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Öko-Institut e.V.
Institut für angewandte Ökologie
Institute for Applied Ecology

Study on shifting public spending from compensatory mechanisms on domestic energy use to short-term energy efficiency and renewable energy measures

Öko-Institute & e-think

ECF Heating Hub meeting

2nd March 2023



Study background & objectives

- Overview of objectives:
  - Assessment of spending on compensatory measures by MS (Task 1)
  - **Estimation of impacts of providing financial support to low-income households for the implementation of selected energy efficiency and renewable energy measures (Tasks 2-3)**
  - **Assessment of existing EU & national programmes for targeted financing of such measures (Task 4)**
- Countries adressed: France, Germany, Italy, Spain, Greece, Romania, Hungary

List of measures

- Building envelope
  - Outer wall / cavity wall insulation
  - Roof / attic insulation
  - Replacing old windows
- Heating system / hot water
  - Installing heat pumps
  - Installing solar thermal collectors
  - Hydraulic balancing
- Electricity
  - Installing PV
- Campaign

Campaign outline

- The campaign includes a set of no- to low-cost, easy to implement measures as well as informational measures:
  - Foils for windows
  - Smart thermostats
  - Insulating heating distribution pipes
  - Energy saving shower heads
  - Not heating every room
  - Reducing room temperatures
  - General advise on energy usage

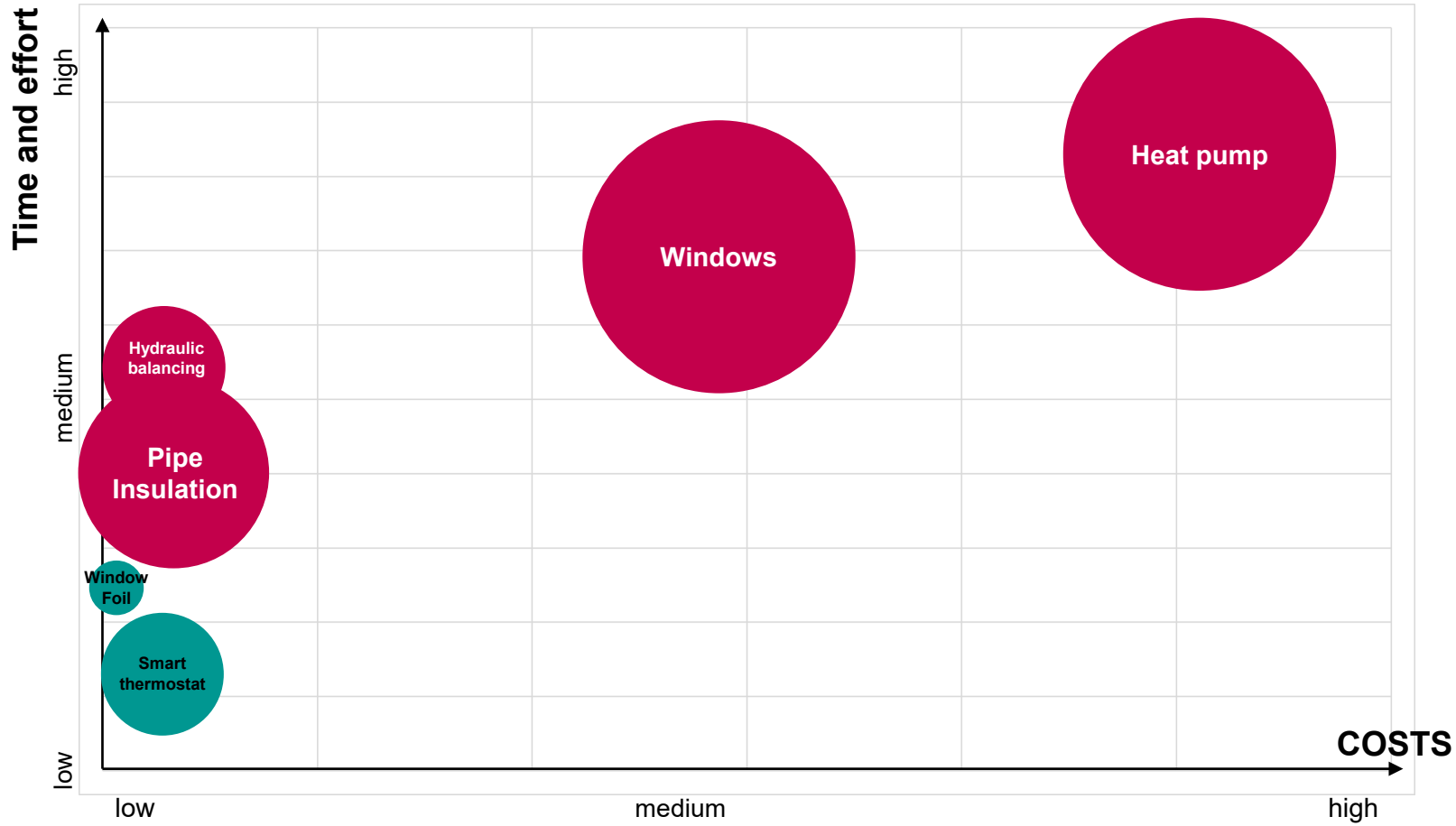
Housing type and income/risk of energy poverty

Share low income

	House	flat
Germany	11%	19%
Greece	24%	16%
Spain	22%	21%
France	10%	23%
Italy	20%	20%
Hungary	13%	11%
Romania	32%	5%

