

ENERGY TRANSITION: EVERYBODY IS AFFECTED
SO **EVERYBODY SHOULD BE HEARD!**



REPORT

Fair Energy Transition for All Final recommendations

Results of dialogs about energy transition with
vulnerable citizens and experts

National Report of Germany - October 2022

www.fair-energy-transition.eu

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This national report is part of the project “Fair Energy Transition for All (FETA)”. FETA is based on Focus Group research conducted in nine countries in Europe - Belgium, Bulgaria, Denmark, Germany, Spain, France, Italy, the Netherlands, and Poland. FETA is supported by a consortium of Foundations composed of the Fondazione Cariplo, the Deutsche Bundesstiftung Umwelt, the IKEA Foundation, the King Baudouin Foundation, Stiftung Mercator, the Network of European Foundations and the Open Society Foundations. The project is spearheaded by the King Baudouin Foundation and operationalized by ifok, Climate Outreach, the European Policy Centre, and facilitators and policy experts in participating countries. National partners in FETA are Atanor and Levuur, ENEFFECT, Danish Board of Technology (DBT), ifok, Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci, Berenschot and the University of Groningen, Missions Publiques, Polish Foundation for Energy Efficiency (FEWE), Instituto Sindical de Trabajo, Ambiente y Salud (ISTAS).

If you are interested in a synthesis publication of all countries and further information on the project and the methodology please check FETA's website: <https://fair-energy-transition.eu/what-vulnerable-people-have-to-say/>.

Suggested Citation: Hoffmann J.; Schneller A. Kluge C.; Piras C.; Steinberg C. and Rübél C. 2022: Fair Energy Transition for All. National Report of Germany. Berlin: adelphi research gGmbH.

Publisher: adelphi research gemeinnützige GmbH
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Status: October 2022

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Executive Summary

In order to counter the climate crisis, ambitious and binding climate protection policies are needed for limiting global warming to 1.5 degrees. The German government has set itself ambitious targets to lower emissions in accordance with the Paris agreement. The so-called *Energiewende*, the transformation process towards a low-carbon economy, is dependent on broad public acceptance due to the far-reaching changes that are associated with this shift. Social security, the mitigation of distributional effects and employment prospects for all citizens are the foundation for broad support for ambitious climate protection policy. However, the public debate has increasingly voiced fears on the unequal and unjust effects of political instruments that are used as part of the national climate policy framework. To achieve more public acceptance in Germany, the burden sharing of climate-policy related measures in energy policy should not be contradictory to fundamental ideas of fairness.

In this context, the “Fair Energy Transition for All (FETA)” project aims to achieve two ambitious and novel goals. To help to design policies that not only mitigate the serious effects of climate change, but also take into consideration the interests of those whose voices are generally not represented or heard in politics and policy-making. This is essential if we are to meet international greenhouse gas reductions targets while avoiding the entrenchment of social and economic inequality.

In 2021, a total of 90 Focus Groups in nine EU Member States (Belgium, Denmark, France, Italy, Germany, Netherlands, Poland, Portugal and Romania) were carried out in this project (Phase 1). The Focus Groups comprised members of the public from economically vulnerable and/or socially disadvantaged groups that are expected to be negatively affected by the climate and energy transition. In stakeholder meetings, a mixture of stakeholders and expert groups from the public sector and academia derived concrete and workable policy recommendations from the input of the vulnerable groups (Phase 2). In a last step of the citizen involvement, the policy recommendations previously worked on by the stakeholders were reviewed and finalised by citizens of each country in a Fair Energy Forum (Phase 3).

The subsequent report presents the results of the FETA project implemented in Germany from 2021 to 2022 for each of the three implementation phases described beforehand.

The analysis which was carried out by adelphi and ifok for the German context focused on vulnerable households that are particularly heavily burdened by energy-related costs, in particular low-income households and social-benefit recipients, who regularly have to spend a larger proportion of their income on their energy needs than wealthy households (regressive effect). However, other vulnerable groups such as residents of houses with poor insulation or outdated heating systems, were also incorporated in the analysis and part of the Focus Group participants. In addition, the broader German discourse on just transition and social justice in the transformation process was also considered by a literature review.

Generally speaking, the involved citizens discussed the measures for a fair energy transition intensively and showed great interest in the topic. The intense discussions, the lively exchange and the different perspectives of the participants showed that the involvement of the vulnerable population through such dialog formats is very valuable.

In principle, the participants support the proposed measures in the areas of housing and mobility which are more thoroughly explained in chapter 2.2. A large share of participants also agreed that a significant share of energy could already be saved through energy consulting without using more resources. Overall, it is very important to develop individual solutions for the different vulnerable groups in order to establish a fair energy transition.

