Energy renovation of the Portuguese buildings stock

Status, trends and opportunities

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XXII SIMPÓSIO LUSO-ALEMÃO DE ENERGIA

„EFICIÊNCIA ENERGÉTICA, INCL. ENERGIAS RENOVÁVEIS, EM EDIFÍCIOS“

20 outubro 2020

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ADENE – Agência para a Energia

Portugal Energia

Content

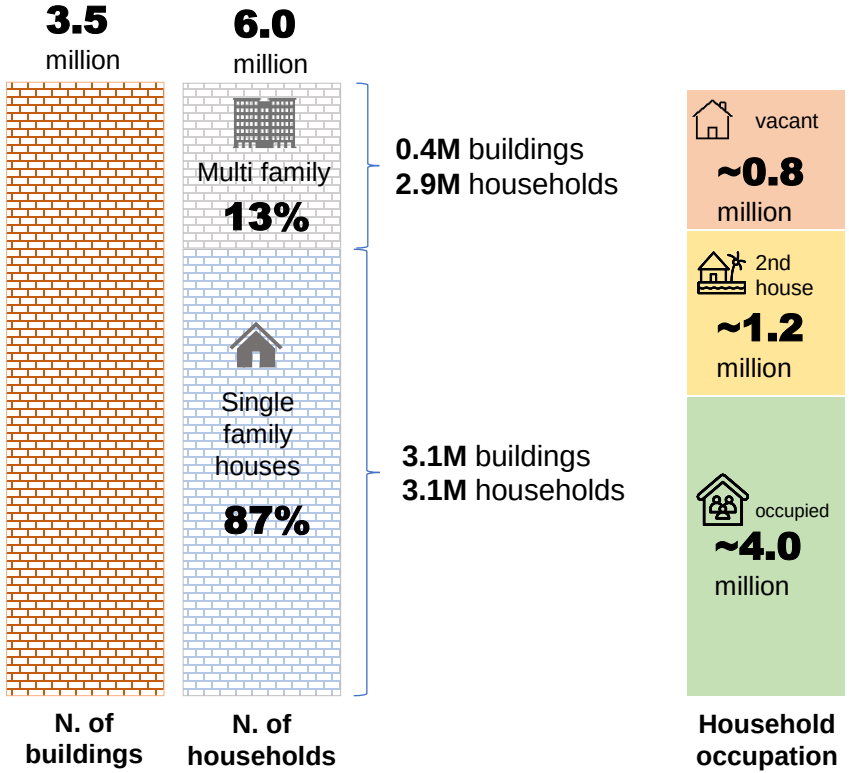
- The Portuguese buildings stock
- The challenges of EPBD 2018
- Long Term Renovation Strategy (ELPRE)
- Financing opportunities

The portuguese buildings stock

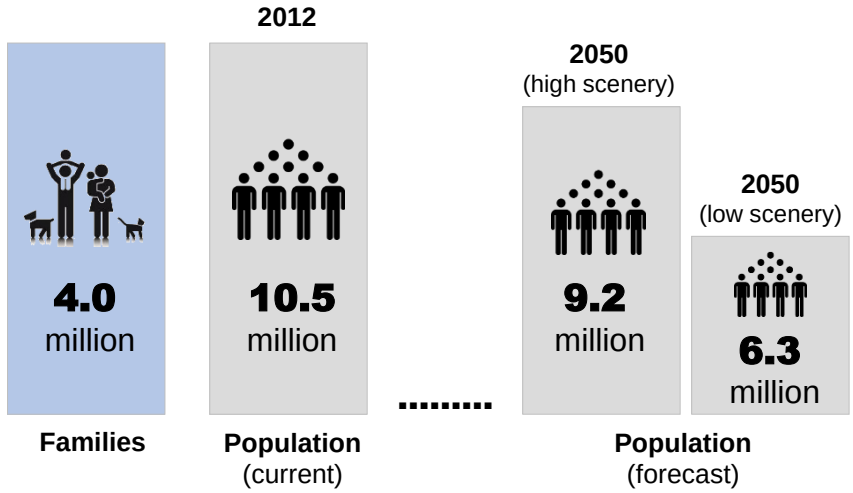
Portuguese buidings stock from the “construction” perspective

Construction and demographic data

Construction data



Demographic data



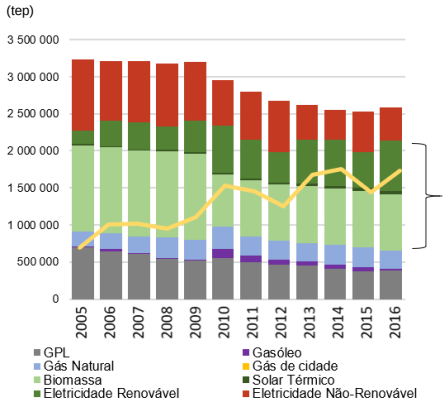
- ✓ ~ 90% of the buildings in Portugal are single family, however they contemplate just over 50% of households
- ✓ Almost 2 million vacant houses or 2nd houses
- ✓ Considerable decrease in the Portuguese population is expected

source: INE – National Statistics Bureau

Portuguese buidings stock from the “energy consumption” perspective

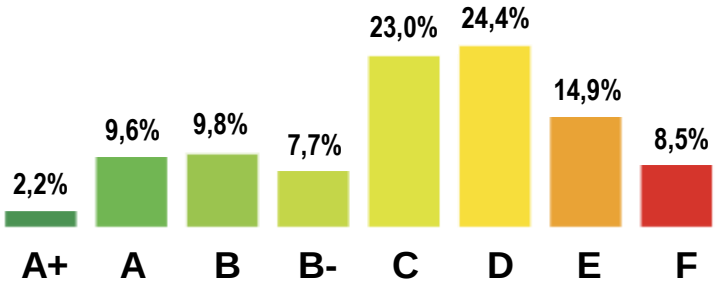
Energy consumption and buildings energy rating