- Definition low-income in this graph: Households with less than 60 per cent of median household income
- Germany and France: Higher share of low-income households in MFH
- Greece and Romania: Higher share of low-income households in SFH

Costs and Energy Savings



Main actors

- tenant
- landlord

Energy savings in %

- 15% - 20%
- 10% - 14%
- 5% - 9%
- 0% - 4%

Measures: country overview

Replacing Windows

all buildings

installing solar thermal collectors

SFH only

Installing PV

SFH only

Cavity wall insulation

all buildings

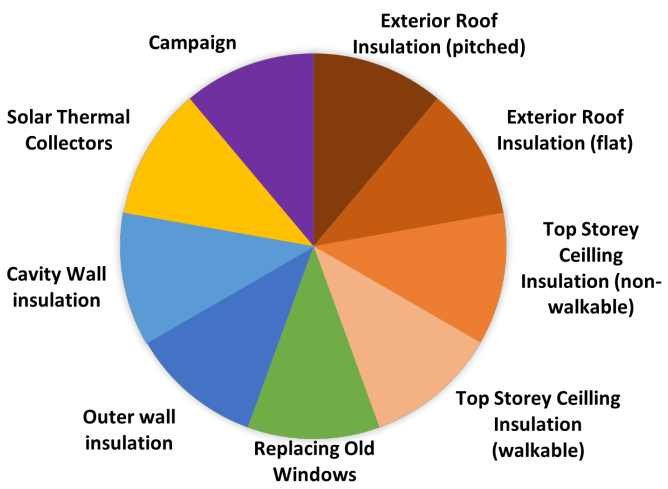
Hydraulic balancing

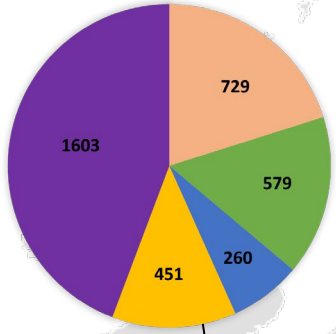
MFH only

Campaign

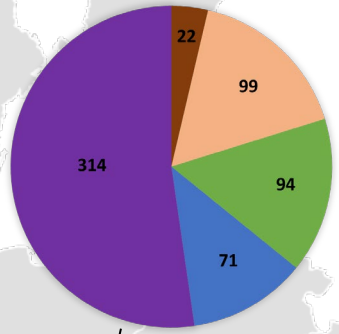
all households

Energy savings in GWh/a (preliminary results)

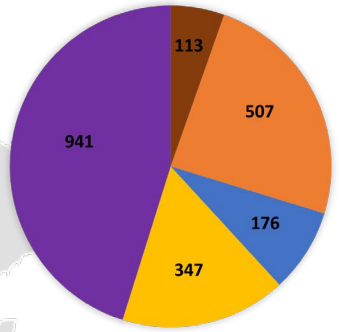




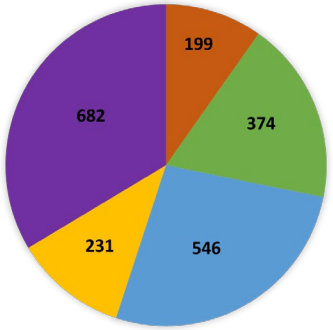
3621 GWh/a
7,7% of FED of low income households



600 GWh/a
6,6% of FED of low income households

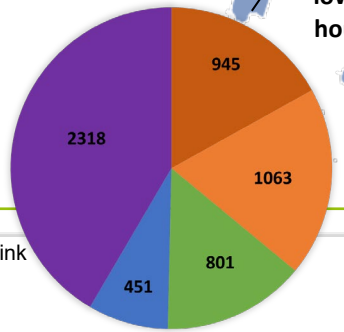


2083 GWh/a
8,2% of FED of low income households

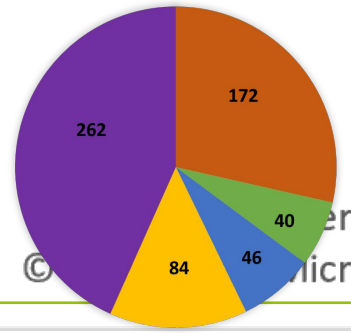


2031 GWh/a
9,1% of FED of low income households

5579 GWh/a
8,2% of FED of low income households



604 GWh/a
8,5% of FED of low income households



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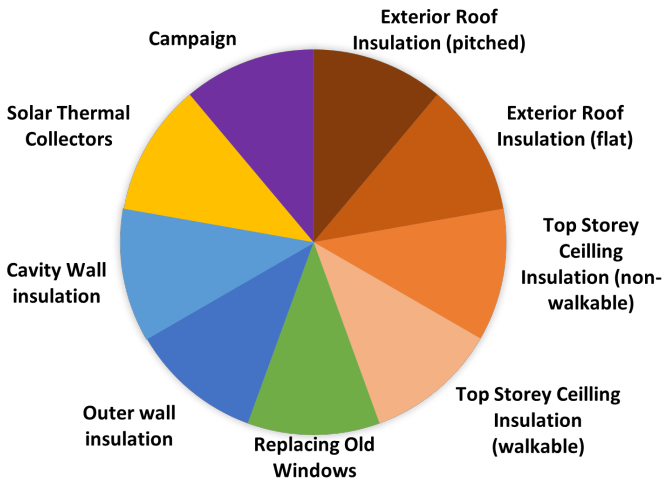
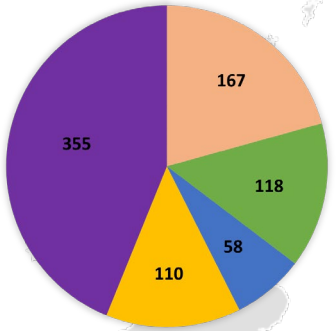
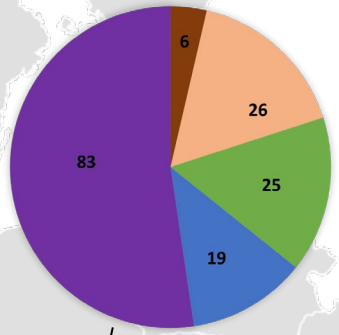
GHG savings in $ktCO_2$ (preliminary results)