1 Overview

1.1 Methodology

The overall methodology of FETA was based on a three-step approach: 1) listening to vulnerable people, 2) developing policy recommendations based on their needs, hopes and fears and 3) getting feedback from the target group on these policy recommendations. This “sandwich process” ensures that policy recommendations formulated by experts are based on the actual needs of the target group and are peer-reviewed and commented by the same group in the end.

Phase 1: Focus Groups

As a first step of the project, ifok conducted nine Focus Groups with 87 vulnerable people (from rural, urban and peripheral regions) in different German cities. To recruit the participants, we contacted organisations that work with the target group. These were, for example, community welfare associations or educational institutions. To facilitate the workshops, we visited the target group in their local environment, i.e. in a surrounding that is familiar to them. The aim of the Focus Groups was to understand the challenges faced by socially or economically disadvantaged people in their everyday lives and to understand what they need from the energy transition. The Focus Groups were centred around an ‘energy diary’ format, taken from the academic literature, where they are used to describe energy scenarios in the future. The energy diaries were adapted by ifok and adelphi to reflect realistic energy policy futures for Germany in 2030. By discussing these energy diaries, we learned more about the participants’ attitudes, hopes and fears. The two main topics discussed were housing and transport.

Phase 2: Expert Meetings

As a second step of the project, two expert meetings were organised by adelphi and supported by ifok to discuss the energy transition in Germany, focusing the lens on how vulnerable groups are affected and what they deem important. The discussions were based on the outcomes of the Focus Groups held across Germany, and personas developed to represent the participants. The gathered experts reflected on the issues and struggles vulnerable citizens face in their everyday lives and how these are linked to the energy transition. The aim was to analyse the regulatory status quo and reflect on the necessary changes needed, not just to achieve broader climate targets, but also on how to ensure that vulnerable groups are not left behind in this process. With these aspects in mind, eight concrete policy recommendations were formulated by the experts.

The expert meetings brought together a diverse mix of experts, with very different academic and professional backgrounds bringing varied points of view and approaches to the issues into the discussion. The meetings were held in an online format and made use of interactive web tools such as MIRO to stimulate the discussion and generate live outputs.

Phase 3: Fair Energy Forum

The Fair Energy Forum (FEF), organised by ifok and supported by adelphi, was the last step of the project’s citizen involvement phase. The FEF’s goal was to ensure that the policy recommendations developed in the expert meetings represent the voice of the target group. For this reason, adelphi was an integral part of the FEF. The forum consisted of citizens who took part in the Focus Groups as well as other vulnerable people from a local organisation in

Hannover, where the event took place. During the FEF the participants discussed, commented and prioritized the policy recommendations.

Looking back, the overall method of 1) listening to vulnerable people, 2) developing policy recommendations based on their hopes and fears and 3) getting feedback from the target group on these policy recommendations worked very well. At the beginning the participants showed severe distrust in politics and they perceived a lack of agency as well as self-efficacy. At the end of the “sandwich process”, most participants felt like their voices were being heard and taken seriously.

1.2 Personas

The personas aimed to represent specific characteristics of the participants of the Focus Groups in terms of age, residence, employment status as well as specific challenges they are facing in the energy transition. These personas were addressed to the participants of the expert meeting to illustrate better the needs of different types of people within the target group. The challenges they are facing were fundamental for the design of the policy recommendations.

Table 1: Personas overview.

Persona	Employment status	Residence	Family situation	Housing	Transport
1. Peter (45)	unemployed	urban	lives alone	for rent	bike + public transport
2. Ambra (30)	full-time mother	urban	3 children	for rent	public transport
3. Ali (19)	unemployed	Urban outskirts	several siblings	lives with his family	public transport
4. Michaela (28)	unemployed	rural	single parent (2 children)	for rent	public transport

Peter (45): “Politicians do not keep their promises. I don’t expect they would support us.”

What is he calling for to make the energy transition fair?

The "rich" and large companies should pay for the energy transition. The poor and unemployed have little influence compared to the rich.

What does he think about the energy transition?

Understands that the energy transition is important. He has a technical interest in the subject, especially in electromobility. However, he is sceptical whether electromobility is the right solution.

What challenges does he face in his daily life?

The feeling that society is becoming more and more selfish, everyone has to fight for themselves. The Hartz IV system is unfair. He has no trust in politicians. Social inequality is a big problem.

Ambra (30): “Saving energy is a good thing, but I don’t want to limit my kids by cooking less or telling them to take cold showers.”

What is she calling for to make the energy transition fair?

Families and children should be supported.

What does she think about the energy transition?

Rather neutral. With 3 children, the family has high energy consumption at home. The washing machine runs twice a day, there is cooking every day and the kids like to watch TV or use tablets. She does not see any way to reduce this consumption.

What challenges does she face in his daily life?

