed as diverging interests between generations with, on the one hand, “have-it-all” people born after the Second World War who had access to full and stable employment, moderate inflation to erode debt loads and cheap and abundant natural resources, whereas generations born after the 1970s oil crises struggle with employment, social security and housing, not to mention the climate catastrophe. In a context of low economic growth, solutions aimed at improving the position of the “young” of today and tomorrow tend to imply that something

⁷² Frédéric Delepierre, “Skyhome rénove les copropriétés anciennes en leur ajoutant un étage”, *Le Soir*, Brussels, 29 August 2019, <https://plus.lesoir.be/244627/article/2019-08-29/skyhome-renove-les-coproprietes-anciennes-en-leur-ajoutant-un-etage> (accessed 23 September 2019).

must be taken away from their parents and grandparents, who quite logically oppose (unless for the profit of their own children). The proposed mechanism attempts to reframe this apparent conflict of interest into a win-win exchange.

Finally, the second political objective of our proposal is to increase the EU's direct visibility among citizens. Despite the fact that EU institutions have a real impact on people's daily lives through a wide range of instruments – regulations, investments in infrastructure... –, their visibility tends to be very much filtered by national or local governments, and only a few tools such as CAP direct payments, Erasmus or research grants are clearly perceived as emanating from the EU. In line with the European Investment Bank's recent draft of a new "*energy lending policy*" that would among other elements consist in establishing a "*European Initiative for Building Renovation [...] which may include unlocking new markets in energy efficiency mortgage-based lending or securitisation*"⁷³, we think that higher direct visibility of the EU in this area can on the one hand encourage more stakeholders to participate in building renovation, and on the other hand strengthen support for the EU thanks to a "success story" that delivers positive effects both in terms of climate and social cohesion.

8) Costs and funding

How much would such a programme cost? Here, we have to differentiate between three categories of costs: renovation costs, acquisition (*viager*) costs *per se* and administrative costs. Renovation costs are not specifically tied to our proposal, and for the EU to achieve carbon neutrality by 2050, the contribution of the building sector, in particular residential buildings, will have to be substantial in any case. According to the European Commission, investment needs in the residential sector amount to almost 230 billion euros per year until 2050, though not only driven by climate objectives because "*much of these investments are needed to replace assets at the end of their economic lifetime*"⁷⁴. In relation to our scheme, we have to remember that we do not target the entire residential building stock, but only dwellings and homeowners-occupants that meet specific eligibility criteria.

Because of the lack of available data at the EU level that combine dwelling and population approaches, it is difficult to precisely define the potential scope of our proposal. However, based on

73 European Investment Bank, *EIB energy lending policy. Supporting the energy transformation. Draft*, Luxembourg, 24 July 2019, <https://www.eib.org/attachments/draft-energy-lending-policy-26-07-19-en.pdf> (accessed 14 September 2019).

74 European Commission, *In-depth analysis in support on the COM(2018) 773: A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, Brussels, 28 November 2018, p. 202 (scenarios 1.5 TECH and LIFE).

studies made about equity release in the EU, we can at least get a general idea of the number of concerned households. Having in mind that on average, in a selection of 12 Member States where such calculations have been made, 25% of 65+ year-old outright homeowners (with no mortgage) are asset rich, but cash poor, and at least 70% of this age group is composed of homeowners-occupants, we can grossly estimate the proportion of concerned households at 17.5% in a total of 35% of households whose head is 60+⁷⁵, that is $0.175 \times 0.35 \times 223 \text{ million}^{76} = 13.7 \text{ million}$ households. Even if we assume that all of them own and occupy dwellings in need for renovation and eligible in terms of location, the number of dwellings represents hardly 5.5% of the EU's total residential stock. At the same time, these figures will grow year after year as the share of older persons in the EU population is expected to increase in the coming decades.

Table 3.4 Percentage of all homeowners who own outright and who are within the highest quintile (relative) imputed rent income and who are within the lowest quartile of cash income

	<i>Under 55</i>	<i>Age 55 – 65</i>	<i>Age 65 and older</i>	<i>Equity release products availability</i>
Belgium	2%	14%	34%	None
Denmark	1%	4%	16%	Widely
Estonia	6%	17%	28%	----
Finland	2%	9%	27%	Widely
France	3%	7%	21%	Limited
Hungary	8%	15%	22%	Limited
Ireland	3%	14%	37%	Limited
Italy	6%	9%	22%	None
Lithuania	4%	14%	22%	None
Portugal	5%	16%	24%	Limited
Slovenia	5%	18%	33%	Widely
Sweden	3%	3%	21%	Widely

Source: SILC database 2006, OTB-Computations: Equity release based on London Economics, 2005.

