

POLICY FICHE FOR ALLEVIATING ENERGY POVERTY IN THE PRIVATE RENTED SECTOR

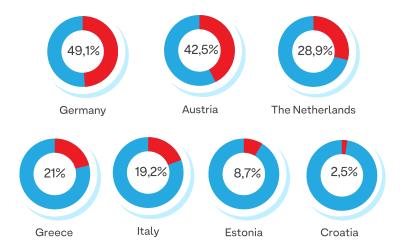
Germany



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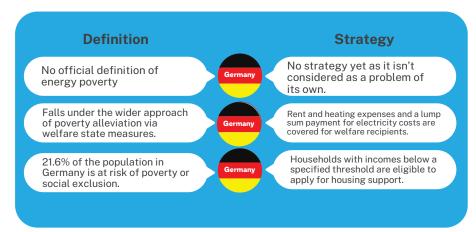
The Rental Sector in the Population (2022)

Source: Energy Poverty Dashboard

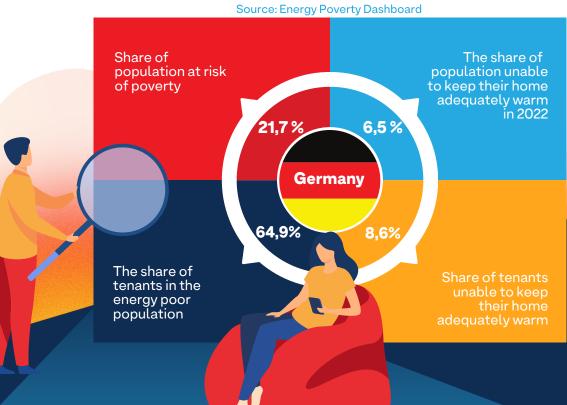


Current Energy Poverty Definition and Strategy

Source: **ENPOR** Policy Fiches



Housing and Energy Poverty in Figures



Policy fiche **Germany**



Policy background

Context within the residential sector

Germany's residential sector is dominated by single- or two-family houses that account for 82.12 % of all residential buildings. With regard to the ownership of the dwellings, more than half (54%) are rented by private tenants¹, well below the EU average. Out of the 43.4 million dwellings, only a small share of 1.09 million is in social housing².

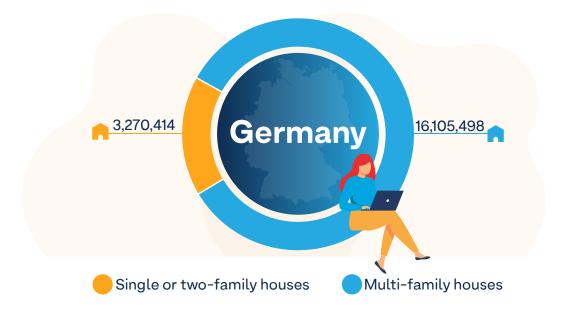


Figure 1: Share of single and two family and multi-family houses in Germany. Source: Dena Building Report 2022

 $^{^{1}\}underline{\text{https://www.dena.de/fileadmin/dena/Publikationen/PDFs/2019/dena-GEBAEUDEREPORT_KOMPAKT_2019.pdf}$

² https://dserver.bundestag.de/btd/20/083/2008369.pdf



Despite an overall increase of the per capita floor area, there has been a reduction of the energy intensity. The calculated final energy intensity for 2020 for residential buildings amounts to 156.4 kWh/m²/a as compared to 204.9 kWh/m²/a in 2010.³ This can be attributed to improvements in the building insulation as well as to improved energy efficiency of heating systems. However, due to the predominantly central heating systems in Germany and the heating-dominated climate (3,500 to 4,000 heating degree days, 10 to 50 cooling degree days including zero dehumidification needs), a large share of the overall energy used in buildings is for heating.⁴

While the total amount of energy used for heating (and cooling) largely depends on the level of building renovation, a clear definition of a renovation rate is missing due to diverse factors that are considered (e.g., heating system replacement, façade insulation, window replacement) that are ranging from 0.3-3.5%. On average it can be said that the renovation rate is stagnating at around 1% per year.