Energy consumption | Residential

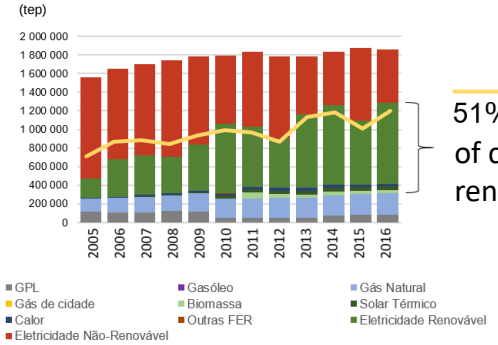


58%
of consumption from renewable energy

Buildings energy rating | Residential

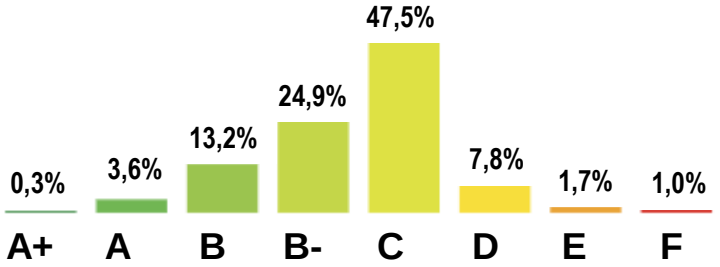


Energy consumption | Non-residential



51%
of consumption from renewable energy

Buildings energy rating | Non-residential

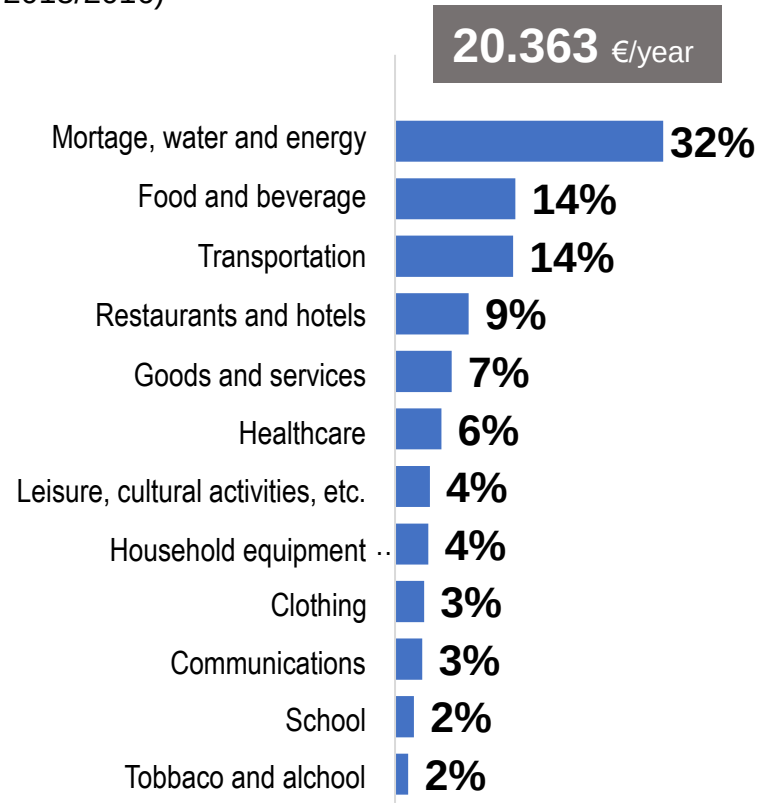


Portuguese buidings stock from the “human” perspective