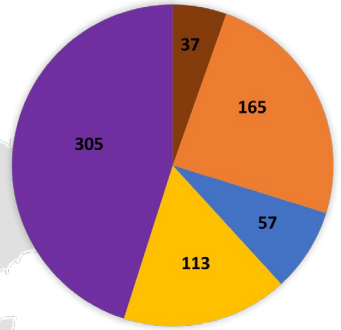


809 $ktCO_2$

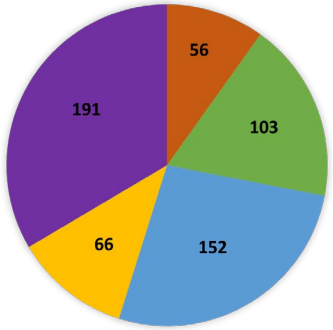


158 $ktCO_2$

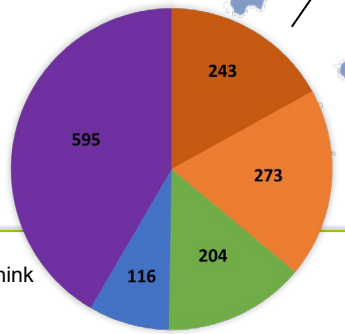
676 $ktCO_2$



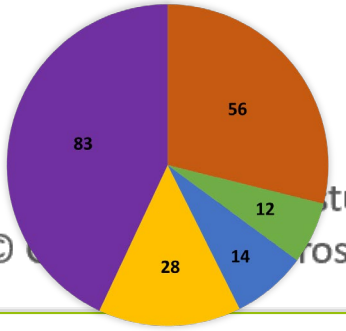
569 $ktCO_2$



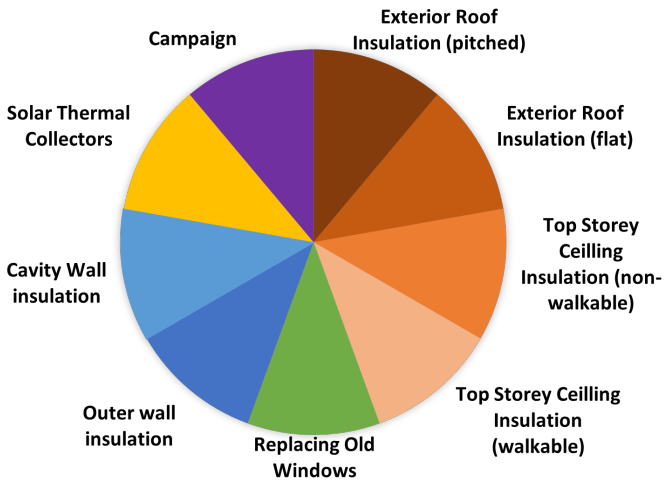
1431 $ktCO_2$

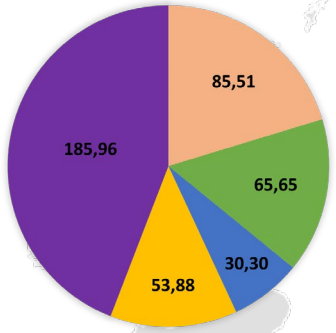


193 $ktCO_2$

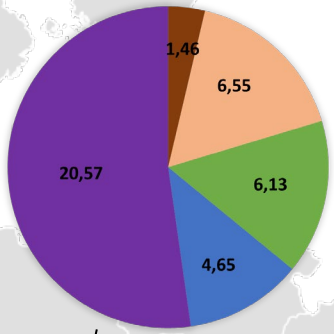


Energy Cost Savings in Mio. € (preliminary results)