From Kees Dol and Peter Neuteboom, *Macro change and micro behaviour: the effects of aging on tenure choice, and households' strategies towards the use of housing wealth*, DEMHOW project, Delft, 2009.

Translated into asset value and thus, acquisition costs, if we use data coming from the European Central Bank's Household Finance and Consumption Survey (HFCS) done in 2014 for 20 Member States (Hungary, Poland and euro area countries before the entrance of Lithuania)⁷⁷ and retain as an hypothesis that equity release deals will return 100% of the current property value to homeowners, the total acquisition cost would be 1,600 billion euros. Spread over 20 years – average

⁷⁵ The age inconsistency is due to Eurostat's classification of households by age of the reference person (hbs_car_t314).

⁷⁶ Eurostat, "Household composition statistics", Brussels, May 2019, https://ec.europa.eu/eurostat/statistics-explained/index.php/Household_composition_statistics (accessed 27 September 2019).

⁷⁷ European Central Bank, "Household Finance and Consumption Network (HFCN)", Frankfurt, https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_hfcn.en.html (accessed 28 September 2019).

life expectancy at age 65 in the EU⁷⁸ –, this means payments of 80 billion euros per year. We ignore here price evolutions through time. By comparison, this figure represents about the half of the annual EU budget, and the total acquisition cost is lower than pension expenditure in one single year in the entire EU-28 (1,845 billion euros in 2015)⁷⁹.

Based on commercial offers of existing equity release products, we add a maximum of 2% of the deal value for administrative costs, that is 32 billion euros in total or 1.6 billion euros per year.

	Total dwellings	Total eligible (5.5%)	Median residence value (euros)	Total value (euros)
Germany	41190840	2265496	162,000	367,010,384,400
France	33894010	1864171	182,300	339,838,291,265
Italy	31963850	1758012	180,000	316,442,115,000
United Kingdom	28384200	1561131	n/a	n/a
Spain	26567070	1461189	150,300	219,616,684,155
Poland	13983040	769067	64,400	49,527,927,680
Romania	8840600	486233	n/a	n/a
Netherlands	7427080	408489	219,600	89,704,272,240
Greece	6869380	377816	70,000	26,447,113,000
Portugal	5936680	326517	91,300	29,811,038,620
Belgium	5276320	290198	250,000	72,549,400,000
Sweden	5068250	278754	n/a	n/a
Czechia	4769770	262337	n/a	n/a
Bulgaria	4479520	246374	n/a	n/a
Austria*	4441408	244277	250,000	61,069,360,000
Hungary	4432970	243813	26,100	6,363,528,435
Denmark	2990240	164463	n/a	n/a
Finland	2918000	160490	159,100	25,533,959,000
Slovakia	2000430	110024	50,000	5,501,182,500
Croatia	1956400	107602	n/a	n/a
Ireland	1710110	94056	150,000	14,108,407,500
Lithuania	1288140	70848	n/a	n/a
Latvia	1049230	57708	15,100	871,385,515
Slovenia	863880	47513	87,800	4,171,676,520
Estonia	665350	36594	44,900	1,643,081,825
Cyprus	456240	25093	200,000	5,018,640,000
Malta	251140	13813	180,600	2,494,573,620
Luxembourg	223290	12281	555,600	6,823,295,820
EU	249897438	13744359	n/a	1,644,546,317,095

Sources: EU Buildings Database, Statistics Austria, ECB – HFCS 2016, own calculations

⁷⁸ Eurostat, “Mortality and life expectancy statistics”, Brussels, July 2019, https://ec.europa.eu/eurostat/statistics-explained/index.php/Mortality_and_life_expectancy_statistics (accessed 28 September 2019).

⁷⁹ Eurostat, “Social protection statistics - pension expenditure and pension beneficiaries”, Brussels, October 2018, https://ec.europa.eu/eurostat/statistics-explained/index.php/Social_protection_statistics_-_pension_expenditure_and_pension_beneficiaries (accessed 28 September 2019).