Language barriers and German bureaucracy. Her main concern: providing a good and comfortable life for their children. She worries about rising prices in stores.

Ali (19): “I trust people with whom I can identify. Greta Thunberg? I don’t know this person.”

What is he calling for to make the energy transition fair?

He does not know much about the energy transition and climate change. He says he trusts people he can relate to - and would take information from them.

What does he think about the energy transition?

Neutral. He understands that it is an important topic, but has not been much involved with it so far. He believes that many Germans will not give up their cars and he is sceptical about car sharing.

What challenges does he face in his daily life?

He has difficulty finding a job. Lives at home with his parents and several siblings and cannot afford his own apartment. He has no trust in politicians: "They are all corrupt".

Michaela (28): “Where we live, there is hardly any public transportation. At some stops there are not even bus shelters. I mainly walk with my children.”

What is she calling for to make the energy transition fair?

Better public transportation in their community. She can't imagine working from home or ordering groceries. People, especially children, need exercise and social interaction.

What does she think about the energy transition?

She considers climate change to be an important issue. Redesign of public transportation in rural areas is needed! She is open to generating own solar power (likes the idea of saving money).

What challenges does she face in his daily life?

She doesn't have a car and buses run irregularly. It's hard to get by with two kids. She has difficulty finding a job and heats less to save money.

2 Policy context and recommendations

2.1 Policy context

The policy and regulatory status quo in Germany were discussed in the expert meetings. Based on this discussion, the current targets and measures for the transport and mobility sector, housing sector, as well as the relevant relief package measures were compiled and are described in the following. When speaking about the regulatory status quo, a distinction must be made between the medium- and long-term climate and social policy objectives, and how these affect vulnerable citizens, and the short-term relief measures that have been implemented in the wake of the energy crisis. Both were discussed in length during the meetings, especially the relief measures as they had been announced on the 8th of April 2022.

Transport and Mobility

Electric vehicles

Subsidies for EVs have increased via the “innovation premium” and will remain higher until 2025. Changes in the tax code make it more attractive for employers and employees to opt for an EV if it is for private use, this was done by halving the value of the car that needs to be taxed.

While the experts acknowledged the importance of increasing the share of EVs on the road and phasing out the internal combustion engine, the current measures for increasing EVs largely miss the target demographic of this project. Vulnerable citizens with low incomes rarely buy factory-new cars where they could benefit from a purchase subsidy, nor do they often work in jobs that offer a company car.

Public Transport and Trains

A change in the modal split in favour of rail and public transport is considered crucial by the government in achieving the reduction in final energy consumption targets in the transport sector. An aim is to double the number of rail passengers by 2030. Public transport, while in the domain of the federal states and local municipalities, is receiving increased funding. The federal funds for public transport will increase from € 8.5Bn in 2018 to € 11.3Bn in 2030. The government is also seeking to digitalise the public transport system, funding innovations like improved e-ticketing and passenger information systems. Long distance rail transport is being strengthened via the “Deutschlandtakt” programme, which aims to improve coordination between trains, thus reducing transfer and travel times. Increased funding in rail infrastructure, construction cost subsidies, increased personnel, reduction of VAT on rail tickets, stricter regulation of low-cost airlines, new pilot projects for public transport yearly tickets, € 1 Bn for busses with non-conventional engines, and subsidies under the “Law on Federal Financial Assistance to Improve the Transport Conditions of Municipalities” were all decided and announced as part of the corona-recovery economic stimulus package.

The experts welcome the increased investment in public transport and trains, however the strong divide in Germany between urban and rural transport and mobility options remains a

Targets & Measures

Reduction of final energy consumption in the transport sector of 20% by 2030 and 40% by 2050 (base 2005). The 2020 target of a 10% reduction was missed.

15 million battery EVs on the road by 2030.

CO₂ price at €25/tCO₂ introduced in 2021 on the transport sector. Price collar between €55 - €65/tCO₂ from 2026.

key issue. In cities the main issue was the price, and continually rising price, of public transportation which strained the budgets of vulnerable groups. In rural regions, while the prices are still high, the main issue is the availability of public transportation.

The plans prioritise large high-speed, long distance rail projects, which are not commonly used by vulnerable citizens. Especially in poorly connected rural areas, there are no convenient public transport option to reach important transport nodes. Making long distance rail more competitive against air travel also leaves most vulnerable citizens unaffected.

Other

The increased commuter allowance acts as a perverse incentive to drive your car, and reduces the price-effect that the introduction of a CO₂ price in the transport sector should have. While commuting vulnerable citizens also benefit from this change, the blanket policy was viewed critically by the experts, as the citizens who can afford to pay more for their commute are also shielded from these price signals.

Bicycle infrastructure is also covered in the climate protection strategy of the federal government. Funding for new infrastructure for the years 2021-2023 was increased by 900 million Euros. This includes, but is not limited to, funding for new bike paths, parking infrastructure, and safety infrastructure such as separate traffic lights and separation barriers.

