

ELPRE – Buildings in 2050

an overview of the current strategy for Portugal

*“Eficiência Energética, incluindo Energias Renováveis,
em Edifícios Novos e na Reabilitação Urbana”*

XXIV SIMPÓSIO LUSO-ALEMÃO DE ENERGIA



Agência para a Energia

29 setembro 2022

Nuno Baptista
ADENE – Agência para a Energia

Content

- The Portuguese buildings stock
- The challenges of EPBD 2022
- Long Term Renovation Strategy (ELPRE)
- Financing opportunities



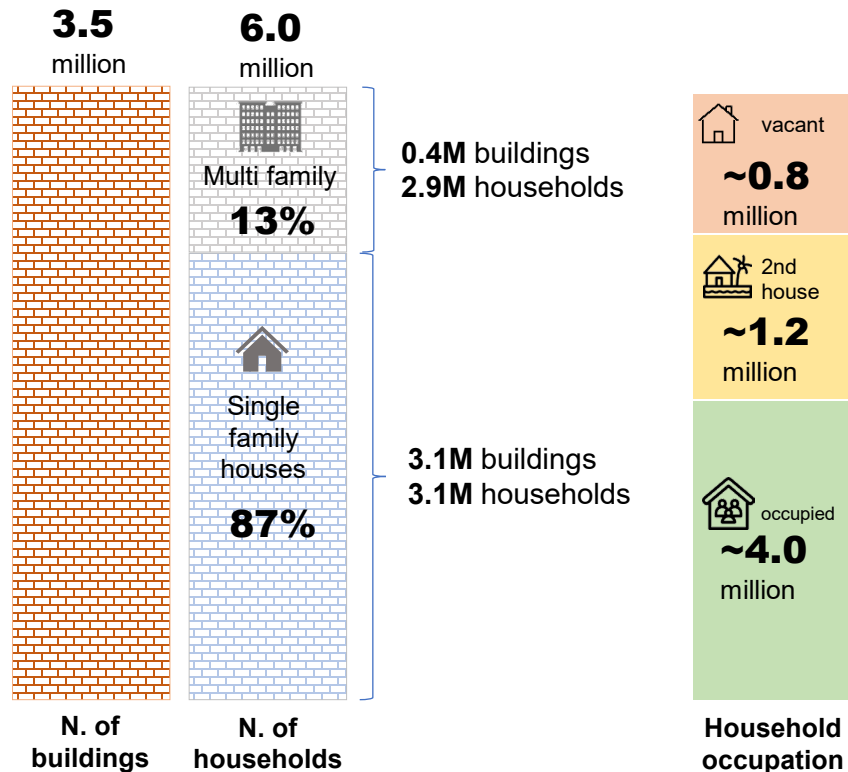


The portuguese
buildings stock

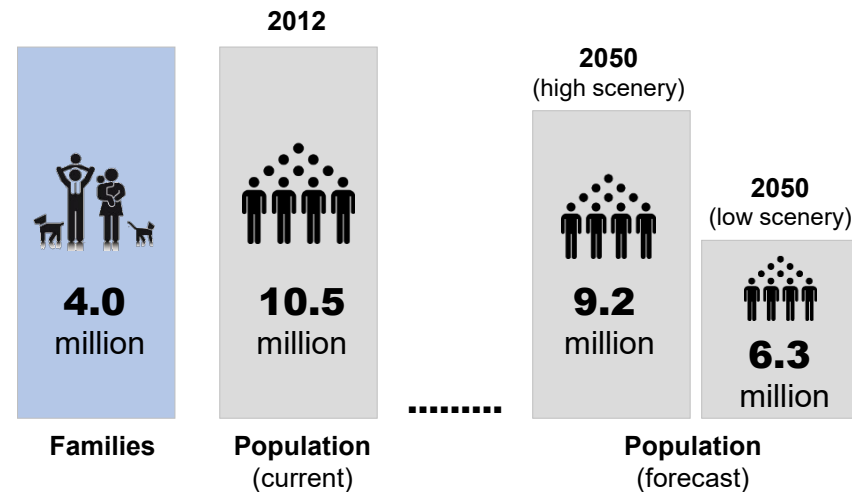
Portuguese buildings stock from the “construction” perspective

Construction and demographic data

Construction data



Demographic data

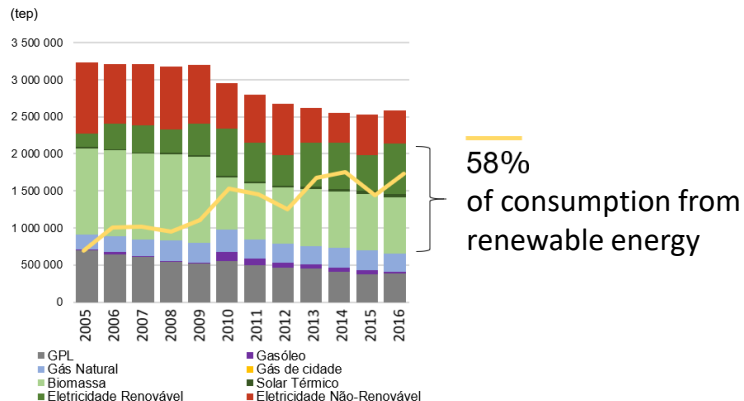


- ✓ ~ 90% of the buildings in Portugal are single family, however they contemplate just over 50% of households
- ✓ Almost 2 million vacant houses or 2nd houses
- ✓ Considerable decrease in the Portuguese population is expected

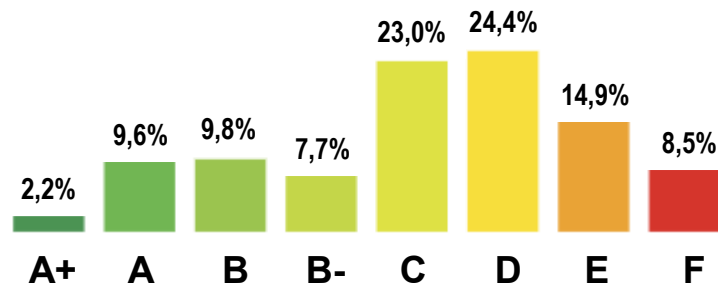
Portuguese buildings stock from the “energy consumption” perspective

