ANALYSIS

Clemens Striebing, Sabine Loos and Jonas Breitfeld
June 2025

Energy poverty in Europe

Who are the losers in our energy system?

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Content

A day in the life of Claire

Northern France.
A winter's day.

Claire is 33 years old and lives with her four children, who are between four and 15 years old, in a rented flat in the countryside. She works part-time as a regular employee and describes her income, less than one thousand euros a month, as sufficient. Her everyday life is tightly scheduled – household, childcare, job. There is no support from a partner.

The flat is heated electrically during the cold months – for three months of the year. But Claire only switches on the radiator when there is no other option. Electricity is used for heating, cooking and even lighting. However, Claire usually uses candles for lighting. The electricity she uses in her household mainly comes from rechargeable batteries, she says. An electric cooker is used – but sparingly to conserve the few stored kilowatt-hours.

Claire has no chronic or mental illnesses. But the daily juggling of energy, money and responsibility is draining her. She has an intermediate school leaving certificate, which is enough for the labour market – but not for security. Despite her work and commitment, her income is not enough to guarantee the necessary energy supply at all times. Claire does not agree at all with the statement that she can afford the energy she needs. She states that her energy poverty affects her ability to receive visitors at home or use the internet. Claire does not believe that politicians are interested in her concerns.

Claire's case shows that energy poverty is not a marginalised phenomenon. It can even affect people who work and are physically healthy – when gaps in provision, burdens of responsibility and financial limits come together.

Claire's story is real. It is based on data from an online survey conducted by our research team at Fraunhofer IAO at the end of 2024. The name was made up. As this policy paper shows, single women with children in France, among others, are at a particularly high risk of falling into energy poverty. Claire is one of them.

Energy for everyone? Not a reality everywhere

The energy transition should be fair: Those who consume more energy and have access to alternatives should shoulder a greater share of the costs. Those with fewer resources should receive targeted support. This seems logical – but who exactly are the "vulnerable" in the energy system?

In the EU project gEneSys, we asked over 18,000 people from Germany, France, Poland, Portugal, Sweden and Italy:

> *Can you afford the energy you need for your household?*

The answers show: Energy poverty is not a marginal phenomenon. It affects certain groups systematically – and it differs from country to country.

In this fact sheet you will find out:

- → Those who answer *no* particularly often
- → The social patterns behind it
- → Whether there are differences between urban and rural areas and men and women
- → What this means for a fair energy policy

Who is particularly affected?

A comparison of selected EU countries

Energy poverty is not the same everywhere in Europe. A comparison of six selected EU countries shows clear differences in the extent of perceived energy poverty (see Figure 1).