As a consequence of low energy efficiency renovation rates in the past, a high percentage of dwellings (60%) falls into the four worst-performing energy classes E to H of the Energy Performance Certificate (ECP). For single- and two-family homes, it is even almost 70%, and 24% in the worst energy class H. Only 7% achieved an A or A+ rating, which is the best-performing class; these are mostly new buildings from the last 20 years.⁷

In correspondence with the rising demand for housing in Germany, rent levels are continuously increasing, leading to a considerable increase in the associated burden on residents: In 2021, 10.7 % of German households spent more than 40% of their monthly disposable income on rent alone, (with an average rent burden share of around 27.6% from the disposable income).8 To support those that cannot afford their rents, housing benefits are paid to people with lower income, among which the largest groups account for pensioners at 48% and employees at 37%.

Even prior to the Russian attack on Ukraine, the German energy prices have been rising similar to other European countries. In addition to factors such as commodity prices on the international market, domestic production and supply conditions, the introduction of the CO₂-pricing in 2021 on oil and gas heating further pushed the energy prices; however, while the electricity prices in Germany are high in comparison to other EU member states, the gas price is considerably low.

³Based on not-weather-adjusted data.

⁴https://gjetc.org/wp-content/uploads/2023/06/GJETC-Buildings-Study_2023.pdf

⁵https://www.iwu.de/fileadmin/publikationen/gebaeudebestand/2018_IWU_CischinskyEtDiefenbach_Datenerhebung-Wohngeb%C3%A4udebestand-2016.pdf

⁶ https://asue.de/aktuelles_presse/sanierungsrate_im_klimawandel_2021

https://gjetc.org/wp-content/uploads/2023/06/GJETC-Buildings-Study_2023.pdf

⁸ https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/08/PD22_N054_61.html



Energy poverty definition and strategy

The German Federal Government does not consider energy poverty as a problem of its own but rather treats it within its wider approach of poverty alleviation via welfare state measures. Accordingly, neither an official energy poverty definition nor an explicit strategy to address energy poverty exist to date. Rents, heating expenses and partly – based on a lump sum – the electricity costs are covered for welfare recipients. In addition, households with incomes below a specified threshold are eligible to apply for housing support.

According to EUROSTAT, up to 21.6% of the population in Germany is at risk of poverty or social exclusion. In 2021, 3.3% of the German population (around 2.8 million persons) was unable to keep their home adequately warm (EPD, 2023). Among tenants, the share was at 4.6%, i.e., 1.3 percentage points higher than in the overall population. Furthermore, the share of tenants in the energy poor population was considerably high (65.8%), which underlines the relevance of the rental sector for tackling energy poverty.

Policy Framework for the Integration of Tenant Protection

In addition to the above-mentioned provision of welfare and housing benefits, the German state supports tenants with the following measures:

- Heating allowances granted annually to those eligible for housing benefits ranging from 96
 € (single household) to 196€ (five-person household).
- The introduction of the so-called "Mietpreisbremse" (renting price break) by the German federal government in 2015 was intended to curb excessive rent increases to help tenants manage their expenses, not only for rent, but also for other essentials such as energy costs.
- Following the price hikes that were partly induced by the Russian war in Ukraine, the German government agreed to set a cap on the prices for gas and electricity for 80% of the average consumption of each household based on the consumption of the previous year.

Regarding more general measures tackling the energy consumption and the climate change issues, the most relevant for energy poverty in the PRS are:

 Buildings Energy Act is the main instrument for regulating the consumption of energy in buildings. It sets minimum requirements for the energy performance of the building shell and the system technology for new buildings, and also for larger renovations of existing buildings.