Energy use and energy expenditure in households

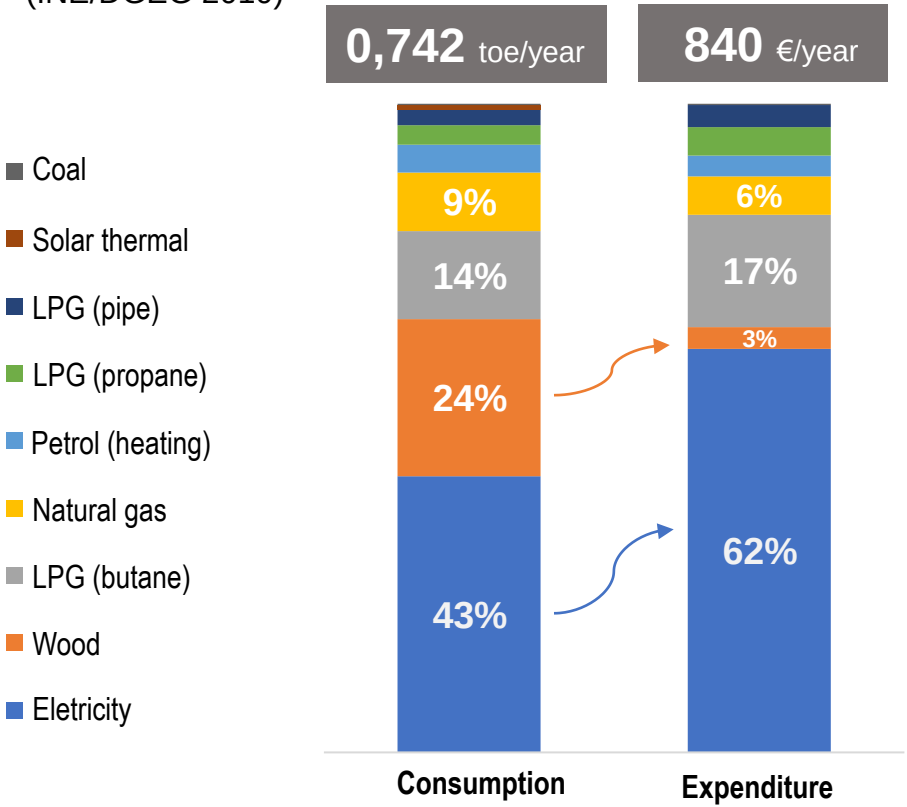
Average annual expense by household

(INE 2015/2016)



Energy use in households

(INE/DGEG 2010)

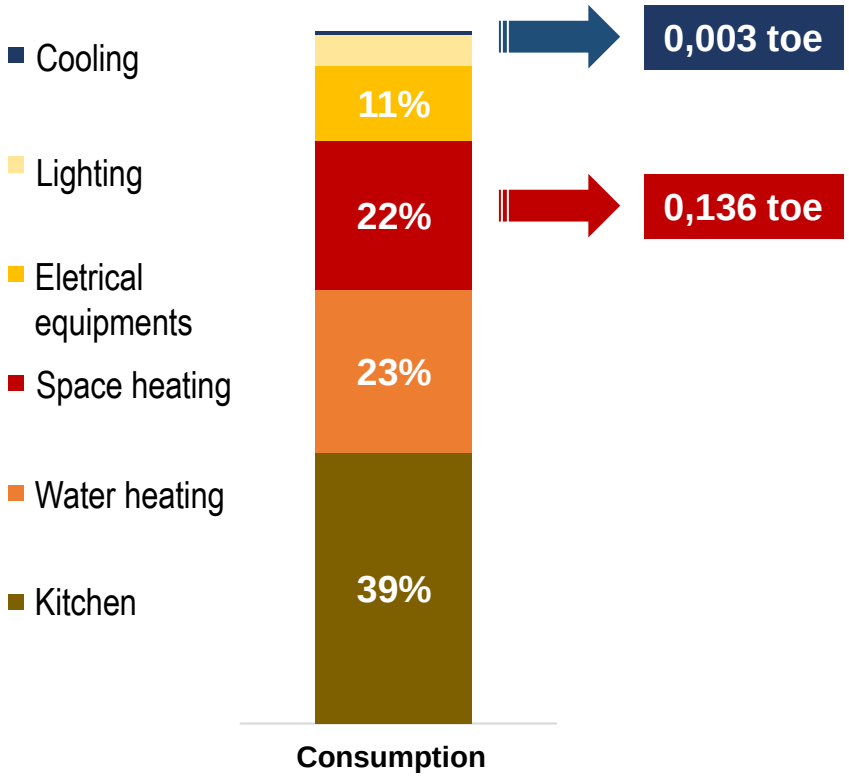


Portuguese buidings stock from the “human” perspective

Comfort and energy consumption by type of use

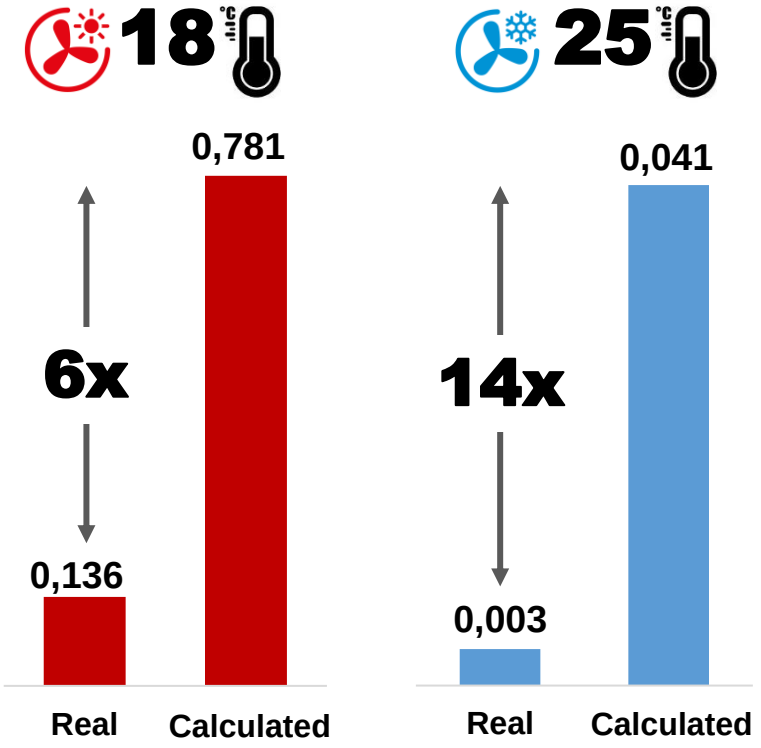
Energy consumption by type of use

(INE/DGEG 2010)