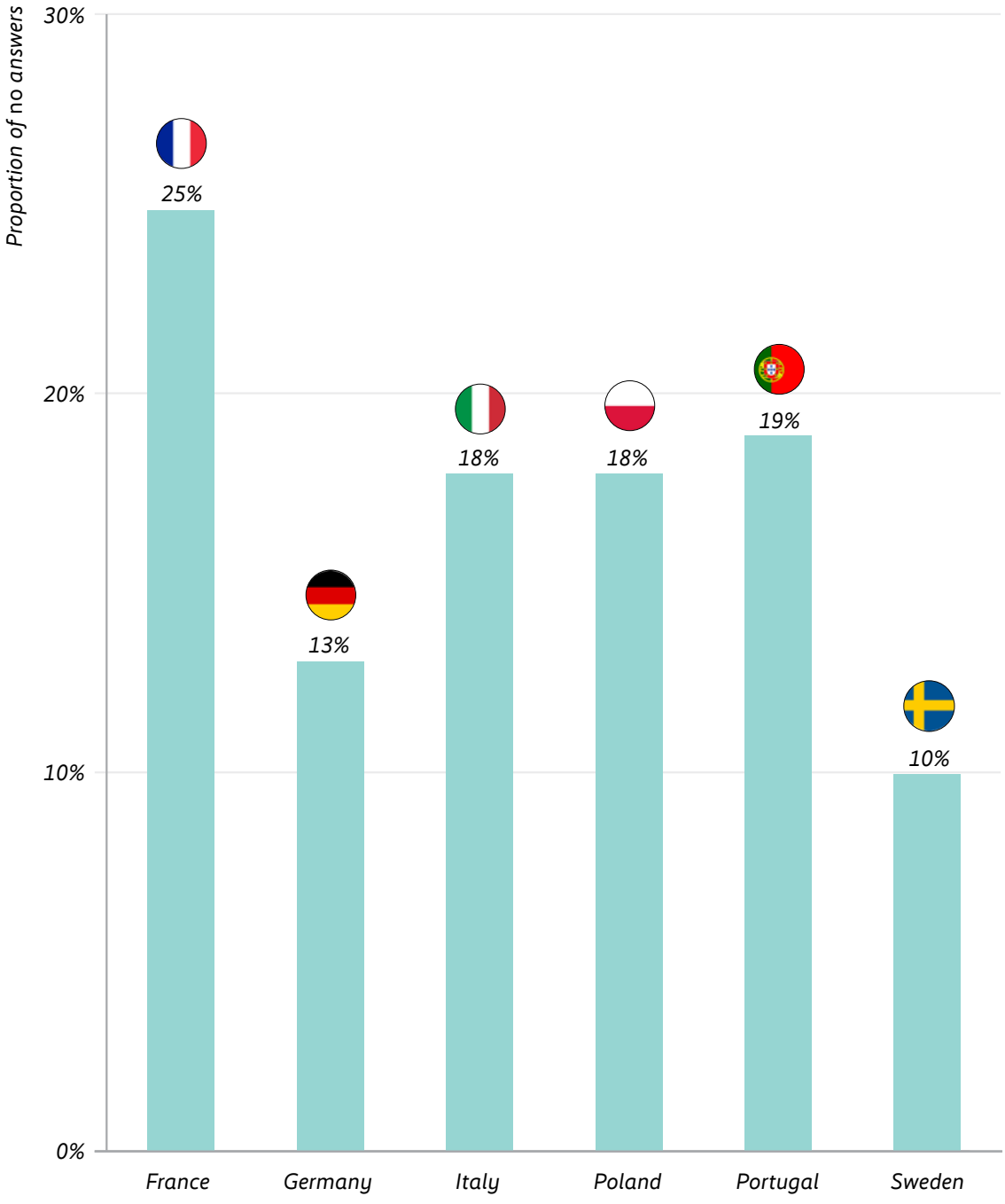
In France, approximately one in four households struggles to afford the energy needed for basic household needs, according to the survey. In Portugal, Poland, and Italy, about one in five households reports similar challenges. In Germany (around 12%) and Sweden (around 10%), the proportion is lower but still significant, with many households facing restrictions in accessing essential energy supplies.

These differences are more than just numbers: They point to structural differences in income, housing conditions and energy prices – and to the need for action for a truly equitable energy transition.

Country comparison

Figure 1

Proportion of households that cannot (or rather cannot) afford the energy they need



Note : Proportion of people who disagreed with the statement "I can financially afford the amount of energy and energy resources required to supply all areas of my household" (All responses from 1 to 3 on a scale of 1 to 7 were counted as 'No'.). Responses from 17,889 people. Representatively weighted.

Who is particularly at risk?

We used our data set to carry out country-specific machine learning analyses in order to better understand *who* is particularly often – and *who is* particularly rarely – affected by energy poverty. We tested the influence of gender and age, education level, relationship status and housing situation, urban or rural location, caring responsibilities, sexual orientation, religious affiliation, ethnic minority membership, physical and mental health, and chronic illness.

Figure 2 shows the groups affected in each country and indicates the proportion of people there who cannot afford the energy they need. These are exploratory analyses – they show patterns that go beyond traditional comparisons.

What stands out?

Across Europe, single mothers in France face some of the highest rates of energy poverty. In contrast, two groups experience particularly low rates: individuals living alone or in partnerships in urban areas of Sweden and married individuals with higher education in Germany.

What are the recurring patterns?

→ **Education counts.** Higher educational qualifications increase income opportunities – and thus reduce the risk of energy poverty.

→ **Health plays a role.** In Italy, Portugal and France, there are particularly clear correlations: people with physical or mental impairments are more frequently affected. In some cases, they have even higher energy requirements – for medical equipment or heating, for example – and in others they suffer more from the consequences of poor living conditions.

→ **Marriage protects – sometimes.** Partnerships can pool resources – this reduces the risk, even if the energy demand in larger households tends to be higher.

