Why the EU Recovery and Resilience Facility must prioritise investments in building renovation

A short think piece

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A special thanks goes to Katharina Umpfenbach, for helpful comments and review.

November 2020

Ecologic Institute

This think piece has been commissioned by the European Climate Foundation (ECF) and the ROCKWOOL Group to provide a basis for discussion and engagement between stakeholders and policy makers.

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1 Introduction

Modernising the EU's building stock is essential to meet the twin goals of climate action and green recovery. The building sector is responsible for 27 % of total greenhouse gas (GHG) emissions and for 36 % of energy-related GHG emissions when considering direct and indirect GHG emissions (COM 2020a, p.1). According to the European Commission, building renovation rates must double to contribute to the envisioned 55 % emission reduction by 2030 (COM 2020f, p.67) – and this in turn is vital to go climate neutral by 2050.

Meanwhile, energy renovations are a key driver of a fair and sustainable recovery: the International Energy Agency (IEA 2020) and Buildings Performance Institute Europe (BPIE 2020) both predict about 18,000 jobs per billion euros invested. Improving the quality of our building stock is equally important to address indoor air quality and energy poverty: currently about 34 million households cannot afford their energy bills (COM 2020c).

This paper therefore makes the case for earmarking a minimum share of the Recovery and Resilience Facility (RRF) to finance in-depth building renovations. The method we recommend is to allocate RRF funds according to the building sector's share of total GHG emissions, in line with the EU's green recovery commitments and the requirement to spend 37 % of the Recovery and Resilience Facility grants and loans on climate-related investments. This translates into at least EUR 54.5 billion in grants and loans[1] across the EU and ranges from almost EUR 0.1 billion in Luxembourg and Malta, to EUR 9.7 billion in Italy. Full results are in Table 1.

We intend these numbers to be a reference for Member States as they develop and refine their draft RRF plans. Once the national plans have been submitted, the analysis should also help the European Commission assess whether the investment opportunity in the building sector has been sufficiently considered.

2 Why buildings are a linchpin for climate action and a green recovery

Buildings must play a crucial role to address the climate crisis. They consume roughly 40 % of final energy and are responsible for roughly 36 % of energy-related greenhouse gas (GHG) emissions in the EU (COM 2020a) when considering direct fuel combustion and indirect emissions from the consumption of electricity and heat.[2] When compared to total GHG emissions of the EU, the share is still at 27 %. This is because nearly 75 % of the existing building stock was built before energy efficiency standards were introduced. Therefore to meet the EU's climate targets it is necessary to thoroughly renovate existing buildings with better insulation, new windows, more efficient heating and cooling systems, and to use more on-site renewable energies. This is particularly important in the short term: the Impact Assessment of the Commission for raising the 2030 target to 55 % foresees the need for over 60 % GHG cuts in residential and commercial buildings (COM 2020f, p.63).

[1] Sum of own calculated national loan volumes results in EUR 239 billion which is below the total available loan volume of EUR 360 billion (please also see Table 1).
[2] Including all energy consumption in buildings such as for heating, cooling, cooking, electric appliances and lighting.

To meet this ambitious goal, the Commission has outlined a combination of mutually supporting measures in its new Renovation Wave strategy. It foresees regulatory measures such as the updates of the minimum energy performance standards to be proposed next year, project support to boost renovation programmes, and additional funding. The EU Commission (COM 2020h) estimates that in order to double renovation rates by 2030, at least EUR 90 billion per year will be needed on top of existing investments. These funds must come from a range of sources: EU and national budgets, low interest loans from banks and institutional investors, private capital from businesses and households. RRF funds are especially relevant since investments in buildings spur local employment: energy renovations are work-intensive (about 60 % of expenditure goes to labour) and require local craftwork, construction material trade and other direct and upstream services (COM 2020e, p.86).

Building renovation should receive priority support from the RRF funds. According to BPIE (2020), EUR 1 billion invested in energy renovations creates 18,000 jobs, on average. IEA (2020) shows that building retrofits are the best sustainable recovery measure based on an assessment of timeliness, near-term employment effects, provision of jobs for displaced workers and cost-effectiveness of emission reductions.