Energy consumption and buildings energy rating

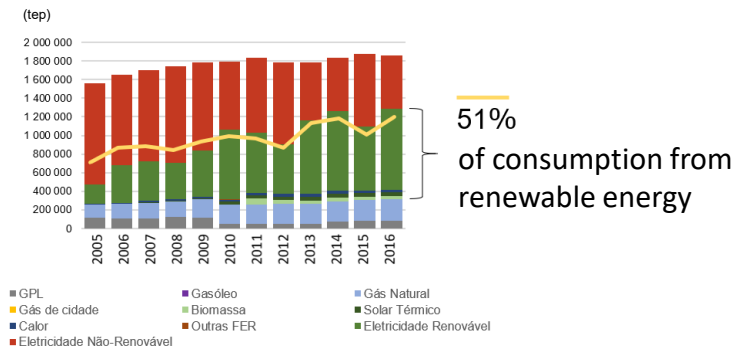
Energy consumption | Residential



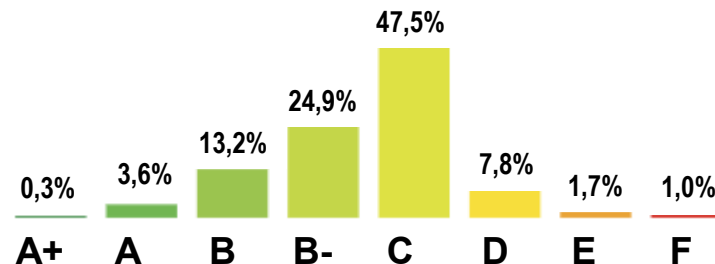
Buildings energy rating | Residential



Energy consumption | Non-residential



Buildings energy rating | Non-residential

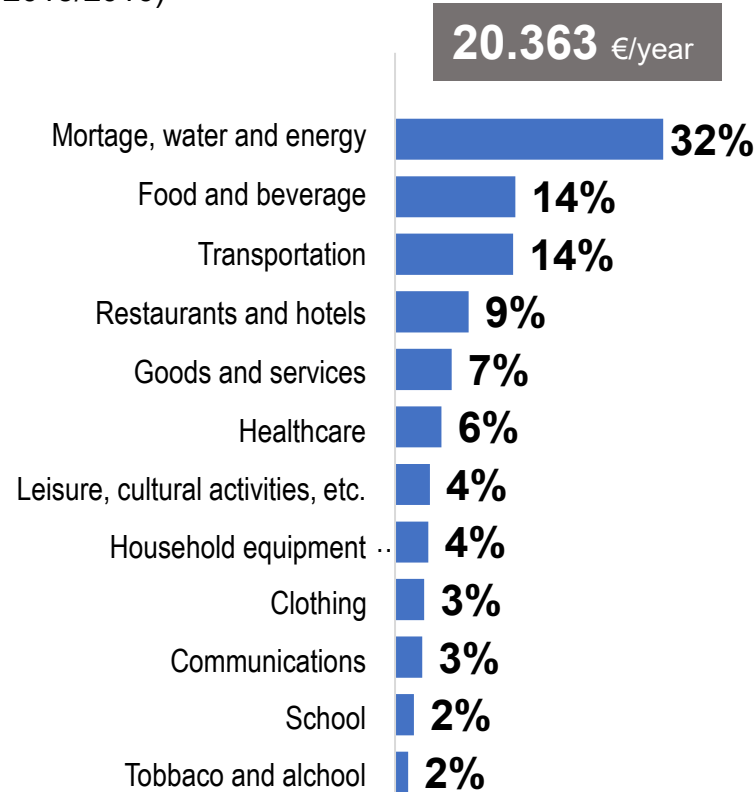


Portuguese buildings stock from the “human” perspective

Energy use and energy expenditure in households

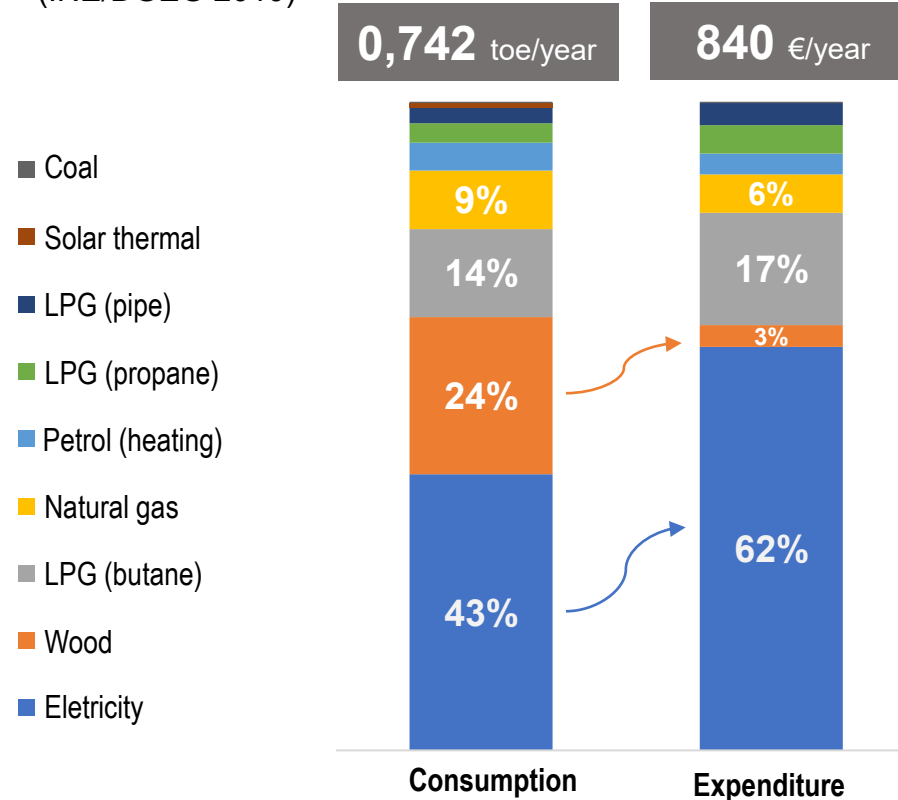
Average annual expense by household

(INE 2015/2016)



Energy use in households

(INE/DGEG 2010)