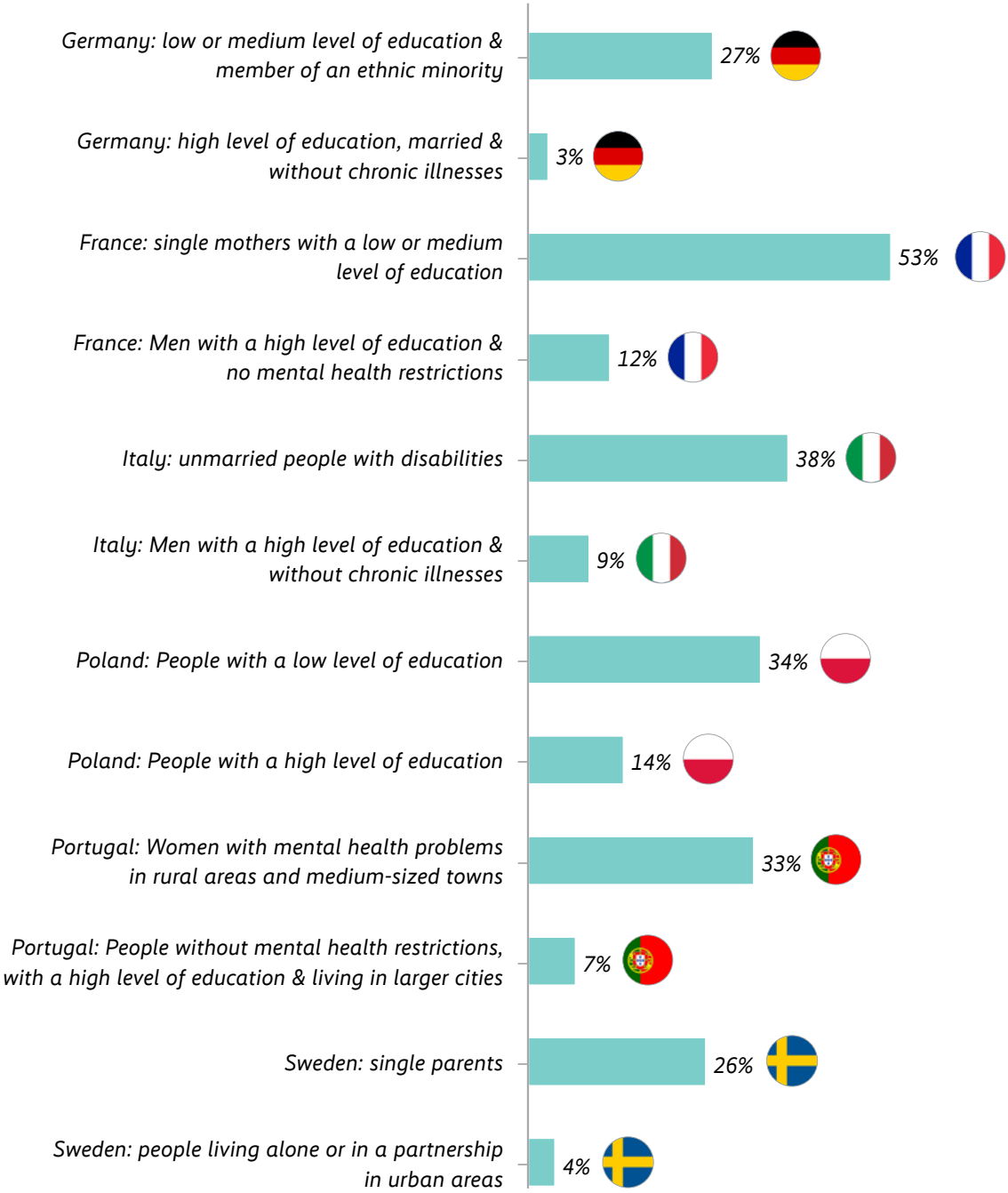
→ **Urban living has a relieving effect.** In urban areas, people obviously benefit from a more efficient energy infrastructure, among other things.

→ **Surprising: ethnicity in Germany.** People who classify themselves as belonging to an ethnic minority are significantly more likely to be energy poor in Germany. One possible interpretation: social affiliation influences opportunities in the labour market – and therefore also the energy supply in everyday life.

These results are not conclusive judgements, but they are valuable pointers. Anyone who wants to pursue a fair energy policy should be aware of these social patterns.