Estimated energy needs for comfort (toe)

(SCE 2018)

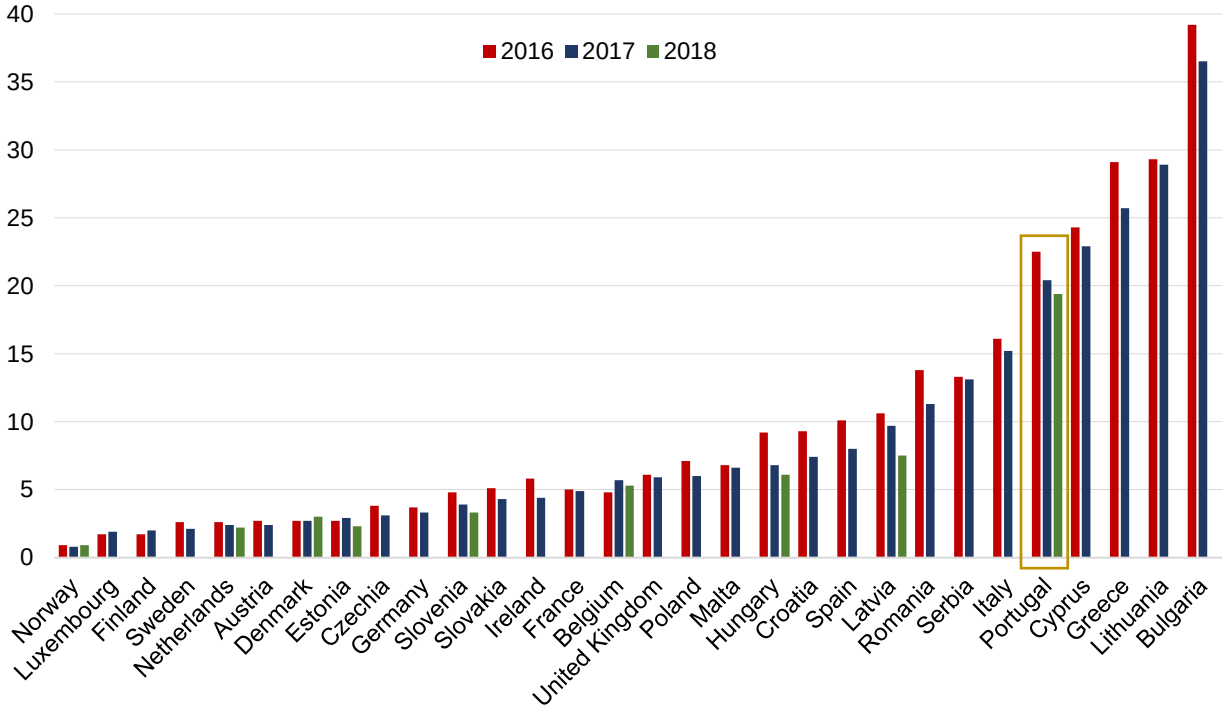


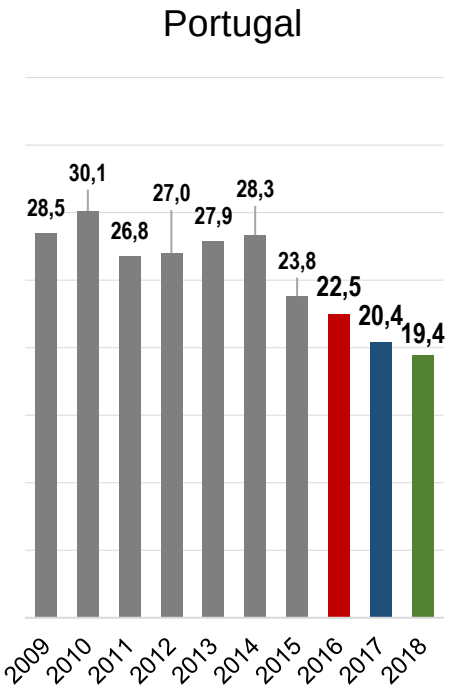
Portuguese buidings stock from the “human” perspective

Energy poverty indicators

People are unable to keep their house properly heated - EU-SILC

(%, INE 2018, EU-SILC 2018, EEA, 2016)