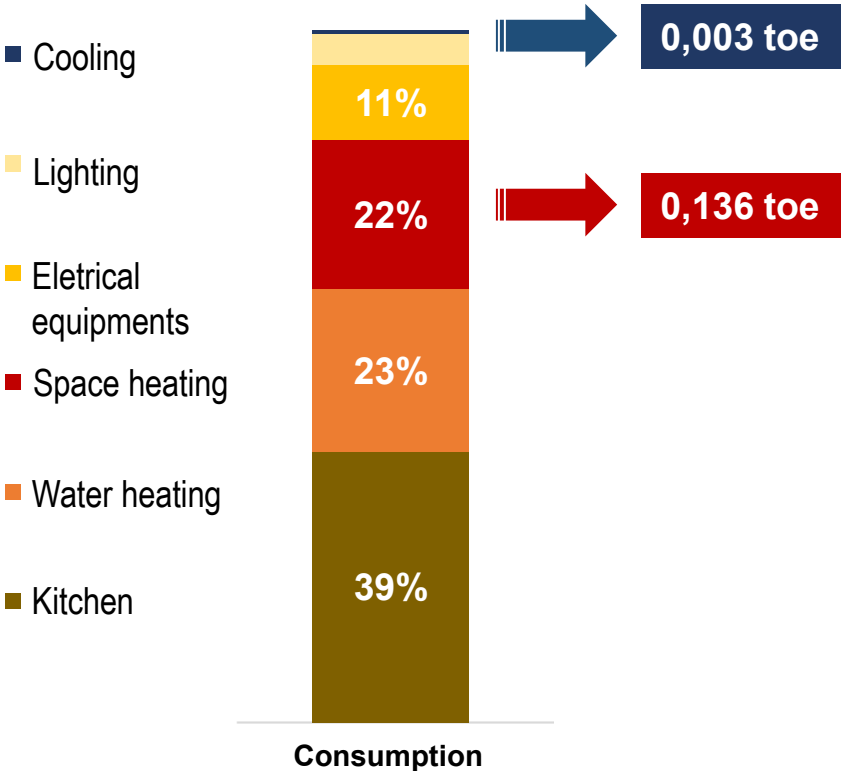


Portuguese buildings stock from the “human” perspective

Comfort and energy consumption by type of use

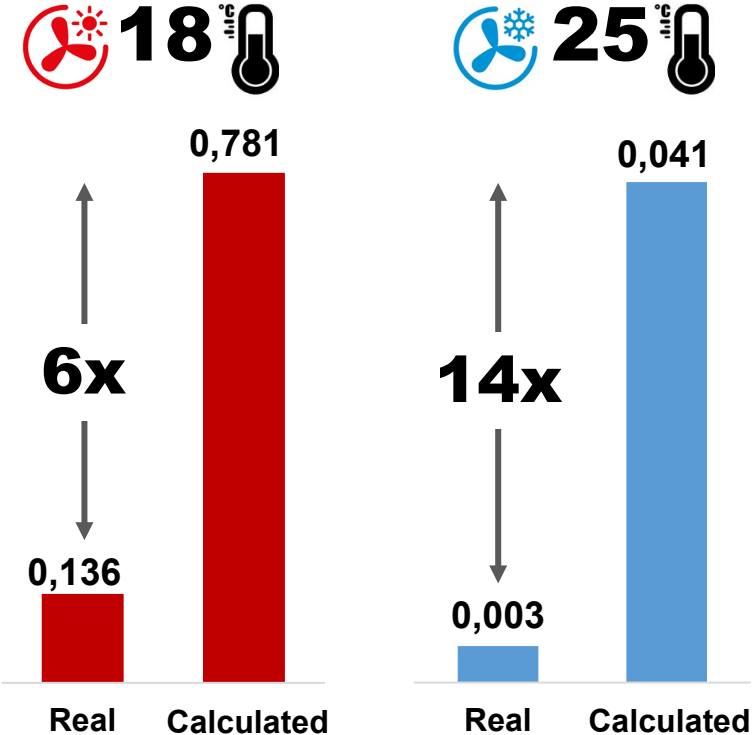
Energy consumption by type of use

(INE/DGEG 2010)



Estimated energy needs for comfort (toe)

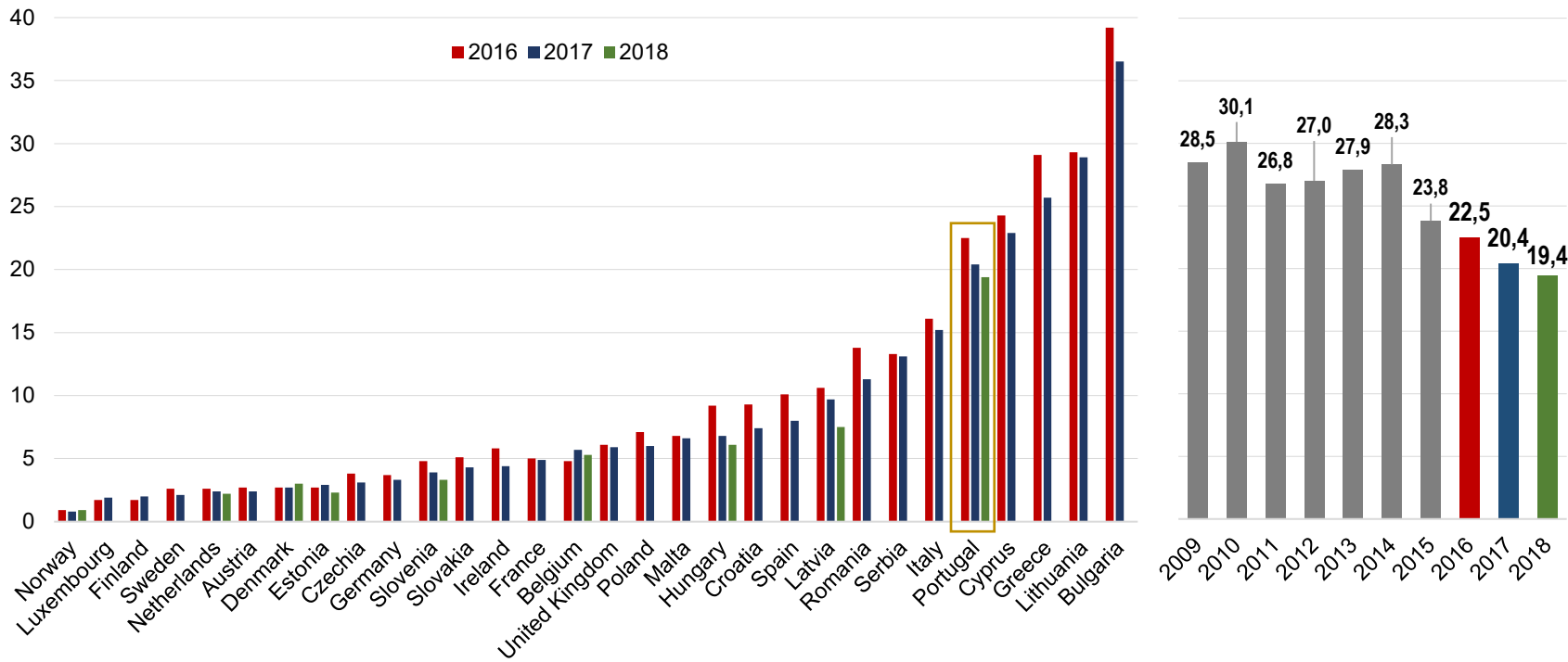
(SCE 2018)



Portuguese buildings stock from the “human” perspective

Energy poverty indicators

People are unable to keep their house properly heated - EU-SILC
(%, INE 2018, EU-SILC 2018, EEA, 2016)