- Federal Funding for energy-efficient buildings programme (BEG) offers financial support for renovation measures resulting in a reduced energy consumption of the buildings. It is divided into three categories:
 - a) providing funding for residential buildings (BEG WG),
 - b) non-residential buildings (BEG, WG), and
 - c) single-measures (BEG EM). They offer either investment grants or low-interest loans with redemption subsidies.
- In addition to the BEG the Individual Renovation Plan (IRP) provides a tool that informs about various possible renovation measures in the short-term and long-term perspective and how to implement them to avoid technical and financial lock-ins.
- Federal Funding for efficient heating-networks offers financial incentives for heating network operators to invest in new heating networks while also converting existing networks to a heating system based on renewable energy and waste heat.
- Municipal Heating Planning provides information on existing heating grid and thus functions as guidance to building owners and energy suppliers concerning the question whether district heating can be used or individual heating is necessary. In turn, the rate of replaced individual heating systems can be reduced.
- Starting in January 2021, the use of fossil fuels is charged with a **CO₂-price** per ton CO₂eq that is gradually increasing until 2027. For tenants the costs are partly covered by the landlords, the share of which is depending on the energy performance of the building. To reduce the burden on households the German government is planning to refund the generated income via a lump-sum payment. However, while the CO₂-pricing is already in place, this compensation instrument is still pending, with an implementation expected not before 2025.

Specific challenges/barriers for addressing energy poverty in the PRS beyond the split incentives

The German residential sector is highly fragmented, with only a third of dwellings being owned by professional owners (see graph below). In turn, there is a large number of "small" private landlords as well as owner communities, which makes political action to promote the renovation of the residential building stock a demanding task due to the diversity of constellations as well as distributed decision-making powers.

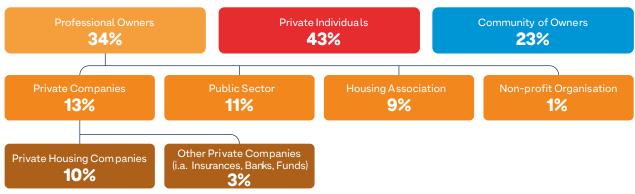


Figure 2: Ownership structure in the German residential sector.

Source: Savills Research 2019



Description of the ENPOR policy

In the project, there were two measures that were further developed: the Electricity Saving Check and the pre-paid metering app by EnergieRevolte, which are further described in the following.

In cooperation with the Federal Association of Energy and Climate Protection Agencies in Germany, the charitable organization Caritas introduced the "StromSparCheck" (Energy Saving Check), where in currently 150 locations throughout Germany long-term unemployed people are trained to provide energy-saving advice and low-cost technical devices free of charge to welfare recipients and low-income households. The target group is not further specified beyond that, thus not explicitly targeting energy poor (tenant) households or addressing gender related inequalities. However, with the advised measures largely focusing on small technical fixes in the dwellings and behavioural adaptations, the offer mostly addresses the situation of tenants (which also make up the vast majority of recipients). While the project started off aiming to reduce the electricity consumption of these households as they were directly benefiting from the resulting cost savings, it was extended later to also include activities to reduce the heating consumption. Public relations and advertising of the services involve local job centres and various other municipal and civil society organizations to reach the relevant target groups.





The second measure is the pre-paid metering app by EnergieRevolte, which is a subsidiary of Stadtwerke Düren, a municipal utility in the West-German state of North Rhine Westphalia. Their customers are offered an innovative model of prepaid metering and a free switch from their existing electricity provider to a digital prepaid meter that can be monitored by customers and charged just-in-time via a smartphone app or online interface. This allows them to better control their electricity consumption and electricity bills. The app allows the tracking and visualization of customers' electricity consumption in 15-minute intervals. Currently, about 2,600 customers are using the app, not only in North Rhine Westphalia but also in other areas such as Berlin and Frankfurt, including a high proportion of low-income and energy poor households.