Again, this static vision ignores many factors that change over time like asset values at the time when the deal is concluded, the size of eligible age groups, the proportion of low-income people in these groups as well as the technical state of their dwellings. The inclusion of those dynamic parameters would require an in-depth analysis based on “hard” data collected in a harmonized way in all the countries considered whereas for the time being, we have to mainly rely on sampling methods like in SHARE and HFCS databases.

Nevertheless, we have been able to formulate an order of magnitude – around 100 billion euros per year, including administrative costs, for acquiring and renovating 5.5% of the EU-28 residential building stock whose private owners-occupants are very unlikely to upgrade in the near future due to a lack of financial resources. This money will also help 13.7 million aged households get out of financial difficulties – a record number for direct beneficiaries of EU action.

Is it a lot? Not only it is within range of the EU budget and EIB lending capacity (over 50 billion euros per year), but we have to remember that these European contributions will not represent the majority of funding, which should be brought by local and national governments, public development banks, commercial banks and private investors. Senior housing companies may also be interested in improving the financial situation of future potential residents. In essence, our proposal is an investment mechanism whose initial costs are to be ultimately recouped by the sale or rental of refurbished dwellings as well as energy savings. Moreover, *“as a rule of thumb, an increase of 3-8% in the price of residential assets as a result of energy efficiency improvements, and an increase of around 3-5% in residential rents compared to similar properties can be observed”*⁸⁰.

Because the proposed mechanism is not designed for replacing all other existing support schemes for energy renovation, it could also be eligible for such measures, for instance preferential loans for refurbishment works, so that it could accelerate the use of already existing programmes and funding opportunities.

9) Obstacles

Since money is not a problem, especially in a context of very low, sometimes negative interest rates, and with the possibility of “greening” monetary policy⁸¹, what can be other obstacles to a successful implementation of the proposed scheme? They should be looked for on the side of

80 Paolo Zancanella, Paolo Bertoldi, Benigna Boza-Kiss, *Energy efficiency, the value of buildings and the payment default risk*, Publications Office of the European Union, Luxembourg, 2018, doi:10.2760/267367.

81 Chloé Farand, “European Central Bank should ‘gradually eliminate’ carbon assets: Lagarde”, *Climate Home News*, London, 4 September 2019, <https://www.climatechangenews.com/2019/09/04/european-central-bank-gradually-eliminate-carbon-assets-says-lagarde/> (accessed 29 September 2019).

potential “consumers”, as they are mostly the same reasons why home equity release products are not very popular in Europe, putting aside the United Kingdom and Ireland.

The first issue is trust. In countries where loan-based equity release products dominate over sale-based offers, the concept of reverse mortgage has been associated with the subprime mortgage crisis originated in the United States in the years 2000 and that hit Europe in 2008. Regarding *viagers*, they have always been considered with suspicion as bets on a person’s lifetime. A study⁸² carried out in six EU Member States in 2015-2017 and “*looking at asset conversion linked to household residential property, such as Equity Release Schemes (ERS)*” confirmed that public authorities have a role in building trust around such products and that their oversight is expected by potential consumers. We have tried to provide a solution to this question by putting local governments at the centre of the mechanism, and they are the most trusted political institutions.

A second obstacle, more cultural, is the attachment to bequests. Many people do not treat their dwelling only as a place of living or a financial asset but also as a personal object they want to transfer to their children or other relatives after they pass away. Symmetrically, we can assume that many people have strong sentimental connections with their parents’ or grandparents’ property and may not like it to be sold and leave the family.

Our answer to this issue is threefold. First, it is clear that not all eligible persons with eligible dwellings will accept to participate to the programme, for instance if they give more value to the perspective of bequest than to income support. That is why the home equity release mechanism should not be seen as a universal tool, but just one of the available instruments in a bigger toolbox diversified enough to offer attractive solutions for various profiles.

At the same time, we should not neglect the population of older people for whom bequest is not the top priority. Some several long-term trends even incline us to state that the proportion of such profiles has been rising and will continue to increase in the future. One is the growing share of childless people⁸³. Another is the consequence of extended life expectancy, with the inheritance age moving closer and closer to 60⁸⁴, that is an age when heirs are usually already well settled, have a stable housing situation and do not need or even want to move to another place.

Paradoxically, the elderly willing to help their children would actually do it in a more efficient way during their lifetime than after their death by bequeathing. Those who have high

82 Institut für finanzdienstleistungen e.V., *op. cit.*.

83 Michaela Kreyenfeld, Dirk Konietzka (eds.), *Childlessness in Europe: Contexts, Causes, and Consequences*, Cham, Springer Nature, 2017.