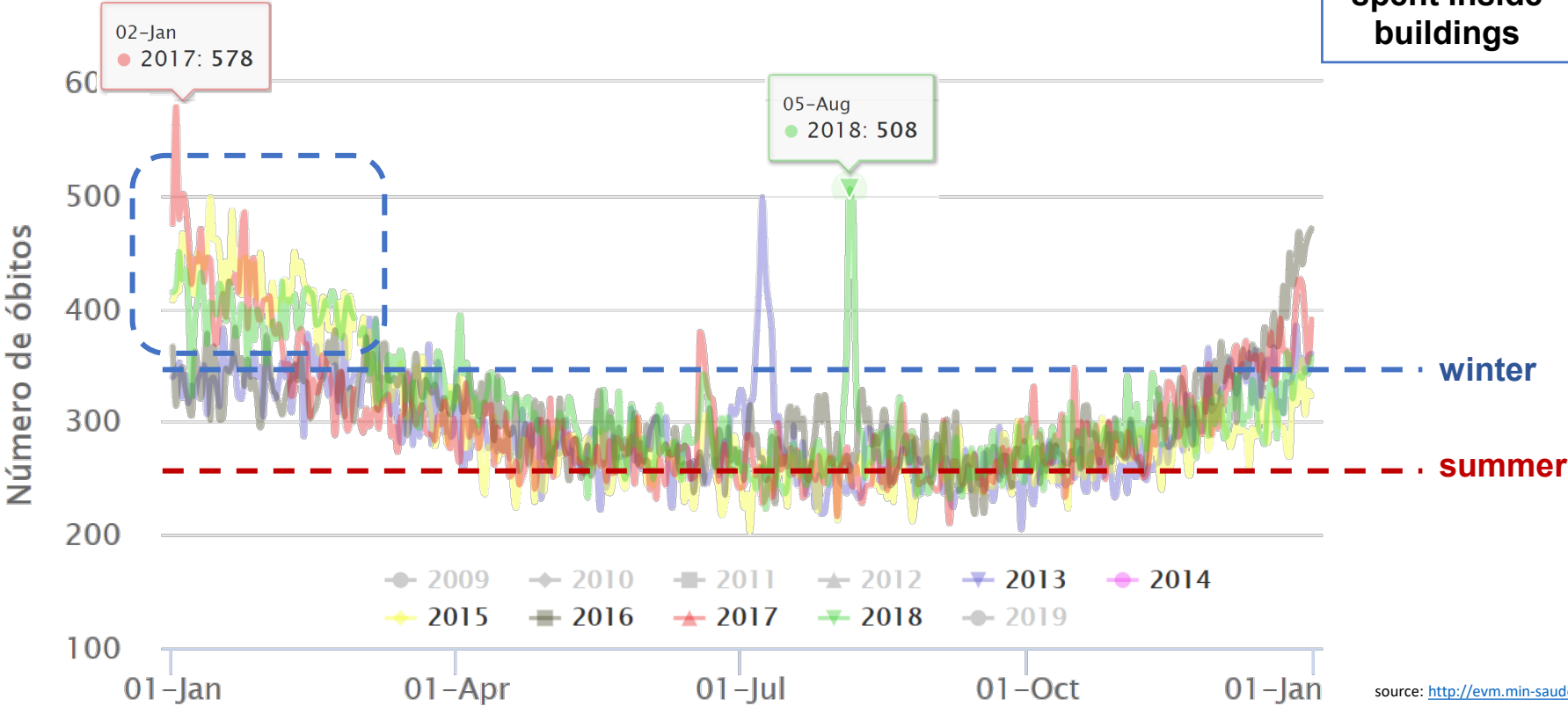


Portuguese buildings stock from the “human” perspective

Climate and daily distribution of mortality

Real time mortality (DGS; SNS 2019)

90% of time spent inside buildings

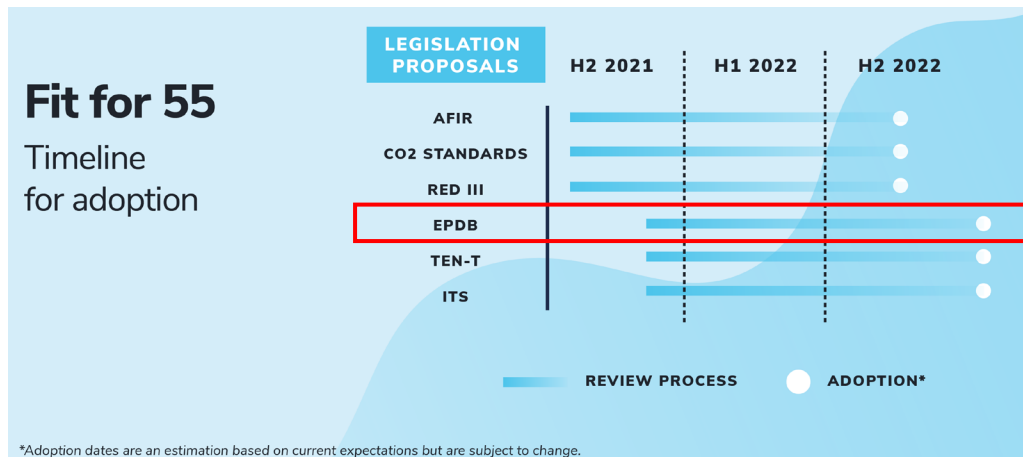




The challenges of EPBD 2022



EPBD revision in a broader context of climate “transformation”



✓ Final wording expected by the end of 2022



Delivering on the European
Green Deal and Fit for 55

Contribute to the reduction of GHG
emissions and final energy
consumption by 2030

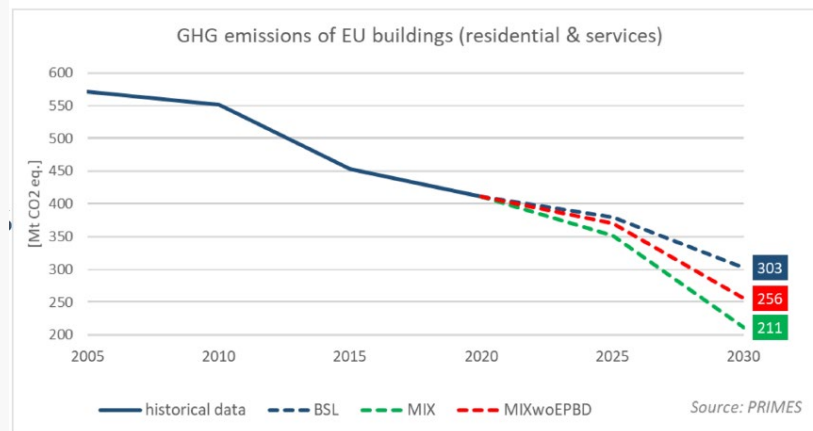
Providing a long-term vision for
buildings to ensure an effective
contribution to carbon neutrality by
2050

Climatic Target – building inputs

✓ Until 2030 buildings in EU must:

- Reduce **GHG emissions** by **60%**;
- Reduce **final energy consumption** by **14%**
- Reduce energy consumption for **heating and cooling** by **18%**

✓ In addition, **Renovation Wave** should boost (doubling) the **renovation rate of buildings** in the EU



Energy Performance in Buildings Directive

What's new in the 2022 recast

01

Building Renovation

- Minimum energy performance standards (MEPS)
- Energy Performance Certificates
- Building Renovation Plan
- Strengthen the role of Qualified Experts

02

Decarbonization

- Zero emission buildings as standard for new buildings
- Consideration of the Global Warming Potential
- No funding schemes for fossil fuels



Energy Performance in Buildings Directive

What's new in the 2022 recast

03

Modernizations and system integration

- Infrastructure for sustainable mobility
- Smart Readiness Indicator (SRI)
- Indoor Air Quality – ventilation and other technical systems
- Building Automation and Control Systems

04

Financing

- Sustainable financing and ease of energy poverty
- Introduction of deep renovation standard
- Renovation Passports



A decorative graphic on the left side of the slide. It features a row of stylized buildings in dark blue and white at the bottom. Behind them is a bar chart with five bars of increasing height from left to right, colored in a gradient from orange to light green. A small orange horizontal bar is located above the text.