The co-creation process in the REACT group of the StromSparCheck helped to identify and develop novel approaches to engage households with a view to energy efficient heating and ventilation and thus increasing the effectiveness of the heating advice. As a result, more emphasis was put on comfort and to some extent health benefits within the communication and to support and strengthen the consulting contents. Visual aids, including elements of self-experimentation to convey advice on efficient/healthy heating and ventilation were developed. One important tool to raise the awareness of the tenants is the thermohydrometer (i.e., a tool that measures and displays both temperature and relative humidity) that is distributed upon the first visit of the advisors. Households are then asked to experiment with different ventilation techniques and document the indoor climate parameters (i.e., relative humidity and temperature levels) before and after airing in a corresponding diagram, in which the optimal combinations of the two parameters from a health perspective are visually highlighted as a green area and unhealthy combinations (e.g., high relative humidity and low temperatures) as red.



Reading and marking values that are moving from red to green supports the households' comprehension of the thermohydrometer and visualizes the impact of different ventilation techniques. In addition, households were provided a leaflet with visual recommendations for efficient ventilation in the heating period, a window sticker, which displays advised ventilation frequency and duration during the four seasons, and a radiator hanger with information on temperature levels associated with the different thermostat settings.

As concerns the pre-paid model, the app has been further developed through the co-creation process to provide additional utility to customers in terms of improving knowledge transfer about drivers and possible means to reduce unnecessary electricity consumption. In doing so, a close exchange with the target group (i.e., the app users) has been achieved by implementing regular feedback loops within the co-design process and the following evaluation. Eventually, the following improvements were implemented. To improve the transparency for users with view to their electricity consumption and costs, the yearly consumption curve in the consumption display was amended with an additional line reflecting the user's consumption of the previous year. In addition, users are shown the absolute and relative difference in kWh and percent. With view to the provision of additional information related to electricity conservation in the app, a new website was bilaterally developed by Wuppertal Institute and EnergieRevolte to which the link is included in the app. The overall concept was drafted by Wuppertal Institute, which also researched and provided the information content, signed off by the REACT group and then refined and implemented by EnergieRevolte. On this website called "Energy Saving World", users can find both written information and embedded video content on:



- 1) how to efficiently use different appliances, clustered by room type in which they are usually located/used.
- 2) how energy labels work and how to use the information for decision making.
- 3) how to use the app and its functions to identify power guzzlers in the household.
- 4) links to external free energy advice offers, both digital and in person, as well as to state support services related to debt counselling and energy cost support.

Regarding the outcomes of the two measures, an evaluation of energy bills of advised households through the StromSparCheck showed average energy cost savings of 200 €/ household and year (however not differentiated between heat and electricity savings). Nevertheless, since heating costs are fully covered by the state, cost savings can only be achieved in relation to electricity anyway.

Furthermore, in a survey among advice recipients, a fifth of those that have used the material properly, stated that they would shift to a more effective/energy efficient ventilation behaviour. Furthermore, reported heat settings were largely low or moderate and 71% of respondents stated that they have experienced comfort gains due to the advice.

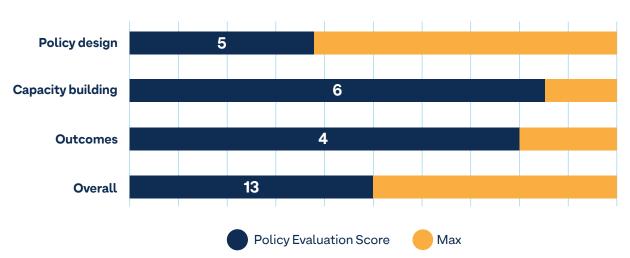


Regarding the prepaid app, an evaluation of actual electricity savings is complicated since customers top up their budget by changing frequencies, which makes it difficult to identify patterns and relate these to the novel functions. However, in a survey among customers, 3 out of 4 estimated their cost savings from switching to the app as medium to very high. Furthermore, more than half of the respondents stated that the app helped them to better understand the energy demand of different applications/appliances in their household and almost all (97%) would recommend the app to friends.