Box 1: The Recovery and Resilience Facility

The "Next Generation EU" recovery plan is the Union's economic response to the coronavirus crisis. The **Recovery and Resilience Facility (RRF) is the main instrument for financial support to Member States**. It is worth **EUR 672.5 billion,** with EUR 312.5 billion provided as grants and EUR 360 billion provided as loans (COM 2020b). The European Commission expects that the first payments can be made in 2021 (COM 2020g).

The allocation of grants to Member States is based on a combination of criteria: 70 % of available grants are allocated according to "the Member State's population, the inverse of its GDP per capita, and its average unemployment rate over the past 5 years (2015-2019), always compared to the EU average". The other 30 % are allocated based on the same criteria but using "observed loss in real GDP in 2020 and the cumulative loss in real GDP in 2020/2021" instead of the unemployment rate (for respective Member State's figure, see Table 1). In addition, each Member State can request loans of up to 6.8 % of its Gross National Income (GNI) whereby it is possible to request more in "exceptional circumstances subject to available resources" (COM 2020b,g).

The funds will be disbursed to Member States based on the national RRF plans, which sets out reforms and investments to be implemented up to 2026. In line with the European Council commitment of a climate mainstreaming target of 30% for the overall EU budget, each RRP will have to include **at least 37 % of expenditure for climate action** (COM 2020g). It will help the EU to achieve its 2030 GHG emission reduction target in line with its commitment to going climate neutral by 2050.

Europe is suffering severe employment losses as a result of the coronavirus pandemic. For example, France, Italy, Spain and Estonia are currently expected to suffer a 5 % job loss in 2020. It is estimated that the rest of the Member States will register a 3 % reduction in employment rates (COM 2020d). In response, allocating RRF funds according to the building sector's share of emissions would mean roughly EUR 54.5 billion in grants and loans for renovation resulting in about 980 thousand jobs.[3]

The renovation of buildings comes with equally important benefits such as better living conditions through improved indoor air quality and comfort, reduced risk of energy poverty through lower spending on energy, and innovation in the area of integrating renewable energies and smart technologies. In addition, it can be combined with improved accessibility and safety of buildings. Renovation works can also be an occasion to improve infrastructure for sustainable mobility and climate adaptation (COM 2020f, a; DG IPol 2016).

The socio-economic and economic benefits of investing in buildings are clear. At the same time, the European Commission has made it clear that renovations must be prioritised in the national RRF plans (COM, 2020j). This report therefore proposes **country-specific benchmarks to help key stakeholders at Member State level gauge what share of funds to earmark for building renovation**.

3 Benchmarks for RRF funding to go to building renovation

The benchmarks help to assess the share of funding allocated to building renovation in the national RRF plans. We propose to derive the benchmark based on 1) the share of buildings GHG emissions in total GHG emissions and 2) the requirement to spend 37 % of the RRF funds on climate-related investments (see Formula 1).