Long Term Renovation Strategy (ELPRE)

Long Term Renovation Strategy (ELPRE)

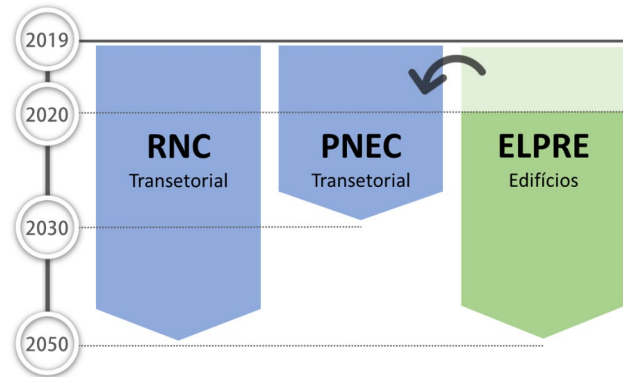
Strategic document for the energy rehabilitation of buildings

Objective:

- Upgrade the buildings stock by 2050 through:
 - ✓ improved energy efficiency
 - ✓ transformation into nearly zero energy buildings
 - ✓ decarbonisation of energy supply

Strategic guidelines:

- Policies and actions to encourage deep renovations
- Focus on less efficient buildings and reducing energy poverty



Long Term Renovation Strategy (ELPRE)

Main drivers

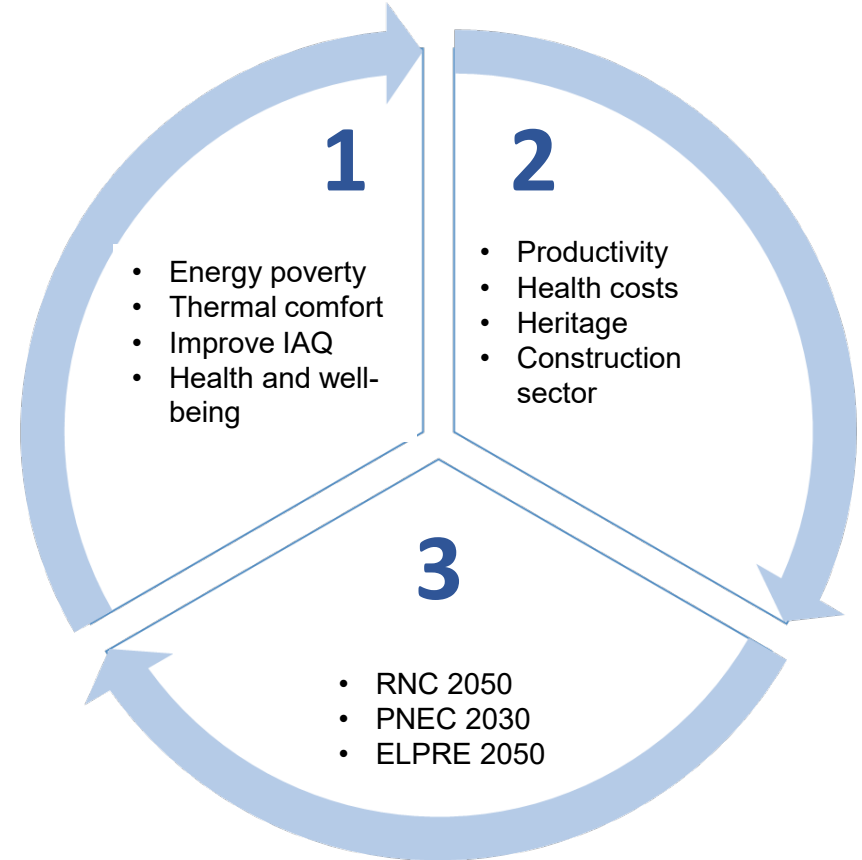
1 Improvement of living conditions for building occupants