84 No cross-EU data is available, but that is observable in countries such as Italy, Spain, France and Germany, see Jérôme Coffinet, Michel Mouliom, “Des transmissions de patrimoine plus fréquentes mais de montants plus faibles en France que dans les autres grands pays de la zone euro”, *INSEE Références*, INSEE, Paris, 2018.

income do it through cash transfers, e.g. to cover tuition fees or later by a contribution to buy a dwelling. In the case of low-income homeowners-occupants, they cannot do so because their only source of wealth is their main residence, which does not generate cash but a housing “service”.

Equity release is an effective mechanism for tapping the value of the property without losing access to its use function. The question whether the released money should be used for the senior’s own needs or his or her relatives’ is of course up to him or her, nonetheless there is an argument for those who would be reluctant to participate in the programme because they are firstly concerned by what they will bequest to their children. Equity release can simply accelerate this transfer, though in the form of money rather than estate.

We also expect here cultural differences between more liberal societies, where the welfare state relieves families of certain care obligations and therefore, enables older people to dispose of their property as they wish, while in more traditional models, mutual obligations between parents and children are stronger and also affect bequest expectations. On the other hand, in countries that join old-age poverty and high emigration rates, for example in Eastern Europe, the elderly may wonder whether their children will ever move back to the inherited flat or house and if not, whether they would not take a bigger advantage of their property for themselves and their descendants by starting to extract value from it during their lifetime.

Conclusion, recommendations and next steps

Having in mind that our proposal targets a relatively small share of the EU population, dwelling stock and thus, source of CO₂ emissions, it is obvious that it is no silver bullet for climate policy, and not even for energy building renovation. As said before, home equity release offers should be seen as one of the available instruments in a larger toolbox containing other mechanisms such as preferential loans, tax incentives, or legal obligations for instance regarding rental properties. Proposed *viagers* are rather an option for those who currently can hardly benefit from existing programmes, for example because their tax or income situation makes such measures unprofitable.

At the same time, our objectives go further than climate and energy targets as they address two important social problems in the EU: old-age poverty and the “*housing crisis*”⁸⁵, with its

85 World Bank, “EU Faces Affordable Housing Crisis Excluding Young People From Top-Quality Job Opportunities, Says World Bank”, Brussels, 8 November 2018, <https://www.worldbank.org/en/news/press-release/2018/11/08/eu-faces-affordable-housing-crisis-excluding-young-people-from-top-quality-job-opportunities-says-world-bank> (accessed 30 September 2019).

negative consequences on the labour market. In our view, connecting these challenges is a way to increase social acceptance for ambitious climate policies and avoid its framing as an intergenerational or a “class” conflict with, on the one hand, younger, more urban, better educated and better off people worried about “*the end of the world*”, and on the other, older, less urban citizens with lower qualifications and income, primarily concerned by “*the end of the month*”, like the *gilets jaunes* chanted in France some months ago.

Due to its broad character and the specificities of the private residential sector counting tens of millions of various entities, the proposed scheme is very dependent for its possible success on an ecosystem of stakeholders, actions and regulations which confirms that home equity should not be treated in isolation from other instruments and policies. Here are some recommendations that should facilitate a wide implementation of the proposed mechanism:

- at all levels, shift the tax burden from labour to wealth (e.g. by introducing or strengthening property and/or inheritance taxes) in order to augment ownership costs and accelerate property transfers – persons selling their residence through equity release deals could be exempted from these taxes after they transfer ownership rights while retaining life tenancy;
- at the EU and national level, revise the Energy Taxation Directive⁸⁶ and ensure that GHG emissions are adequately priced in all sectors of the economy;
- at the EU level, continue efforts to “green” the EU budget, EIB lending policy and ECB monetary policy;
- for local governments, cooperate with utility companies, postal services, notaries (in countries where they exist), social services, associations and other entities that have information about the energy and financial situation of dwellings and their occupants in order to collect data and offer equity release products to potential customers, in accordance with privacy and consumer protection laws;
- at the EU and national level, update where relevant consumer protection regulations to allow for marketing and promotion actions around equity release solutions⁸⁷;
- at the EU level, integrate a spatial planning dimension in all existing policies to take into account the zero net land take goal by 2050 and initiate a fresh reflection with national and local governments as well as other stakeholders on how to optimise land use at the European scale and

86 European Commission, *Evaluation of the Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity*, SWD(2019) 329 final, Brussels, 11 September 2019.