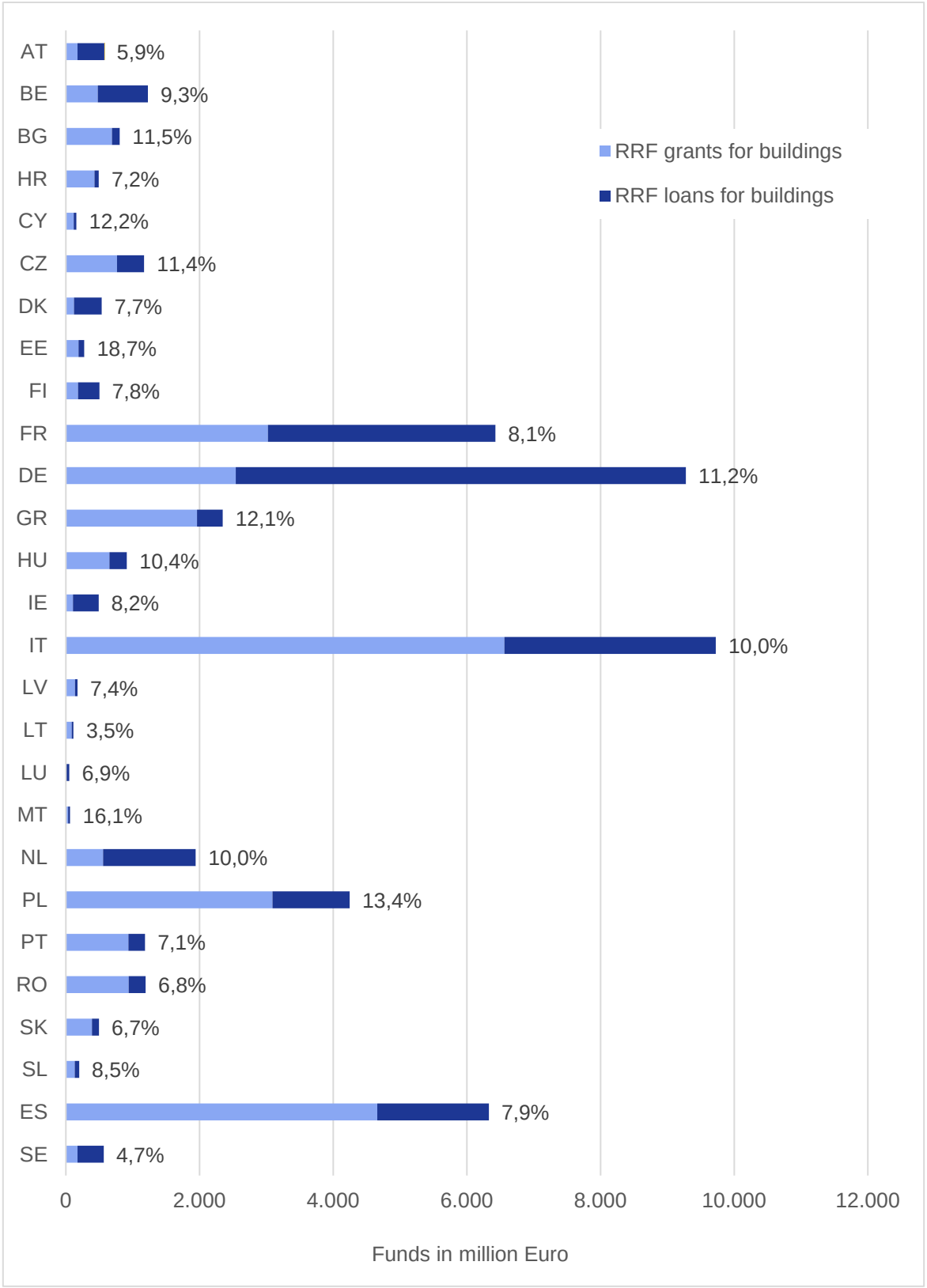
When **using the benchmark to assess the national recovery plans** it should be noted that electricity and derived heat consumption is covered in the benchmark. This means that financial support for district heating decarbonisation and related infrastructure as well as renewable heat and electricity generation on buildings should be considered as building-related action.

The results show that the benchmarks for the share of funds that should go to building renovation vary between Member States, reaching 9.9 % on average in the EU.

Figure 1 provides the results for each of the Member States in terms of grant and loan volumes that should go to building renovation and the respective national benchmark. The underlying data including total national grant and loan volumes, GHG emissions from buildings and total GHG emissions can be found in Table 1 in the Annex.

[3] Own calculation based on BPIE 2020 and RRF funds for buildings given in Table 1.

Figure 1: Share and volume of national RRF funds to be spent on building renovation



Source: own calculations based on COM (2020i), EUCO (2020) and Eurostat (2020b) and emission and energy data from Eurostat (2020a) and EEA (2020a, b).
Please note: sum of own calculated national loan volumes results in EUR 239 billion which is below the total available loan volume of EUR 360 billion; loan allocation to HU and IT is based on a GNI proxy calculated from World Bank (2020).

The share of buildings emissions in total emissions is calculated based on emission and energy data from EEA (2020a, b) and Eurostat (2020a) (please also see explanatory text below of Table 1 in the Annex). The grant and loan volume for building renovation of each Member States can then be calculated by multiplying the overall Member State specific RRF grant volume (COM 2020i) and the maximum loan volume (EUCO 2020; Eurostat 2020b, World Bank 2020) with the proposed benchmark (see Formula 2).

$$BM_{Buildings,MS} = Share_{Climate} \times {Em_{Buildings,MS}}/{Em_{tot,MS}} \qquad \textit{Formula 1}$$

and

$$Funds_{Buildings,MS} = RRF_{FundT,MS} \times BM_{Buildings,MS} \qquad \textit{Formula 2}$$