Evaluation of the policy against the KPIs

StromSparCheck



Area	Score	Comments
Policy design	5/13	 The policy was designed with a wide range of sta- keholders, including tenants and property owners (and/or representatives of these groups), as well as other relevant organizations across the PRS, such as municipalities, local job centres and civil society.
		 The policy is integrated and linked with existing social welfare policies defining income thresholds and wel- fare recipient status.
		The policy includes PRS tenants as beneficiaries but does not explicitly target energy poor renters.
		 This policy does not work to address the split incentive, as the measures promoted are not structural or requiring renovations, but rather behavioural ones aimed at tenants.
		 As Germany does not have an official definition of energy poverty, the policy is not integrated with, or derived from national or overarching energy poverty strategies, objectives, targets or definitions.

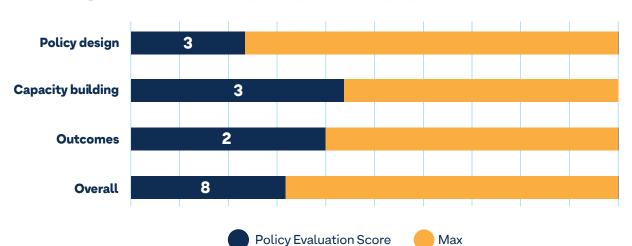


Area	Score	Comments
Capacity building	6/7	 This policy scores highly in the capacity building category. It was successful at promoting new links and knowledge exchange between existing organizations at the local level, increasing skills with regards to addressing energy poverty in the PRS.
		 New data was generated via the collection of data on energy consumption, socio-demographics as well as heating and ventilation behaviour of households.
		 Through the REACT group mechanism, stakeholders gained useful knowledge related to energy poverty in the PRS.
		 No new/increased funding and resources available to stakeholders working in the PRS was reported within this policy.
Outcomes	4/5	 This policy scores highly in the outcomes category. Follow-up surveys found that the policy had improved understanding of energy conservation options, improved thermal comfort, reduced energy consumption and achieved cost savings on energy bills amongst energy poor tenants.
		 However, longer term monitoring of whether households continue to implement those measures, and if tangible energy bill savings are achieved will be needed to assess the long-term effectiveness of the energy advice given.
		 As the policy targeted small energy efficiency measures and behaviour change, structural retrofit to improve energy efficiency of dwellings themselves was not within the scope of the policy and thus is unchanged.
		 It is worth noting that disaggregation of data on whether the tenants reached were in the PRS or social renters has not yet been calculated and thus the above scores as with regards to the PRS specifically may not be the same.
Overall	15/25	



Evaluation of the policy against the KPIs

EnergieRevolte prepaid app



Area	Score	Comments
Policy 3/13 design	3/13	 The measure was designed with input from different stakeholders, including tenants, as well as consumer associations, academia and NGOs working in the energy field.
		 The measure includes PRS tenants as beneficiaries but does not explicitly target energy poor renters.
		 This measure does not address the split incentive, as the measures promoted are not structural or requiring renovations, but rather behavioural ones.
		 As the measure has been developed by a public utility subsidiary, it is not integrated with, or derived from national or overarching energy poverty strategies, objectives, targets or definitions.