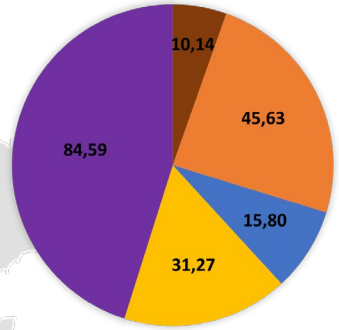




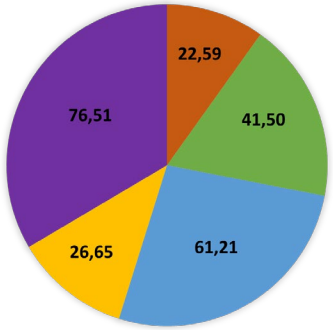
421,29 mio. €



39,36 mio. €

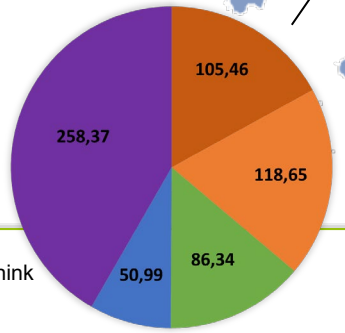


187,43 mio. €

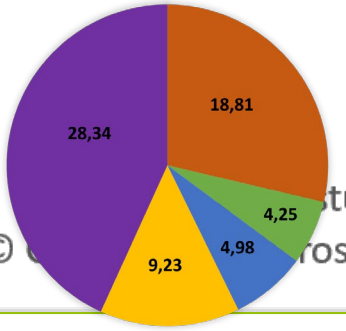


228,47 mio. €