2 Opportunity for economic growth

3 Compliance with environmental and energy targets

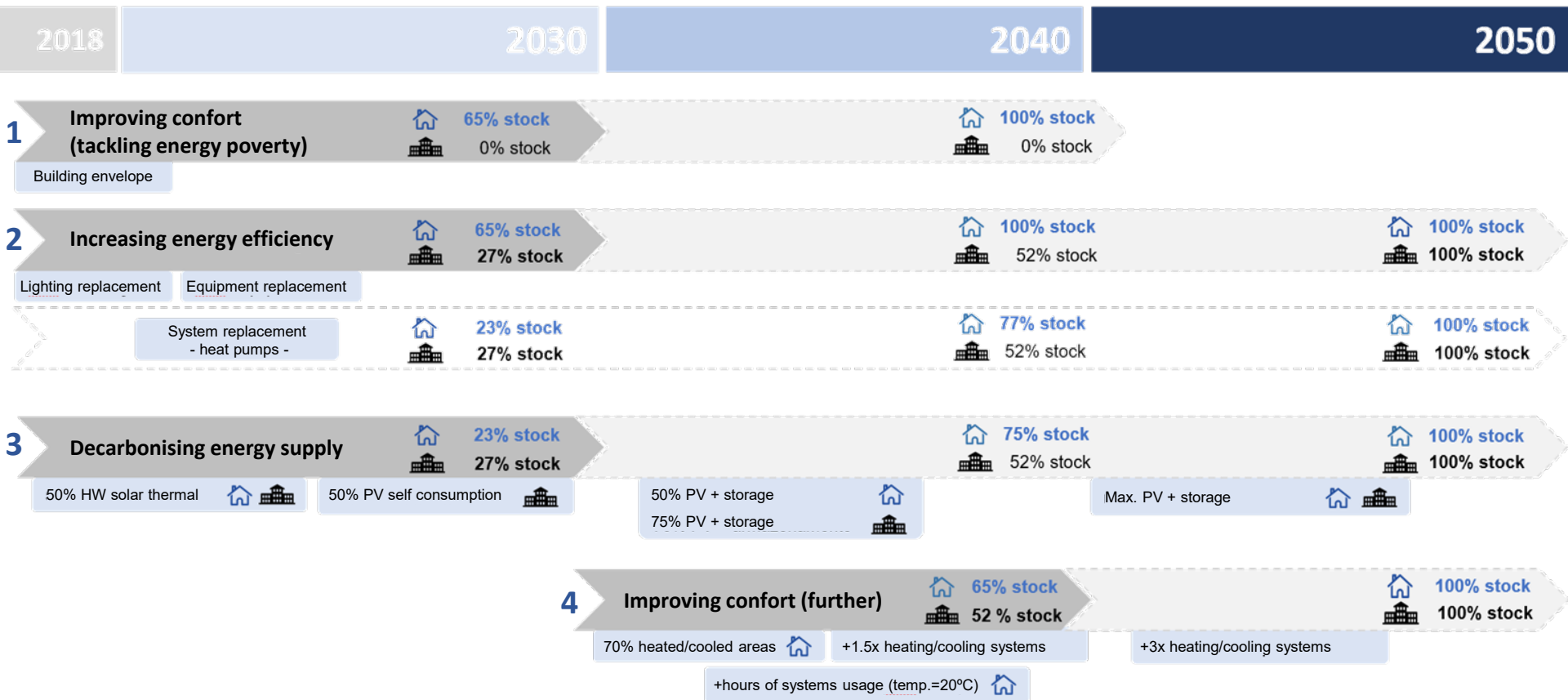


Reviving the economy in a post-COVID19 scenario



Long Term Renovation Strategy (ELPRE)

Four packages across the decade intermediate targets



Long Term Renovation Strategy (LTRS)

Seven areas of policies and measures

	EA1 – RENOVATION OF THE BUILDING STOCK	Create a financial environment favourable to the deep renovation of the national building stock
	EA2 – SMART BUILDINGS	Foster the intelligence of buildings, making them more efficient, safe and comfortable
	EA3 – ENERGY CERTIFICATION	Strengthen the role and contribution of the energy certification system to improve the energy performance of buildings
	EA4 - TRAINING AND QUALIFICATION	Increase the technical capacity of construction and energy professionals
	EA5 – FIGHTING ENERGY POVERTY	Fight energy poverty, and reduce energy and water costs, supporting the most vulnerable families in renovating their homes
	EA6 – INFORMATION AND AWARENESS	Increasing awareness among citizens and public and private companies about the energy and non-energy benefits of renovations
	EA7 – MONITORING	ELPRE monitoring plan based on a set of indicators and mechanisms for monitoring progress

Long Term Renovation Strategy (LTRS)

Seven areas of policies and measures

Financing by sector and by decade

	2030	2040	2050	Total [M€]	Total [M€/ano]
Residential [M€]	26.760	42.441	40.877	110.078	3.669
Non- residential [M€]	18.500	13.968	945	33.414	1.114
Total [M€]	45.261	56.409	41.822	143.492	4.783

Annual turnover of
construction sector
(in 2018)

21.200 M€

Potential 20% increase

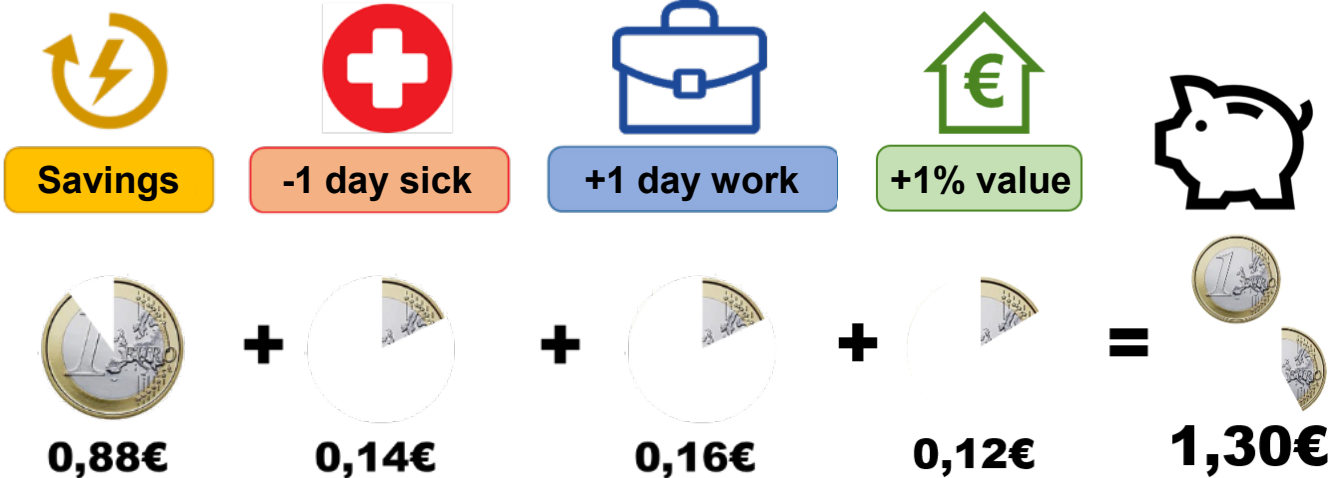
Financing by area of intervention (accumulated by 2050)

	Building envelope	Lighting systems	Efficient systems	Solar thermal	PV with storage	+ systems and PV	Total
Residencial [M€]	40.373	354	14.588	11.960	18.861	23.943	110.078
Não-Residencial [M€]	-	1.033	6.003	8.847	13.309	4.222	33.414
Total [M€]	40.373	1.387	20.591	20.807	32.170	28.165	143.492

≈ 20% mainly to tackle energy poverty

Long Term Renovation Strategy (ELPRE)

Potential benefits from investment in building renovation

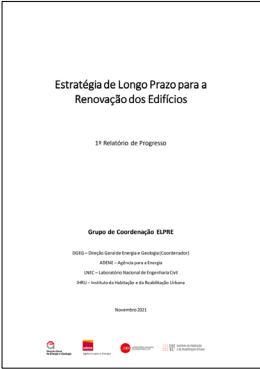


For each
1€ investment
in renovation

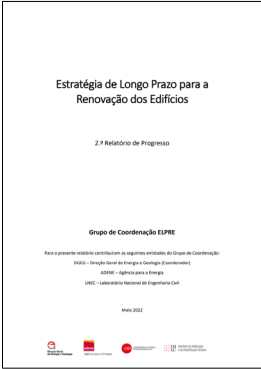


Long Term Renovation Strategy (ELPRE)

What do we have so far...