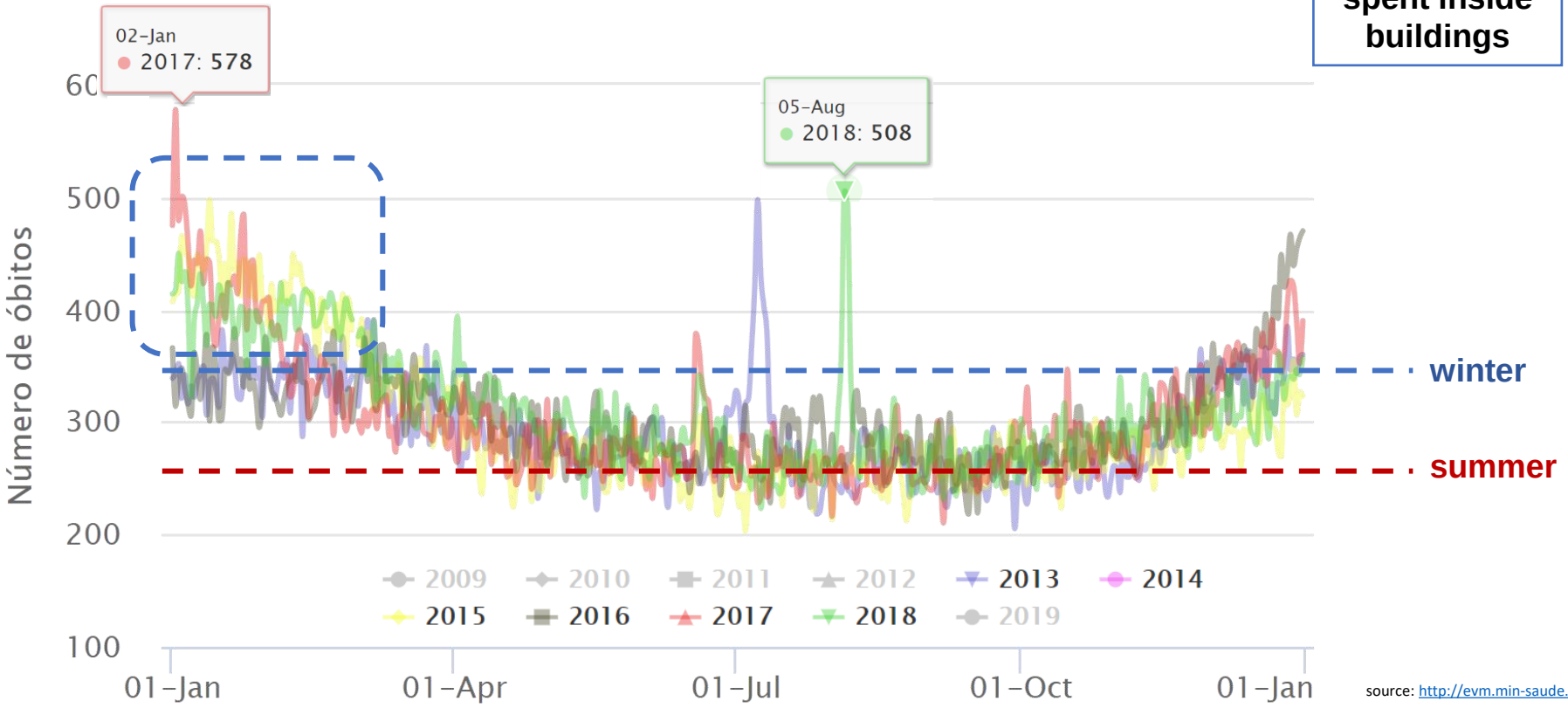


Portuguese buidings stock from the “human” perspective

Climate and daily distribution of mortality

Real time mortality (DGS; SNS 2019)

90% of time spent inside buildings



source: http://evm.min-saude.pt/

The challenges of EPBD 2018

Clean Energy for all Europeans

Main objectives

- Putting energy efficiency first
- Global leadership in renewables
- Fair deal for consumers

GOVERNANCE OF THE ENERGY UNION AND CLIMATE ACTION

- ENERGY EFFICIENCY DIRECTIVE
- ENERGY PERFORMANCE OF BUILDINGS DIRECTIVE
- RENEWABLES DIRECTIVE
- DIRECTIVE AND REGULATION ON INTERNAL MARKET FOR ELETRICITY
- EU AGENCY FOR THE COOPERATION OF ENERGY REGULATORS
- RISK-PREPAREDNESS IN THE ELECTRICITY SECTOR

Energy Performance in Buildings Directive

What's new in the 2018 recast

01 Long-term strategies for the renovation of buildings, involving decarbonization by 2050 and "solid" financing

02 Charging infrastructure requirements for electric mobility

03 Requirements for building automation and control systems (BACS) and self-regulating devices for indoor temperature

04 Aptitude indicator for intelligent building technologies - *Smart Readiness Indicator (*SRI)

Energy Performance in Buildings Directive

What's new in the 2018 recast

05 Inspection of heating and air conditioning (and ventilation) systems

06 Registration and documentation of installation, replacement or updating of building technical systems

07 Financial measures to improve energy efficiency when renovating buildings depend on planned or achieved energy savings

08 Greater transparency in the methodologies for calculating the energy performance of buildings

Fonte ícones

01 Energy Performance in Buildings Directive

Long Term Renovation Strategy

Objectives:

- Convert the current buildings stock into a decarbonized and energy efficient stock
- Cost effective transformation of existing buildings into buildings with nearly zero energy needs

Intermediate targets for…

2030 → 2040 → 2050

Financing

- ✓ Project grouping
- ✓ Risk reduction for investors
- ✓ Public investment to stimulate the proven solutions or tackle gaps and deficiencies
- ✓ Investment guidance and one-stop shops

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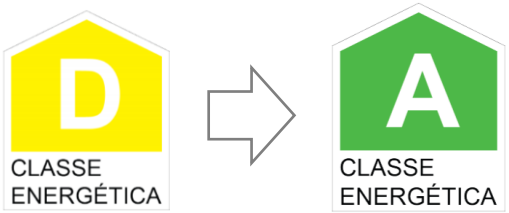
Energy Performance in Buildings Directive

Financial measures to improve energy efficiency linked to savings

Objectives:

- Make financial measures dependent on improving energy efficiency when renovating buildings, on planned or achieved energy savings



Criteria:

- Energy performance of equipment / materials used and installed by an installer with the appropriate level of certification or qualification
- Standard values for calculating energy savings
- Comparing the energy performance certificates issued before and after
- Results of an energy audit

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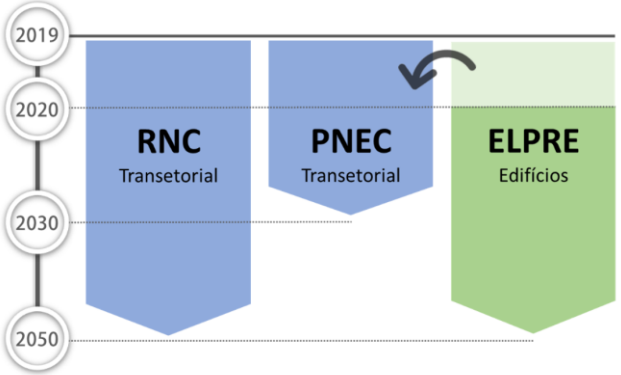
Long Term Renovation Strategy (ELPRE)

Long Term Renovation Strategy (ELPRE)

Strategic document for the energy rehabilitation of buildings

Objetive:

- 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

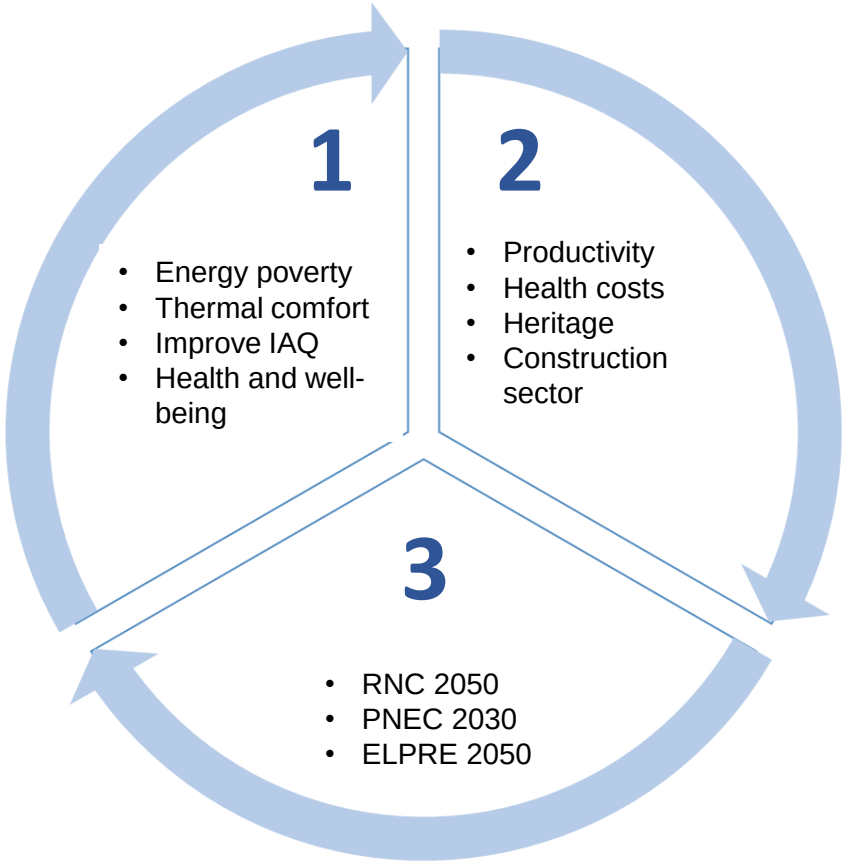
1 Improvement of living conditions for building occupants