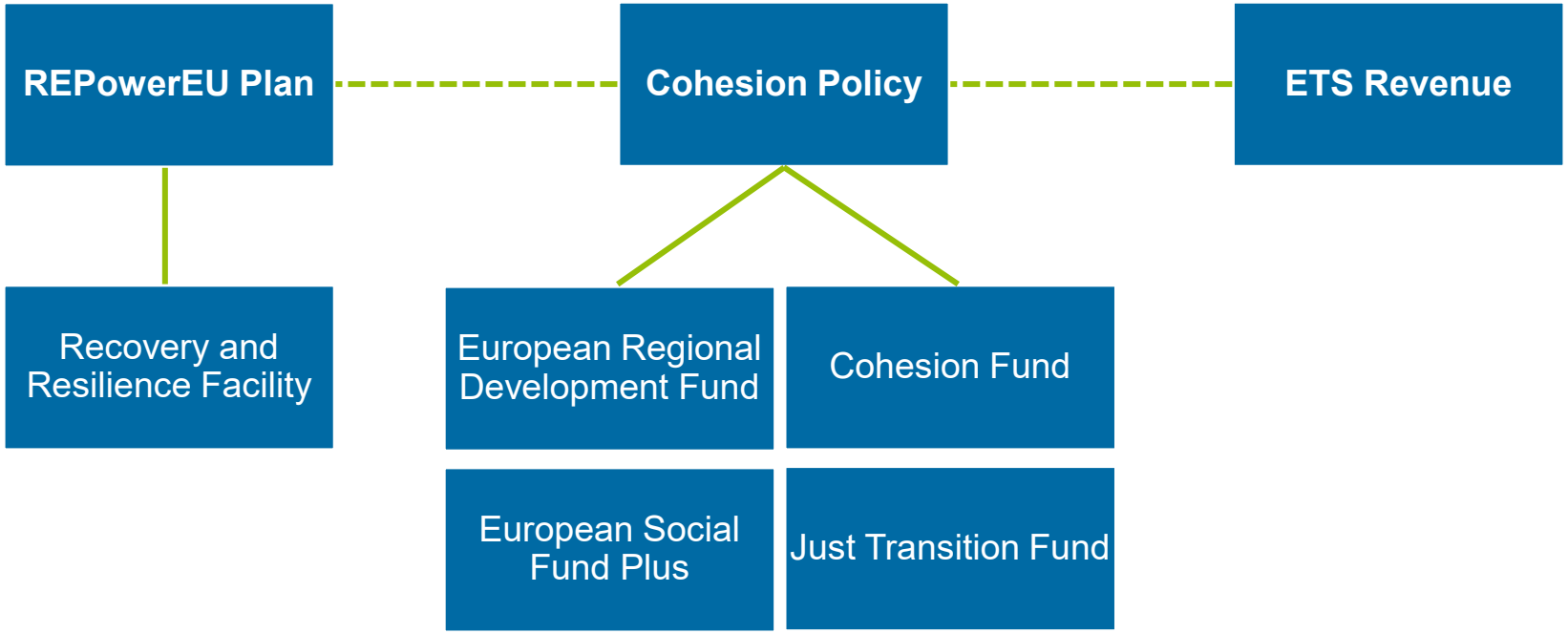
619,81 mio. €



65,61 mio. €



Task 4 – EU financing mechanisms



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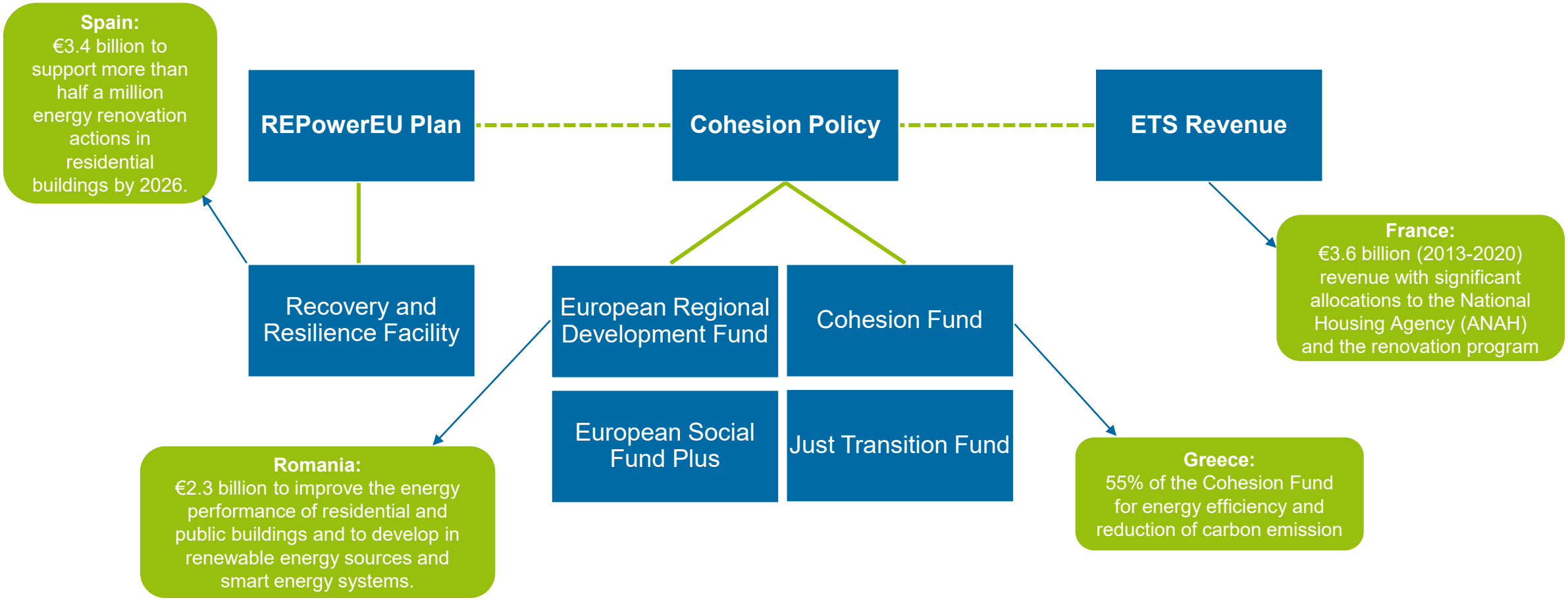
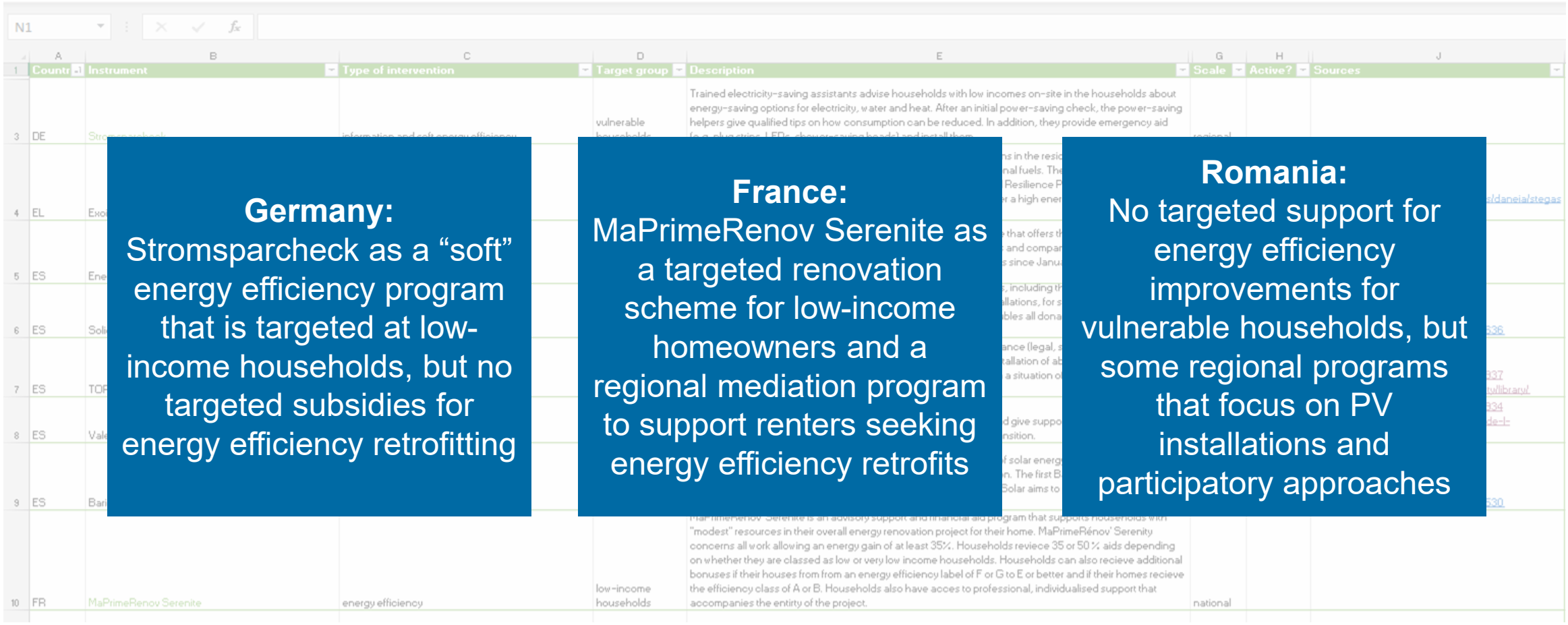