87 For instance, in France, canvassing reverse mortgage offers is forbidden by law, see ADEME, Vesta Conseil&Finance, Énergies Demain, Latournerie Wolfrom Avocats, *Étude sur le prêt viager hypothécaire (« PVH ») appliqué à la rénovation énergétique du logement*, ADEME, Angers, 2017, p. 26.

how to better coordinate spatial planning between different government levels, with a possible larger role for EU institutions and agencies;

- at all levels, including in the private and nonprofit sector, make approach to building renovation as holistic as possible – since renovation can expand the lifetime of a building by several decades, it should not limit itself to simple insulation works, but also make the building ready for climate change (adaptation measures) and ageing population, which means as well that not all current built-up areas will still be viable for living by 20 or 30 years;
- at all levels, support the construction of senior housing to facilitate densification works in metropolises.

Nevertheless, we should not wait for all these elements to be in place to start taking action. As mentioned before, within existing legal and financial frameworks, it is already possible for municipalities of certain countries to set up home equity release schemes, and some like Nottingham in the UK or Budapest in Hungary have done it, though not necessarily for climate purposes. City associations and networks such as Energy Cities and ICLEI are good channels to “test” the attractiveness of the concept and encourage the creation of local pilot projects in different Member States, with the support of the EU and EIB to raise funds, track progress and exchange experience.

The clock is ticking, and in order to have a chance to reach carbon neutrality by 2050, we should already have now a clear path on how to get there, since investment decisions taken today in the fields of power generation, building renovation and transport will lock us in for decades. As for fuel poverty and inadequate housing among the elderly, they cause a death toll that is not subject to time arbitrage. The coincidence of a new European Commission, European Parliament, new Multiannual Financial Framework and new President of the ECB represents a rare “alignment of planets” for the EU to take fresh and bold initiatives. This window of opportunity should not be missed.

Annex 1: Fossil CO₂ emissions in the EU-28 by sector, 2017

	Power industry	Other industrial combustion	Buildings	Transport	Other sectors	Total	Percentage
Germany	325.57	118.68	133.09	159.05	60.13	796.53	22.45%
United Kingdom	111.14	57.80	76.71	106.78	26.72	379.15	10.69%
Italy, San Marino and the Holy See	111.37	49.09	72.51	105.35	22.85	361.18	10.18%
France and Monaco	33.76	59.36	80.87	126.68	37.54	338.19	9.53%
Poland	157.59	37.31	53.18	48.79	22.16	319.03	8.99%
Spain and Andorra	85.08	49.93	33.83	89.45	24.08	282.36	7.96%
Netherlands	62.45	32.26	30.83	30.00	19.23	174.77	4.93%
Czechia	54.51	16.35	11.93	17.45	9.52	109.76	3.09%
Belgium	17.44	24.28	24.40	26.31	11.79	104.22	2.94%
Romania	30.24	16.22	10.25	16.20	8.22	81.13	2.29%
Austria	14.29	18.12	8.65	23.66	7.52	72.25	2.04%
Greece	30.95	10.56	7.10	16.94	6.60	72.15	2.03%
Portugal	21.08	4.56	4.43	17.50	9.20	56.77	1.60%
Sweden	6.34	9.98	1.53	20.23	12.79	50.87	1.43%
Hungary	12.86	8.20	12.15	12.97	4.67	50.86	1.43%
Bulgaria	28.25	4.88	1.57	8.99	5.88	49.57	1.40%
Finland	17.26	10.87	3.98	11.18	3.56	46.85	1.32%
Ireland	12.02	4.40	8.42	11.35	2.73	38.91	1.10%
Slovakia	7.32	13.18	4.99	6.48	5.88	37.85	1.07%
Denmark	10.36	5.51	4.25	11.32	2.14	33.57	0.95%
Estonia	13.09	0.82	0.86	2.56	0.57	17.89	0.50%
Croatia	3.13	3.46	2.58	5.55	2.74	17.47	0.49%
Lithuania	1.72	2.84	1.14	5.25	4.36	15.31	0.43%
Slovenia	4.90	1.73	1.41	5.62	1.55	15.21	0.43%
Luxembourg	0.49	0.99	1.61	5.87	0.58	9.54	0.27%
Latvia	1.90	0.77	1.21	3.14	1.02	8.05	0.23%
Cyprus	3.24	0.65	0.61	1.99	0.54	7.03	0.20%
Malta	0.93	0.03	0.20	0.63	0.08	1.88	0.05%
EU-28	1179.30	562.83	594.29	897.27	314.65	3548.35	
Percentage	33.24%	15.86%	16.75%	25.29%	8.87%		

Data expressed in million tonnes.