November 2021



May 2022

1.1.1	1.1.2	1.1.3	1.1.4	1.1.5	1.1.6	1.1.7	1.2.1	1.2.2	1.2.3
1.3.1	1.3.2	1.4.1	1.4.2	1.4.3	1.4.4	1.4.5	1.4.6	1.4.7	1.5.1
1.5.2	1.6.1	1.6.2	1.6.3	1.6.4	1.6.5	1.6.6	1.6.7	1.6.8	1.6.9
1.6.10	1.7.1	1.7.2	1.7.3	1.7.4	1.8.1	1.8.2	1.8.3	1.8.4	1.8.5
1.8.6	1.8.7	1.8.8	1.8.9	1.8.10	1.8.11	1.9.1	1.9.2	1.9.3	1.9.4
1.9.5	1.9.6	2.1.1	2.1.2	2.1.3	2.1.4	2.2.1	2.2.2	2.2.3	2.2.4
2.2.5	2.3.1	2.3.2	2.3.3	2.3.4	2.3.5	3.1.1	3.1.2	3.1.3	3.1.4
3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	3.3.3	3.3.4	3.3.5	3.3.6
3.3.7	3.4.1	3.4.2	3.4.3	3.5.1	3.5.2	3.6.1	3.6.2	3.6.3	3.6.4
4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	4.1.7	4.1.8	4.1.9	4.2.1
4.2.2	4.2.3	4.2.4	4.2.5	4.3.1	5.1.1	5.1.2	5.1.3	5.2.1	5.2.2
5.2.3	5.2.4	5.2.5	5.2.6	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6
6.2.1	6.2.2	6.2.3	6.2.4	6.2.5	6.2.6	6.2.7	6.2.8	6.2.9	6.2.10
6.2.11	6.3.1	6.3.2	6.3.3	6.3.4	7.1.1	7.1.2	7.1.3	7.1.4	7.1.5
7.2.1	7.2.2	7.2.3	7.2.4	7.2.5	7.2.6				

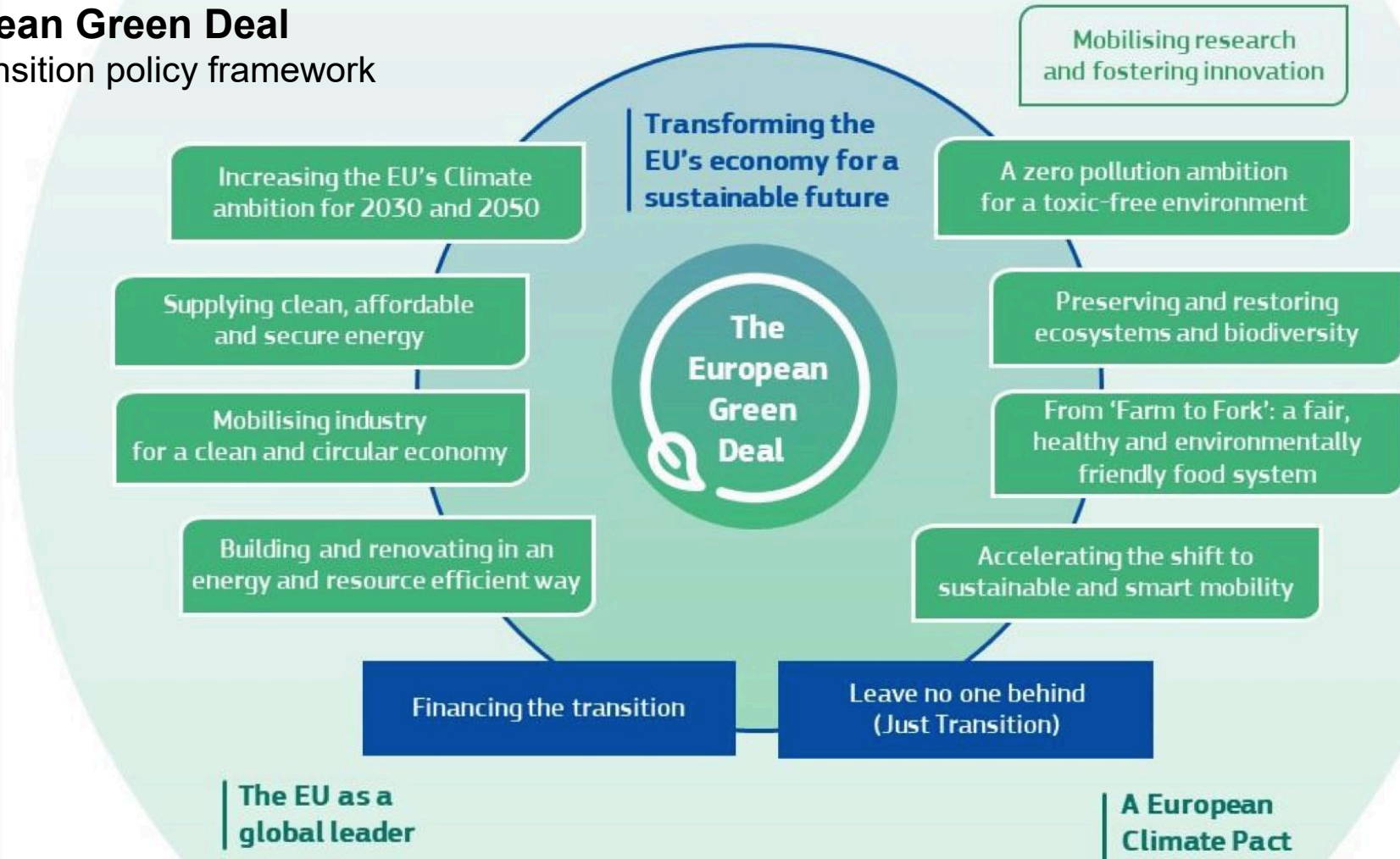
- Por iniciar - Fichas ainda sem iniciativas identificadas
- Em curso - Fichas com iniciativas
- Migradas - Fichas cujas ações são monitorizadas noutras fichas

Parque de Edifícios Total		Valor acumulado			Variação face a 2018										
		2018	2019	2020	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
OBJ1	Consumo de Energia Primária [ktep] [%]	7 010,4	6 781,2	6 850,3	-2,3%										
OBJ2	Consumo/Produção de Energia Renovável Local [ktep] [%]	1 564,4	1 600,6	1 657,7	6,0%										
OBJ3	Consumo/Produção de Energia Renovável Total [ktep] [%]	2 880,3	2 940,4	3 050,2	5,9%										
OBJ4	Emissões CO ₂ e [kgCO2e] [%]	17 451,6	13 849,0	11 527,3	-33,9%										
OBJ5	Área de edifícios renovada [m2]														
OBJ6	Edifícios Renovados [%]														
OBJ7	Redução Horas desconforto [%]														
OBJ8	Investimento [€]														
OBJ9	Poupança [€]														

Monitorização dos objetivos da ELPRE – Parque de Edifícios Total

European Green Deal

The transition policy framework



European Green Deal

A Renovation Wave for climate neutrality and recovery

Start a 'renovation wave'

The construction, use and renovation of buildings require significant amounts of energy and resources, such as sand, gravel and cement.