2 Opportunity for economic growth

3 Compliance with environmental and energy targets

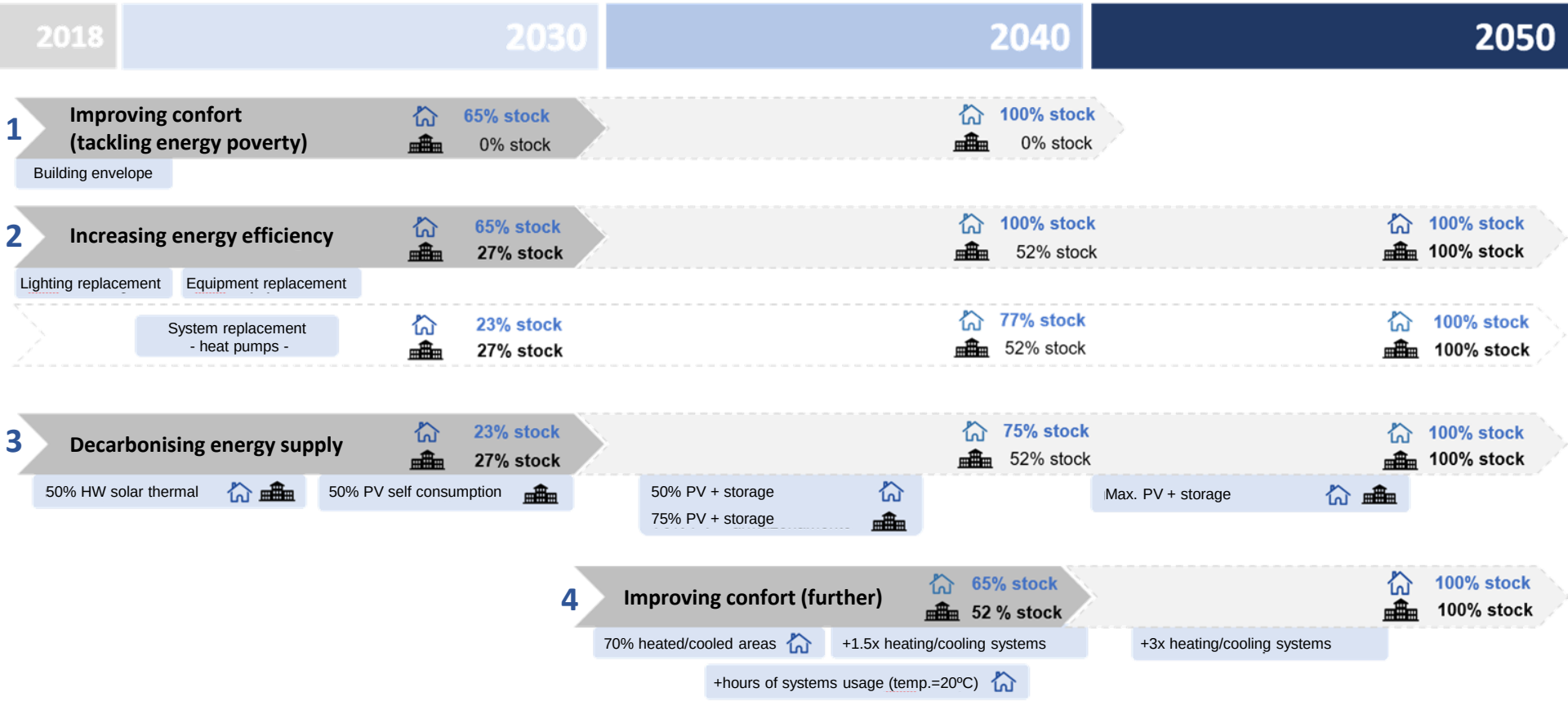
+

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)

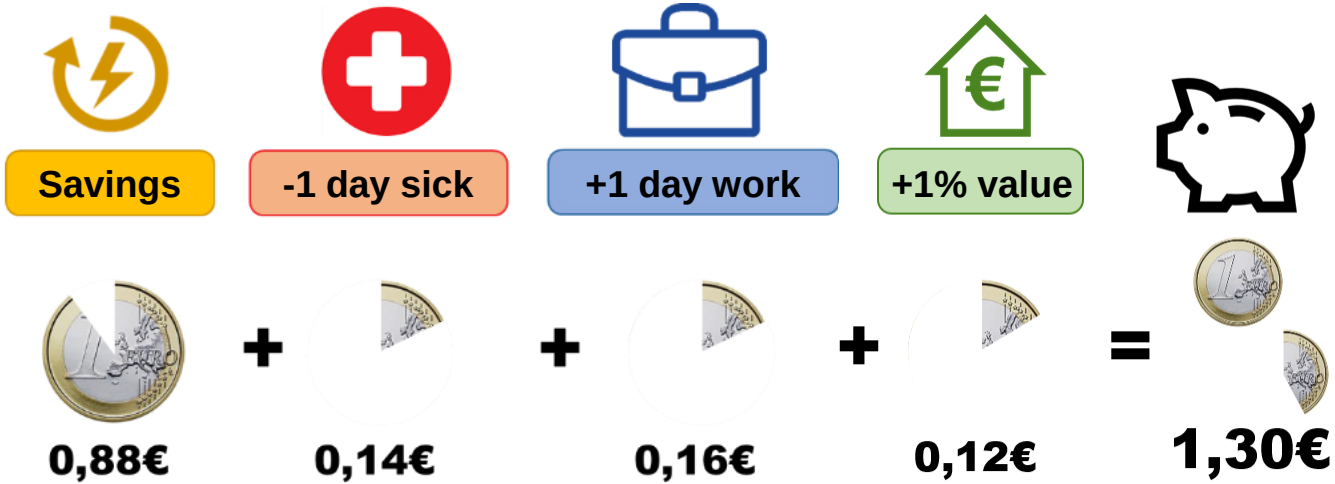
	Building envelope	*Lighting systems*	*Efficient systems*	*Solar thermal*	*PV with storage*	*+ systems and PV*	*Total*
Residencial [M€]	40.373	354	14.588	11.960	18.861	23.943	**110.078**
Não-Residencial [M€]	-	1.033	6.003	8.847	13.309	4.222	**33.414**
***Total* [M€]**	**40.373**	**1.387**	**20.591**	**20.807**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