Task 4 – Existing measures for energy efficiency and renewables

N1

	A	B	C	D	E	G	H	J
1	Countr	Instrument	Type of intervention	Target group	Description	Scale	Active?	Sources
3	DE	Stromsparcheck	information and soft energy efficiency	vulnerable households	Trained electricity-saving assistants advise households with low incomes on-site in the households about energy-saving options for electricity, water and heat. After an initial power-saving check, the power-saving helpers give qualified tips on how consumption can be reduced. In addition, they provide emergency aid (e.g. plug strips, LEDs, shower-saving heads) and install them.	regional		
4	EL	Exoikonomo 2021	energy efficiency	low-income households	Designed for the purpose of implementing energy saving interventions in the residential building sector, aiming at reducing energy needs and the consumption of conventional fuels. The program "Exoikonomo 2021" is operates under the framework of the National Recovery and Resilience Plan Greece 2.0. The program is addressed to individuals whose main residence falls under a high energy consumption category and provides financial incentives	national	2021-ongoing	https://www.piraeusbank.gr/en/idiwtes/daneia/stegastiko-daneio/eksoikonomw-2021
5	ES	Energy Advice Points (PAE)	information and soft energy efficiency	vulnerable households	The energy advice points (PAE) are a Barcelona City Council service that offers the necessary information, care and intervention so that people can exercise their energy rights and companies do not deny them access to basic supplies. The PAEs have served all the city's districts since January 2017 and have 11 points distributed throughout the city.	regoinal	2017-ongoing	
6	ES	Solidarity Fund for Energy Rehabilitation	energy efficiency	social housing	The Naturgy Foundation collects donations for low-cost renovations, including the repair or replacemnt of household equipment and improvements to relectriticy and gas installations, for social homes managed by public administrations and third sector entitites. The Foundation doubles all donations it recives for the solidartiy fund.	national		https://atlas.energypoverty.eu/node/636
7	ES	TORREBLANCA ILUMINA	renwables	vulnerable households	POWERTY offers a pilot consisting of the execution of holistic assistance (legal, social and technical) and part of the necessary equipment to carry out a pilot collective PV installation of about 15 kWp on the roof of public schools to share most of the energy generated with families in a situation of energy poverty in Torreblanca.	regional	2019-ongoing	https://atlas.energypoverty.eu/node/337 https://www.interregeurope.eu/powerty/library/
8	ES	Valencia Energy Office	information and soft energy efficiency	vulnerable households	The Valencia Energy Office is a one-stop-shop to assess, inform and give support to the citizens in terms of energy efficiency, renewable energy, energy poverty and energy transition.	regional	2019-ongoing	https://atlas.energypoverty.eu/node/334 https://climaienergia.com/es/oficina-de-l-energia/que-es-la-oficina/
9	ES	Bario Solar	renwables	all households	Barrio Solar is an initiative aimed at promoting shared consumption of solar energy in neighbourhoods through the installation of photovoltaic plants for shared consumption. The first Barrio Solar experience will take place in Actur, a neighbourhood in the city of Zaragoza. Barrio Solar aims to provide clean, cheap local energy on the basis of solidarity.	regional		https://atlas.energypoverty.eu/node/530
10	FR	MaPrimeRenov Serenite	energy efficiency	low-income households	MaPrimeRénov' Sérénité is an advisory support and financial aid program that supports households with "modest" resources in their overall energy renovation project for their home. MaPrimeRénov' Serenity concerns all work allowing an energy gain of at least 35%. Households reviece 35 or 50 % aids depending on whether they are classed as low or very low income households. Households can also recieve additional bonuses if their houses from from an energy efficiency label of F or G to E or better and if their homes recieve the efficiency class of A or B. Households also have acces to professional, individualised support that accompanies the entirty of the project.	national		

Task 4 – Existing measures for energy efficiency and renewables



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4	EL	Exo						
5	ES	Ene						
6	ES	Sol						
7	ES	TOR						
8	ES	Val						
9	ES	Bar						
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Germany:
Stromsparcheck as a "soft" energy efficiency program that is targeted at low-income households, but no targeted subsidies for energy efficiency retrofitting

France:
MaPrimeRenov Serenite as a targeted renovation scheme for low-income homeowners and a regional mediation program to support renters seeking energy efficiency retrofits

Romania:
No targeted support for energy efficiency improvements for vulnerable households, but some regional programs that focus on PV installations and participatory approaches

Task 4 – Existing measures for energy efficiency and renewables

Overview of energy efficiency measures (hard and soft) as well as the introduction of renewables with a particular focus on those targeted at vulnerable households.

- Who is the target group and how do we identify them?
- What is the scale of implementation and who is in charge?
- What are the financial possibilities?

Conclusions

- Targeted support for low-income households enables short-term energy savings:
  - Lower risk of energy poverty
  - Reduced cost for consumer-protection mechanisms on energy prices
  - Supports for greenhouse gas emissions savings and reducing fossil fuel import dependency
- In addition: Savings beyond the short-term perspective by implementing energy efficiency and renewable energy measures
- Framework for targeted support needed both for owner-occupied and rented buildings