➤ Buildings account for
40% of energy consumed



The current rates of renovation of public and private buildings should at least double

Better energy performance of buildings

➤ Prices of different energy sources should incentivise **energy-efficient buildings**



➤ Design of buildings should be in line with the **circular economy**



➤ Increased **digitalisation**



➤ More **climate-proofing** of buildings



➤ Strict enforcement of rules on **energy performance of buildings**

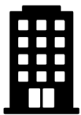


IFRRU 2020

Supporting deep renovations



Financial instrument boosting **buildings renovation** and **energy efficiency**



WHICH INTERVENTIONS?

- Full rehabilitation of buildings with 30 years or more



BUDGET

- Up to 1400 million euros



FINANCED MEASURES

- All expenses related with **buildings renovation** and **energy efficiency**

Steps to get financing

- 1 Opinion from the Municipality
- 2 Energy Performance Certificate
- 3 Application for bank financing

Fundo Ambiental

Sustainable buildings programme



**EDIFÍCIOS +
SUSTENTÁVEIS**



REPÚBLICA
PORTUGUESA

AMBIENTE E AÇÃO CLIMÁTICA

FUNDO AMBIENTAL

Objective:

Rehabilitate and improve the energy and water performance of buildings

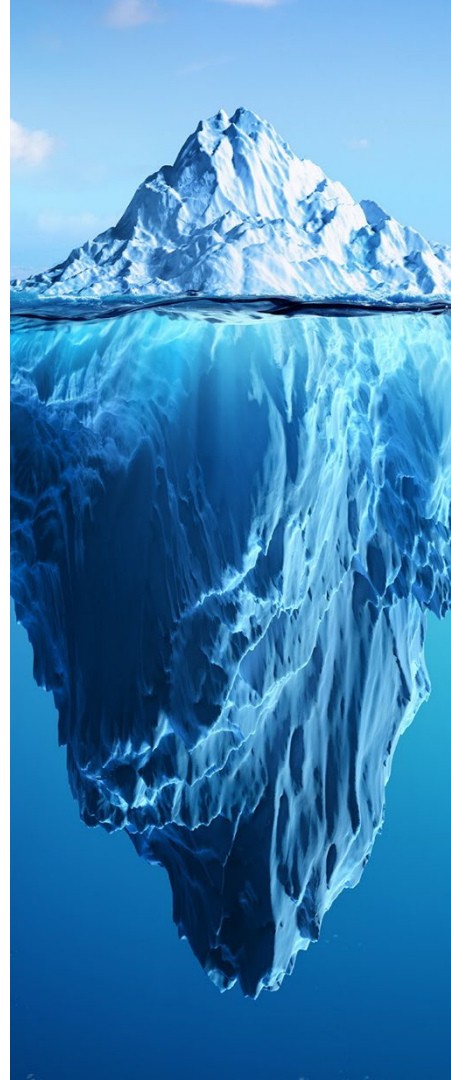
Financing:

Home owners | 70% non-refundable up to 7500 € per household | Cap per type of project

Budget allocation:

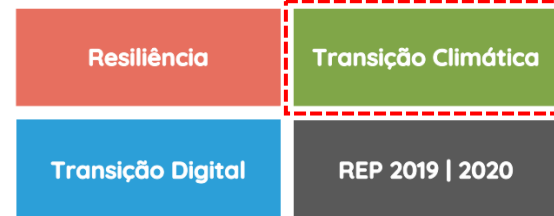
4,5M€ until the end of 2021 (€ doubled by the end of 2020)

96M€ second call 2021/2022 (~100.000 applications)



Resilience and Recovery Plan

Sustainable buildings programme

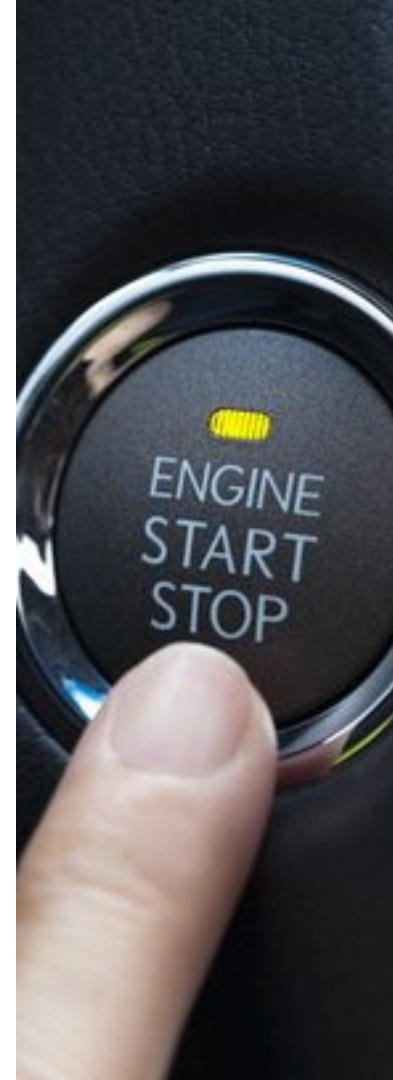


	Flagship	PRR	M€
1 Power up	The frontloading of future-proof clean technologies and acceleration of the development and use of renewables	Hidrogénio e gases renováveis Descarbonização da indústria, bioeconomia e economia circular	186 465
2 Renovate	The improvement of energy efficiency of public and private buildings	Eficiência energética em edifícios	609
3 Recharge and Refuel	The promotion of future-proof clean technologies to accelerate the use of sustainable, accessible and smart transport, charging and refuelling stations and extension of public transport	Mobilidade sustentável	1.282
4 Connect	The fast rollout of rapid broadband services to all regions and households, including fiber and 5G networks	5G disponível em Portugal em 2021	Inv. Privado
5 Modernise	The digitalisation of public administration and services, including judicial and healthcare systems	Digitalização da AP	1.815
6 Scale Up	The increase in European industrial data cloud capacities and the development of the most powerful, cutting edge, and sustainable processors	Rede Nacional de Digital Innovation Hubs (IA, Cibersegurança e SuperComputação) e laboratórios de experimentação e incorporação de tecnologia	138
7 Reskill and Upskill	The adaptation of education systems to support digital skills and educational and vocational training for all ages	Educação digital Modernização do ensino profissional Formação ao longo da vida (reconversão e qualificação)	710 716 286

Main take aways

ELPRE and the PRR are setting the track for the uptake of opportunities

- Portugal has a buildings stock that, in addition to rehabilitation needs, is inefficient from an energy point of view
- The indicators related to energy poverty in Portugal have evolved favorably, but this is still a serious problem
- The new regulatory (EPBD) and strategic (ELPRE) frameworks can trigger the implementation of concrete actions for the next 3 decades
- The current pandemic crisis led us to rethinks several aspects and demonstrated the need to act in a different and more integrated way
- The current European context creates the ideal moment for Portugal to take advantage of the next decade and face the 2050 commitments.



Obrigado pela Vossa atenção.



Agência para a Energia



Nuno Baptista



nuno.baptista@adene.pt



Av. 5 de Outubro, 208 - 2º Piso
1050-065 Lisboa - Portugal



adene.pt