With:

- $BM_{Buildings,MS}$ = Member State specific benchmark for a minimum share of RRF funding allocated to buildings (in %)
- $Share_{Climate}$ = Fixed EU-wide share earmarked for climate action (37 %)
- $Em_{Buildings,MS}$ = Member State specific direct and indirect GHG emissions of buildings (in Mt CO_2eq)
- $Em_{tot,MS}$ = Member State specific total GHG emissions (without LULUCF) (in Mt CO_2eq)
- $Funds_{Buildings,MS}$ = Member State specific RRF grants and loans that should go to the modernisation of buildings (in million EUR)
- $RRF_{FundT,MS}$ = Member State specific total RRF grants and maximum RRF loans (in million EUR)

Annex: Member State specific data for deriving the benchmark

Table 1: Overview on Member State specific data

MS	RRF funds (bn EUR)		Emissions (Mt CO_2eq)		BM**	Funds for buildings (mEUR)	
	Grants	Loans	Total	Buildings		Grants	Loans
AT	3.0	6.8	82.0	13.0	**5.9%**	176	398
BE	5.1	8.1	118.0	29.6	**9.3%**	478	749
BG	6.0	1.0	61.7	19.2	**11.5%**	689	117
HR	6.0	0.9	25.0	4.9	**7.2%**	428	65
CY	1.0	0.4	9.0	3.0	**12.2%**	118	43
CZ	6.7	3.6	129.8	39.8	**11.4%**	766	406
DK	1.6	5.4	48.4	10.1	**7.7%**	120	418
EE	1.0	0.5	20.9	10.6	**18.7%**	191	88
FI	2.3	4.1	55.4	11.7	**7.8%**	182	320
FR	37.4	42.1	463.5	101.3	**8.1%**	3,025	3,405
DE	22.7	60.2	894.3	270.3	**11.2%**	2,541	6,735
GR	16.2	3.2	95.6	31.2	**12.1%**	1,963	384
HU	6.3	2.5	63.8	18.0	**10.4%**	653	261
IE	1.3	4.7	61.0	13.6	**8.2%**	105	386
IT	65.5	31.6	431.3	116.9	**10.0%**	6,562	3,164
LV	1.9	0.5	11.2	2.2	**7.4%**	138	38
LT	2.4	0.8	20.6	2.0	**3.5%**	86	28
LU	0.1	0.7	10.2	1.9	**6.9%**	6	47
MT	0.2	0.2	2.2	0.9	**16.1%**	33	33
NL	5.6	13.8	193.3	52.3	**10.0%**	558	1,384
PL	23.1	8.6	414.7	150.3	**13.4%**	3,092	1,156
PT	13.2	3.5	70.6	13.6	**7.1%**	936	250
RO	13.8	3.7	116.9	21.5	**6.8%**	940	254
SK	5.8	1.6	43.5	7.9	**6.7%**	390	106
SL	1.6	0.8	17.4	4.0	**8.5%**	132	68
ES	59.2	21.2	340.3	72.4	**7.9%**	4,661	1,669
SE	3.7	8.3	52.7	6.7	**4.7%**	175	391
EU27	**312.5**	**238.7***	**3853.3**	**1028.9**	**9.9%**	**30,874**	**23,582**

Source: own calculations based on MS specific RRF grants (COM 2020i); MS specific RRF loans: own calculation based on a max. loan volume of 6.8 % of MS GNI (EUCO 2020) and GNI data (Eurostat 2020b); GNI proxy for Italy and Hungary based on World Bank (2020) as no data provided by Eurostat; 37 % RRF share earmarked for climate action (COM 2020g); MS buildings GHG emissions: direct emissions based on EEA (2020b, 1.A.4.a and 1.A.4.b) and own calculation of indirect CO_2 emissions based on electricity and heat consumption of households and services in total electricity and heat consumption (Eurostat 2020a; EEA 2020b, 1.A.1.a), carbon intensity of electricity (EEA 2020a) and own derived carbon intensity of heat.

*Own calculation of the national max. loan volumes using 2019 GNI data results in EUR 239 billion instead of the total available EUR 360 billion in the EU.

**The benchmark is calculated as the climate funding share of 37 % multiplied by the share of buildings emissions in total emissions (see also Formula 1).

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