Source: Muntean, M., Guizzardi, D., Schaaf, E., Crippa, M., Solazzo, E., Olivier, J.G.J., Vignati, E. Fossil CO₂ emissions of all world countries - 2018 Report, EUR 29433 EN, Publications Office of the European Union, Luxembourg, 2018, ISBN 978-92-79-97240-9, doi:10.2760/30158, JRC113738.

Annex 2: CO₂ emissions in the EU-28 building sector, by type, 2017

	Fuel combustion in commercial and institutional sector	Fuel combustion by households	Total emissions in the building sector
Austria	1176.29	6849.46	8025.75
Belgium	5473.56	14932.16	20405.72
Bulgaria	341.3	833.23	1174.53
Croatia	626.65	1565.73	2192.38
Cyprus	91.64	360.41	452.05
Czechia	2965.68	8761.65	11727.33
Denmark	718.84	1887.5	2606.34
Estonia	96.34	177.77	274.11
Finland	1016.25	1204.71	2220.96
France	28593.24	46431.76	75025
Germany	38110.99	91807.53	129918.52
Greece	710.62	4695.81	5406.43
Hungary	3068.32	7936.81	11005.13
Ireland	1962.56	5599.18	7561.74
Italy	23244.28	47758.27	71002.55
Latvia	393.88	463.83	857.71
Lithuania	330.89	751.24	1082.13
Luxembourg	580.7	1101.48	1682.18
Malta	159.62	43.94	203.56
Netherlands	7623.68	16495.3	24118.98
Poland	7327.84	35691.28	43019.12
Portugal	1155.93	1727.02	2882.95
Romania	2165.64	6528.64	8694.28
Slovakia	1596.06	3092.09	4688.15
Slovenia	362.72	677.08	1039.8
Spain	10565.11	16771.51	27336.62
Sweden	745.79	616.4	1362.19
United Kingdom	19212.05	64082.92	83294.97
EU-28	160416.47	388844.71	549261.18
Percentage	29.2%	70.8%	

Data expressed in thousand tonnes.

Source: European Environment Agency (EEA), [env_air_gge].

Note: the EDGAR database that feeds the table in Annex 1 relies on data of the International Energy Agency (IEA), which uses a different methodology than the EEA. This is why we observe a discrepancy between total amounts of emissions from the building sector. EDGAR does not provide a breakdown of emissions by type of building, the IEA does but the data is not publicly available, hence the use of EEA figures as a proxy.

Annex 3: Number of dwellings in the EU-28 by type, 2014 (2011 for Austria)

	Single-family dwellings	Multi-family dwellings	Total dwellings
Germany	19436820	21754020	41190840
France	19041260	14852750	33894010
Italy	6681390	25282460	31963850
United Kingdom	23104740	5279460	28384200
Spain	7761800	18805270	26567070
Poland	9161840	4821200	13983040
Romania	5243740	3596860	8840600
Netherlands	4814000	2613080	7427080
Greece	3776960	3092420	6869380
Portugal	3503890	2432790	5936680
Belgium	3510190	1766130	5276320
Sweden	2243020	2825230	5068250
Czechia	2130660	2639110	4769770
Bulgaria	2240160	2239360	4479520
Austria*	1442066	2999342	4441408
Hungary	2726580	1706390	4432970
Denmark	1851870	1138370	2990240
Finland	1356760	1561240	2918000
Slovakia	987630	1012800	2000430
Croatia	951810	1004590	1956400
Ireland	1491280	218830	1710110
Lithuania	707180	580960	1288140
Latvia	316860	732370	1049230
Slovenia	526740	337140	863880
Estonia	169810	495540	665350
Cyprus	289920	166320	456240
Malta	94050	157090	251140
Luxembourg	121230	102060	223290
EU-28	125684256	124213182	249897438
Percentage	50.3%	49.7%	

Source: EU Buildings Database and Statistics Austria for Austria, whose data are absent from the EU Buildings Database.

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