Figure 2

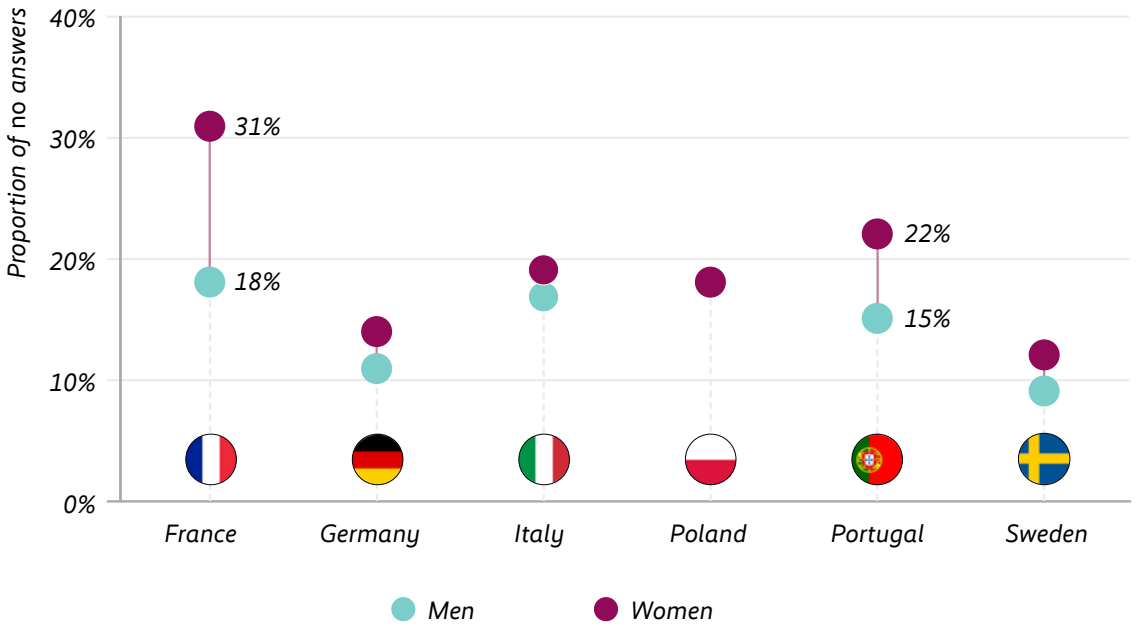
Proportion of households that cannot (or rather cannot) afford the energy they need



Note : Proportion of people who particularly often or particularly rarely disagreed with the statement 'I can afford the energy consumption and energy resources required to supply all areas of my household.' (All responses from 1 to 3 on a scale of 1 to 7 were counted as 'No'.). Selected results of country-by-country decision tree analyses.

Figure 3

Gender gap in energy poverty



Note : Proportion of respondents, broken down by gender, who particularly often or particularly rarely disagreed with the statement 'I can afford the energy consumption and energy resources required to supply all areas of my household.' (All responses from 1 to 3 on a scale of 1 to 7 were counted as 'No'.). Responses from 17,889 people. Representatively weighted.

Focus: How equitable are our energy systems in addressing the needs of men and women?

The observation that in France, single mothers with a low or medium level of education in particular are affected by energy poverty at an above-average rate raises a fundamental question: Do our energy systems discriminate – intentionally or unintentionally – on the basis of gender?

Studies suggest this conclusion. Women are considerably underrepresented in local energy initiatives and energy policy decision-making processes and at the same time have a higher risk of being affected by energy poverty. This is not least due to the fact that many indicators of energy poverty are based on income and property – and women on average have less of both. But what about the subjective perception of energy poverty – i.e. the feeling of simply not being able to afford the energy you need? This is exactly what we recorded in our survey.

Figure 3 shows the proportion of energy-poor households depending on the gender of the respondent. The gender gap is particularly clear in France and Portugal: according to our analyses, in both countries it is primarily women with a low or medium level of education and current or previous caring responsibilities who are at a higher risk of being affected by energy poverty. In other countries, however, there is no general correlation between gender and energy poverty – here the risk appears to be distributed more evenly regardless of gender.

Figure 4

Why does energy poverty tend to be higher in rural areas in the six countries analysed?

→ **Income**
Full-time employment and higher educational qualifications are more common in cities – this ensures more stable incomes.

→ **Health impairments**
More people with health impairments live in rural areas, which reduces their employment opportunities.

→ **Less energy efficiency**
Rural households tend to live in detached, less energy-efficient buildings and are more dependent on the car. Urban residents are more likely to benefit from passive heating and dense infrastructure.

Note : Key factors for the higher prevalence of energy poverty in rural areas. The factors were determined as part of a series of exploratory correlation and regression analyses.

Focus: How equitable are our energy systems in addressing the needs of urban versus rural areas?