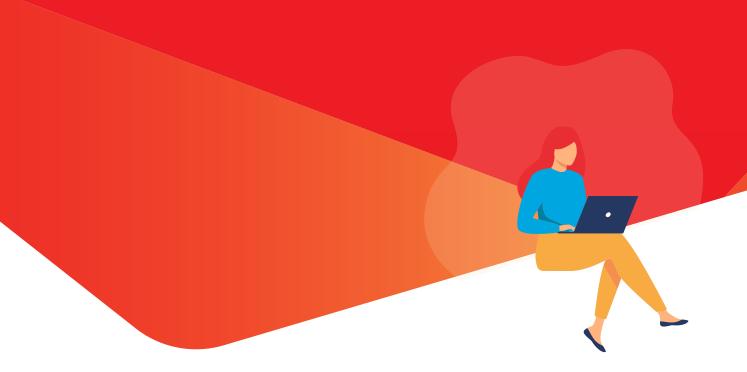


Area	Score	Comments
Capacity building	3/7	 This measure contributes to the integration of services available to energy poor tenants via the embedding of links to external support offers from the state and other stakeholders, thus creating new communication channels. New data was generated via the collection of data in a customer survey on user behaviour, sociodemographics and knowledge transfer as well as estimated electricity cost savings and shared with REACT group members. No new/increased funding and resources available to stakeholders working in the PRS was reported within this policy.
Outcomes	2/5	 Due to its nature, the measure does not score highly in the outcomes category. However, surveys found that the measure is well received by its users for its transparency and facilitation of cost control. Users reported an improved understanding of the energy demand of specific domestic energy applications. There is no information though whether this has enabled increased consumption of energy services.
		 As the measure targeted behaviour change, structural retrofit to improve energy efficiency of dwellings themselves was not within the scope of the measure and thus is unchanged.
Overall	8/25	



Conclusion and further recommendations

The evaluated measures demonstrate a comprehensive approach to stakeholder involvement, encompassing tenants, property owners, and various relevant organizations within the private rental sector. However, both measures fall short of explicitly targeting energy-poor tenants and addressing the split incentive challenge, as they primarily focus on behavioural measures rather than structural renovations. The lack of a national energy poverty definition and integration into overarching strategies is a notable limitation to better link different activities aiming to support energy poor tenants. Nevertheless, the StromSparCheck shows strengths in terms of capacity building, fostering knowledge exchange and both measures help to generate valuable data on energy consumption and household behaviour. Both measures have also shown positive outcomes, including improved understanding of energy efficient heating and ventilation and energy demand of specific applications, enhanced thermal comfort, and reduced energy costs. There have been evident (partly self-assessed) cost savings for energy-poor tenants (even if these primarily concern electricity and cannot be traced to the ENPOR project). To further enhance its effectiveness, the measures should be amended with targeted initiatives to promote structural retrofitting in the PRS, aligning with national energy poverty strategies and regulations, and conducting long-term monitoring of outcomes and implementation.





Overview of KPI assessment

Indicator	Specification / Operationalisation	Yes/No
Does the policy allow tenants in the PRS to participate/benefit?	-	Yes
Does the policy explicitly target the PRS?	-	No
Does the policy explicitly target energy poor households in the PRS?	-	No
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners	Yes
	Yes, from (representatives of) residents	Yes
	Yes, from other relevant stakeholders	Yes
Is the policy part of wider legislative, regulatory and/or programmatic	Is it implemented by more than one agency?	No
commitments to address energy poverty?	Has it been publicly challenged?	No
	Does it refer to other policies and/or legal acts?	Yes
	Is the policy documented as an element of an overarching energy poverty strategy?	No
Does the policy explicitly address the split incentives issue?	-	No
Are the policy's target groups specified with view to criteria derived from an official energy poverty definition?	-	No
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.	No

Table 1: Overview of policy evaluation in terms of policy design – Germany (StromSparCheck)





Indicator	Specification / Operationalisation	Yes/No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?	Yes
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants,) in state organisations to better address energy poverty in the PRS?	Yes
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?	Yes
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?	Yes
Does the policy help improve energy poverty alleviation-related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events	Yes
Does the policy help improve energy poverty alleviation- related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders	Yes
Does the policy help improve energy poverty alleviation—related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings	● No

 Table 2: Overview of policy evaluation in terms of capacity building – Germany (StromSparCheck)



Indicator	Specification / Operationalisation	Yes/No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Yes
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	Yes
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	Yes
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	No
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Yes

Table 3: Overview of policy evaluation in terms of outcomes – Germany (StromSparCheck)