≈ 20% mainly to tackle energy poverty

Long Term Renovation Strategy (ELPRE)

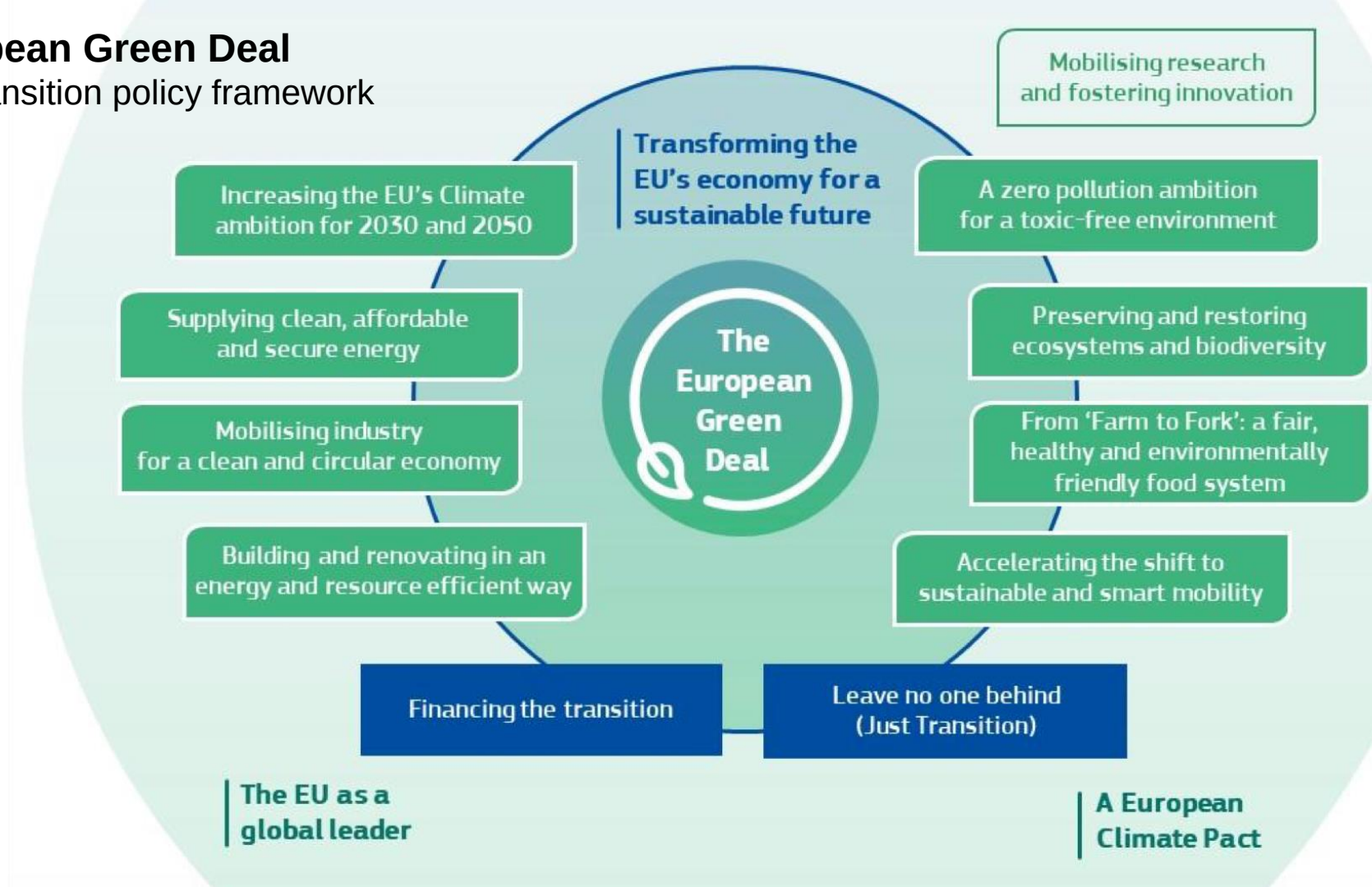
Potential benefits from investment in building renovation

For each
1€ investment
in renovation



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**

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Supporting deep renovations

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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

Objetive:

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:

4,5 M€ until the end of 2021

Resilience and Recovery Plan

Sustainable buildings programme

Resiliência | Transição Climática | Transição Digital | REP 2019 | 2020

	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	186
		Descarbonização da indústria, bioeconomia e economia circular	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 boradband 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	710
		Modernização do ensino profissional	716
		Formação ao longo da vida (reconversão e qualificação)	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.

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