Our survey shows that people in rural areas are more frequently affected by energy poverty. This is actually the case in all six surveyed countries: in **urban areas, 14%** of people state that they are affected by energy poverty. In **rural areas**, the figure is **22%**. What is the reason for this? Is it the energy infrastructure in rural areas that is less developed? Or is it simply that fewer wealthy people tend to live in rural areas because incomes and the cost of living are lower?

Our data suggests that a significant part of the urban-rural divide in energy poverty can be explained by a combination of several risk factors – such as education level, household type, health status or supply infrastructure. Figure 4 provides an initial impression of this. However, further analyses would be necessary for a reliable assessment of the correlations.

What the patterns behind energy poverty mean for a just energy transition

Whether facing health challenges, single parenthood, or low level of education, vulnerable groups in Europe experience energy poverty more acutely due to systemic barriers. Energy poverty rarely comes alone, but exacerbates existing insecurities: It makes people ill, lonely, and turns their home into a stress factor. It is possible to analyse exactly who is affected – for example with the help of combined data such as the one collected in our survey as part of the gEneSys project.

Policymakers can and should use this data to visualise who is falling through the cracks – and

to develop specific, targeted measures. However, intersectional energy poverty is not just a question of distribution. A comprehensive approach is therefore required: economic measures, such as targeted support programmes or tariff relief, must be combined with strategies that actively involve marginalised groups and strengthen their prospects.

A fair energy policy takes into account how energy is distributed, who has a say in it and whose needs are considered important and how:

1. Who gets what – and why?

→ **Targeted support programmes for particularly affected groups:** Expanding subsidies based on income and housing conditions to address current energy costs

→ **Socially just building refurbishment:** targeted subsidies for energy modernisation in rented flats to reduce the financial burden for tenants.

→ **Introduction and expansion of social tariffs:** Reduced tariffs for electricity and heat to ensure a basic supply for low-income households – and to enable social participation.

2. Who has a say – and how are decisions made?

→ **Participation of marginalised groups:** Establishment of local energy councils with the participation of socially disadvantaged groups.

→ **Establishment of outreach energy advice programmes:** Local teams of energy advisors proactively visit vulnerable communities to provide accessible, multilingual guidance on reducing energy costs and improving efficiency.

3. Whose needs and perspectives are recognised?

→ **Culturally sensitive communication:** Development of communication campaigns that reach linguistically, culturally and visually marginalised groups.

→ **Consideration of special circumstances:** People with chronic illnesses or disabilities may have special energy needs – for example, due to the operation of medical devices, higher heating requirements or limited mobility. These needs must be explicitly taken into account in the design of subsidies and social tariffs.

Energy poverty is a complex, multidimensional issue driven by social, health, economic, and infrastructural factors. It cannot be tackled with general measures, but requires targeted responses where the burden is the greatest. Anyone who wants to shape the energy transition fairly must recognise this: Energy poverty does not occur by chance, but follows specific social patterns. Making these visible – and addressing them politically – is the first step towards a truly inclusive energy policy.

Info 1

The recommendations for action are based in particular on the following working papers:

→ Öko-Institut. (2023). Targeted measures for vulnerable households – Improving the effectiveness of energy efficiency policies in the context of the energy crisis.

→ Odyssee-Mure Project. (2023). Energy poverty: Best practices to support vulnerable groups.

→ Schumacher, K., Noka, V., & Cludius, J. (2025). Identifying and supporting vulnerable households in light of rising fossil energy costs. German Environment Agency (UBA).

Info 2

Want to find out more?

In our gEneSys project report, we carried out extensive analyses on participation in the energy system as consumers, voters and prosumers in the EU and sub-Saharan Africa.

How was the study conducted?

30,000 people in ten countries were surveyed – structural patterns of energy poverty and energy participation were visualised using machine learning methods such as decision trees and random forests. Socio-demographic data was combined with technical energy issues in order to better understand intersectional inequalities.

In the report, we explain the methodology of our study in detail.

If you have any questions, please do not hesitate to contact us:

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gEneSys

Energy poverty in Europe

How fair is Europe‘s energy system? In France, every second single mother with a medium or low level of education struggles to pay her next heating bill. In Portugal and Italy, people with health impairments in particular are disproportionately affected by energy poverty? Based on a large-scale survey in six EU countries, this policy paper highlights consistent patterns of inequality, examines the social, health and spatial patterns of energy poverty, and invites you to explore actionable strategies for a just energy transition.

Further information on the topic can be found here:
↗ **fes.de**

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