Indicator	Specification / Operationalisation	Yes/No
Does the policy allow tenants in the PRS to participate/benefit?	-	Yes
Does the policy explicitly target the PRS?	-	No
Does the policy explicitly target energy poor households in the PRS?	-	● No
Has the design of the policy been informed by input from the PRS?	Yes, from (representatives of) owners,	No
	Yes, from (representatives of) residents,	Yes
	Yes, from other relevant stakeholders	Yes
Is the policy part of wider legislative, regulatory and/or programmatic commitments to address energy poverty?	Is it implemented by more than one agency?	● No
	Has it been publicly challenged?	No
	Does it refer to other policies and/or legal acts?	No
	Is the policy documented as an element of an overarching energy poverty strategy?	● No
Does the policy explicitly address the split incentives issue?	-	● No
Are the policy's target groups specified with view to criteria derived from an official energy poverty definition?	-	No
Is the policy underpinned by clear mechanisms to identify energy poor households in the PRS?	I.e., there is a distinct procedure/process on how to identify an energy poor household applying specified criteria.	● No

Table 4: Overview of policy evaluation in terms of policy design – Germany (EnergieRevolte prepaid app)



Indicator	Specification / Operationalisation	Yes/No
Does the policy help improve decision-making capacity (in terms of skills, co-operation and/or resources) by state organisations at the national or local level to address energy poverty in the PRS?	Does the policy promote the formation of new co-operations between state organisations and relevant stakeholders to better address energy poverty in the PRS?	No
	Does the policy help improve relevant skills (e.g., with view to the administration of support programmes, the identification of and outreach to energy poor tenants,) in state organisations to better address energy poverty in the PRS?	No
	Does the policy generate new insights/data to inform the implementation of energy poverty policies/programmes targeting the PRS?	Yes
Does the policy help improve wider policy making (in terms of existing or future programme implementation) by state organisations at the national or local level, working on energy poverty alleviation?	E.g., does it generate new insights/data to inform the design of energy poverty policies/programmes?	Yes
Does the policy help improve energy poverty alleviation - related knowledge and skills to address energy poverty among stakeholders relevant to the PRS?	Based on survey results from REACT group participants / capacity building events	● No
Does the policy help improve energy poverty alleviation - related communication and collaboration opportunities among stakeholders relevant to the PRS?	E.g., does it establish virtual or physical fora dedicated to promoting exchange / collaboration between stakeholders	Yes
Does the policy help improve energy poverty alleviation – related resources (financial or otherwise) available to stakeholders working in the PRS?	E.g., via funding for energy efficiency renovations of dwellings	No

Table 5: Overview of policy evaluation in terms of capacity building – Germany (StromSparCheck)



Indicator	Specification / Operationalisation	Yes/No
Has the policy reached energy poor tenants in the PRS?	Based on output/monitoring data/estimates	Yes
Is there evidence to suggest that the policy has led to a decrease in energy poverty prevalence in terms of improved thermal comfort among vulnerable groups?	Based on output/monitoring data/estimates	● No
Is there evidence to suggest that the policy has enabled energy poor households to increase their consumption of energy services to fulfil their basic needs?	Based on output/monitoring data/estimates	No
Is there evidence to suggest that the policy has led to improved energy efficiency in dwellings occupied by energy poor tenants?	Based on output/monitoring data/estimates	No
Is there evidence to suggest that the policy has led to improved understanding of energy bills and conservation options among energy poor households?	Based on output/monitoring data/estimates	Yes

Table 6: Overview of policy evaluation in terms of outcomes – Germany (EnergieRevolte prepaid app)



Partners

























Authors

Florin Vondung, Lotte Nawothnig (Wuppertal Institute)
Manon Burbidge, Stefan Bouzarovski (UoM)
Altan Sahin, Kerstin Schilcher (AEA)
Christos Tourkolias (CRES)
Anamari Majdandzic (DOOR)
Nanda Vrielink, Lenneke Kok (HU)
Annika Urbas (TREA)
Edoardo Pandolfi, Anna Amato (ENEA)

Design

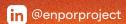
Luca Signorini (Distudio)

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