Contacts

Tilman Hesse
Senior Researcher

E-Mail: t.hesse@oeko.de

Sibylle Braungardt
Senior Researcher

E-Mail: s.braungardt@oeko.de

Katja Schumacher
Deputy Head of Energy & Climate Division

E-Mail: k.schumacher@oeko.de

Viktoria Noka
Junior Researcher

E-Mail: v.noka@oeko.de

Lukas Kranzl
Senior Scientist

E-Mail: kranzl@eeg.tuwien.ac.at

Andreas Müller
Managing Director e-think

E-Mail: mueller@e-think.ac.at

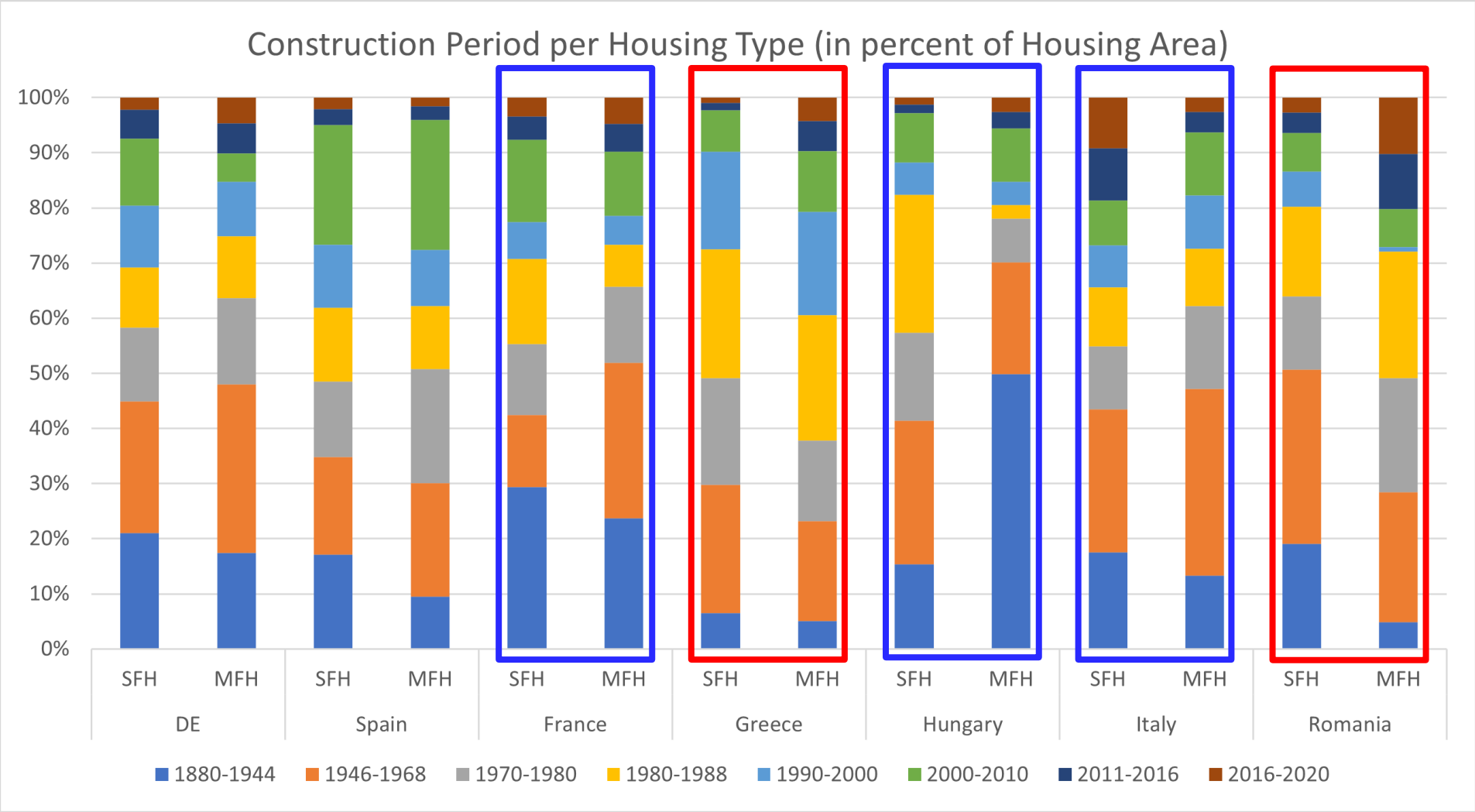
Back-up

Task 2: EE and RES measures with short-term savings

Task 2.1: Identification of measures and data collection

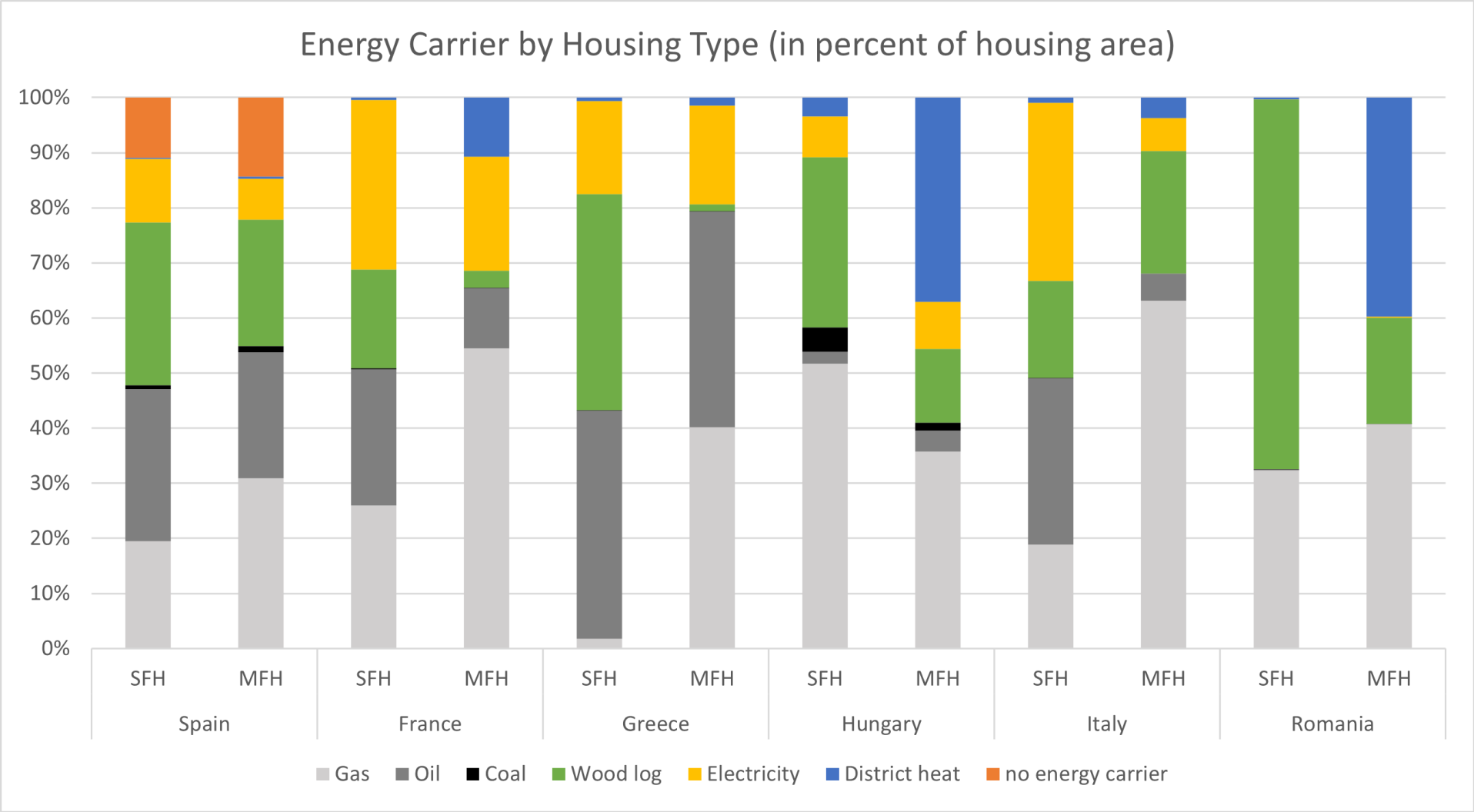
- Step 1: building stock data by building archetypes from INVERT model
- Step 2: overview of income structure and expenses on housing across income groups and MS
- Step 3: list of 7 cost-effective short-term measures incl. their typical final energy savings when implemented
- Step 4: list of costs for implementing the short-term measures
- Step 5: assigns 4-5 measures to different building archetypes in each MS

