EXPLORING ENERGY POVERTY AT MULTIPLE SCALES: POLICIES, RESEARCH AND ON THE GROUND ACTION

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Addressing energy poverty is like playing chess.

We need to consider all pieces, employ multiple strategies and see the whole board.

But unlike chess we have to play this “game” collaborative to win.
Millions of Europeans struggle with multiple dimensions of the problem of energy poverty – inadequate or in-existent space heating, cooling, and other energy services, structural and efficiency problems in their homes, and high energy bills.

It affects more the most vulnerable (e.g., elderly, children, disabled, migrants), creating problems of health, well-being, and social exclusion.

There is a need for multi-governance level and multisectoral approaches.

The need to address the problem and overcome the discrepancy between the EU/national/local level and between sectors.
Energy Poverty in Europe

There is a clear divide between North/Western countries and Southern/Eastern-Southern countries in the progress made in alleviating domestic energy poverty.

Inability to keep the house adequately warm

Arrears on Utility Bills

Each indicator captures a different aspect of the phenomenon. Recognize shortcomings and relevant data gaps both at national but mostly at local scale.
Energy Poverty – Multiple Indicators

**Climate, Winter and Summer Vulnerabilities** – problems of heating and cooling, extreme weather events


**Housing and Equipment Energy Efficiency** – Buildings energy performance, structural problems in housing - leaking roofs, damp walls, floors or foundation, or rot in window frames of floor; *type of fuels and equipment*

**Socio-Economic perspective and vulnerable groups** (elderly, tenants, migrants, unemployed, children)

**Health impacts**

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MULTIPLE SCALE OF ANALYSIS – FROM BUILDINGS TO A COUNTRY
Mapping the Energy Performance of the Building Stock

Building Typologies

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Mapping the Energy Performance of the Building Stock

Real case: 600 kWh per capita; Nominal case: 7415 kWh per capita; Conservative case: 1375 kWh per capita

**Heating Gap: Nominal case**
(24h/day & 100% area)

- 20% of spatial units with no gap.
- Average national heating gap reduced from 93% to 52%.

**Heating Gap: Conservative case**
(11h/day & 50% area)

**Cooling Gap: Nominal case**
(24h/day & 100% area)

- No cooling gaps are offset.
- Average national cooling gap reduced from 97% to 74%.

**Cooling Gap: Conservative case**
(10h/day & 38% area)

**Strict Scenario**
[5h/day & 25% area]

**Strict Scenario**
[5h/day & 19% area]


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ENERGY POVERTY VULNERABILITY INDEX

- In which buildings do they live?
- What are their energy needs?
- What is their energy consumption?
- What is their socio-economic background?
Energy Poverty In Portugal - Index tool development

**Climate Region**
(Heating degree days, outdoor temperature)

**Building Typologies**
(apartment/house, no. floors, construction year)

**Building Characteristics**
(walls, pavement, ceiling, glazing, ventilation, surface area)

**Other Indicators for Benchmarking**
(social tariff support, EU SILC In social housing)

**Energy Consumption** (per end use and region)

**Climatization Equipment** (levels of ownership, type, efficiency)

**Socio Economic Details**
(education level, average income, elderly and young people, conservation status of the building, tenure of the house, occupancy rate)

Energy Poverty Vulnerability Index

Energy Poverty In Portugal - Mapping Winter Vulnerability

- Most vulnerable regions to Cold: Região Autónoma da Madeira e Terras de Trás os Montes, Alto Tâmega.
OTHER USE CASES AND LINKS WITH CLIMATE CHANGE
Individual Measures Impact Assessment

Retrofitting Measures (e.g. roofs, wall insulation, windows)

Climatization Systems Replacement


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Digital One Stop Shop – Green Menu

https://www.menurenovacaoverde.pt

Descubra as possibilidades
- Medidas rápidas
- Isolamento e ventilação
- Produção de eletricidade e equipamentos de uso final
- Climatização e água quente
- Água e vegetação

Aconselhamento
Implementação
Financiamento
Notícias

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Geographical Scope: 3 Municipalities

Reproducible model of support and monitoring of vulnerable families to energy poverty, which integrates all phases of an intervention cycle with a view to the energy renovation of buildings:
- diagnosis of the specific needs of each family;
- identification of improvement measures;
- identification of funding opportunities and implementation agents;
- monitoring of the intervention,
- measurement of benefits,
- monitoring.

https://gulbenkian.pt/programas/programa-desenvolvimento-sustentavel/acao-climatica/ponto-de-transicao/

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INTEGRATION WITH NATIONAL AND LOCAL POLICIES AND PLANS
Supporting Regional Climate Change Adaptation Strategies

[2017-2018]

Vulnerability Index regarding Space Heating (Current Situation; RCP4.5 and RCP8.5)

[2018-2019]

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[2020 and 2021]

**Municipal Housing Chart of Lisbon** (Department of Urban Planning) and **Lisbon Climate Action Plan**

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“I’ve the fire always on, I only open the windows only when I cannot breathe anymore.”

“A lot of elderly people save on medicine to buy wood, since they do not have the strength to get it in the woods anymore.”
Thank You

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