Construction period by housing type



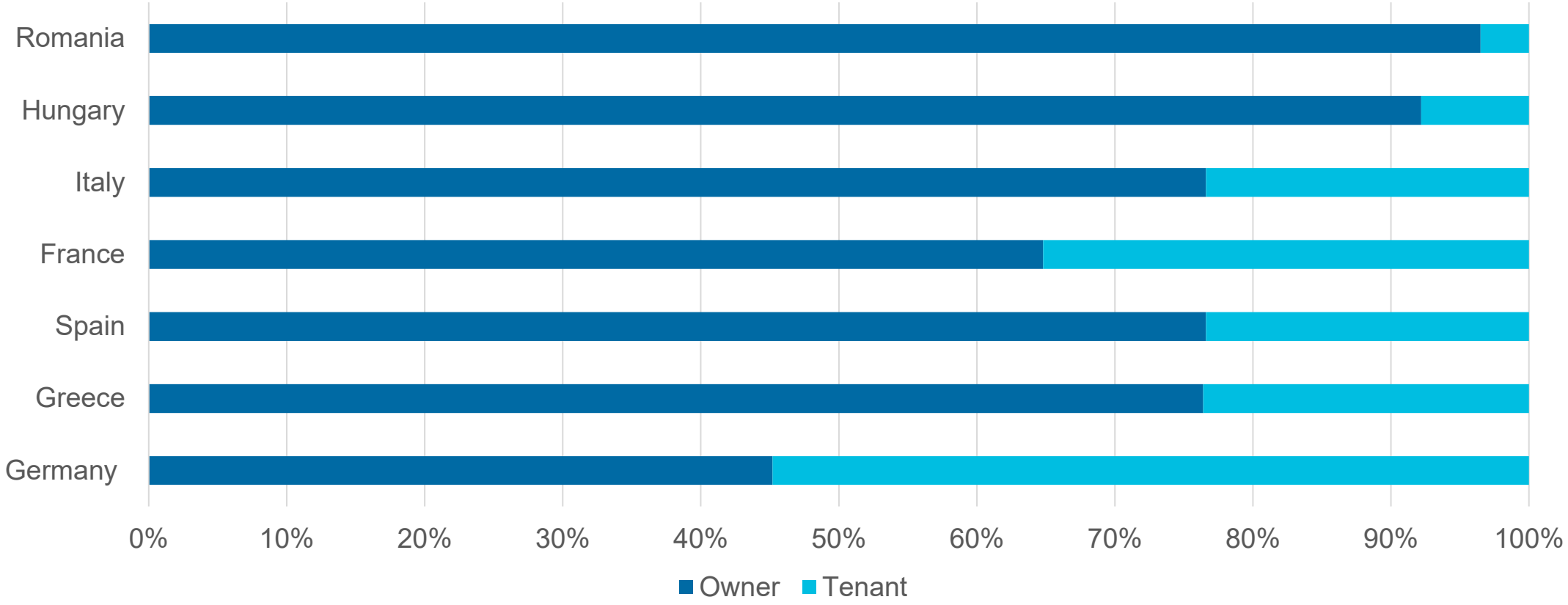
- RO, GR: SFH older, MFH newer
- FR, IT, HU: SFH newer, MFH older
- DE, ES: balanced

Energy carrier by housing type



- All MS except HU: MFH with higher fossil EC shares than SFH
- DE, FR, HU, IT, RO: relatively high gas dependency

Shares of rented/owner-occupied dwellings



Outlook: EE and RES measures with short-term savings

Task 2.2: Required funding for short-term measures

- The required budget for a subsidy programme is estimated for a selection or all 4-5 measures from Task 2.1 for different implementation levels:
  - lowest 50% income households in each MS (plus 2 more target groups, e.g. only lowest quintile)
  - different subsidy rates (e.g. 50%, 80%, 100%)
  - different rates of uptake of these measures
- Exact scope to be discussed!