Relevant Relief Package Measures

The relief package was officially announced on the 8th of April, thus after the expert meeting took place. However, many rumours of what it may roughly entail were already in circulation and were touched upon by the experts. These could not be talked about in detail as the specifics were not yet known and both we as the organisers and the participants thought it best not to discuss assumptions and speculations in too much detail. Since then, the measures have been officially confirmed and we thought it is highly relevant to include these here as they are a direct response to the inflation caused by the energy crisis and the war in Ukraine and focus on our target group as well as the sectors we discussed. The measures relevant to the transport sector are as follows:

- Energy tax on fuels to be reduced for three months. This will reduce the price of petrol by 30 cents per litre and diesel by 14 cents per litre.
- Discounted tickets for public transport. The “9 Euro for 90 Day Ticket” will allow all citizens to purchase a public transport ticket valid 90 days on all public transport for 9 euros.
- The commuting allowance for long-distance commuters (from the 21st kilometre) and the mobility premium increase to 38 cents (from 35 cents).

The fuel cost reduction was already a topic at the time of the workshop and was generally viewed critically by the experts. Similar to the increased commuting allowance, the blanket policy interferes with economic price signals and reduces incentives and delays the switch to more carbon friendly alternatives for those who could afford to do so in the short and medium term. The 9-euro ticket was not a topic of discussion yet and was thus not touched upon during the meeting. However, the high prices of public transport were often cited as a strain on vulnerable people and one of the key points that needs to be addressed. 9 euros for 90 days is a dramatic discount when compared to normal prices (in Berlin a single ride costs € 3) and is affordable to vulnerable groups but is also low enough to potentially attract new users to public transport.

Housing

The policy mix for achieving CO₂ reductions in the building sector is built on three pillars: renewal of heating systems, funding of energy efficiency renovations, and increasing information and awareness through energy consultations. A sticking point of the discussion here was how the costs of the CO₂ price will be split between the landlord and tenant, as with the current rental structure, the tenants would bear the entirety of the costs.

Building and Renovation

Increasing energy efficiency (EE) in the building stock has been at the centre of climate and energy policy in Germany since the early to mid-2000s. Despite this, the renovation rate of old buildings remains low at less than 1%. A large share of the funding for EE in buildings goes towards new buildings, rather than refurbishing the existing building stock. The main approach of the government here is direct funding, lowered interest rates for renovation loans, and credit repayment subsidies.

The experts saw renovations strategies as the driving force in tackling structural issues such as energy poverty. However, the current government approach means only homeowners and landlords can choose to undertake a renovation. This immediately excludes the target group, as the vast majority of vulnerable citizens in Germany are tenants. The associated rent increases through the “Modernisierungsumlage” whereby landlords can recuperate investment costs through increasing rents, although heavily regulated, still put vulnerable groups at risk. The regulation increases the landlord-tenant dilemma whereby landlord cannot recuperate investment costs and thus have no incentive to invest. A further issue lies in the fact that while renovations costs do not vary significantly across buildings, the percentage-based rent increase the landlord can demand from the tenants is of course larger in buildings where rents are already higher. Thus, the buildings with low rents (often kept low by government regulation) are the least attractive to renovate in terms of amortisation periods. Unfortunately, these often also tend to be the buildings with the highest potential savings. Thus, the financial and social/environmental goals are misaligned.

Heating Systems

In a similar approach to building and renovation, the approach for increasing efficiency in heating systems and switching to renewables is covered by grants and subsidy programmes. The strategy in this sector is built on increasing the share of heating coming from RES, including the use of heat pumps and solar thermal, implementing efficient district heating grids, and promoting combined heat-power plants (CHPs).

The experts agreed that vulnerable groups tend to have little to no agency in choosing their heating technology. The landlord-tenant dilemma applies here as well, as landlord bear the investment cost while tenants benefit from more efficient heating. Heating and renovation

Targets & Measures

55% reduction in non-RE primary energy consumption by 2030 (compared to 2008).

46% CO₂ emission reduction in the building sector by 2030 (compared to 2020).

CO₂ price at €25/tCO₂ introduced in 2021 on the building sector. Price collar between €55 - €65/tCO₂ from 2026.

The policy mix for achieving CO₂ reductions in the building sector is built on three pillars: renewal of heating systems, funding of energy efficiency renovations, and increasing information and awareness through energy consultations. A sticking point of the discussion here was how the costs of the CO₂ price will be split between the landlord and tenant, as with the current rental structure, the tenants would bear the entirety of the costs.

strategies are of course interlinked, as described by the experts; citizens living in poorly insulated home must spend more on heating to achieve the same thermal comfort as ones living in well insulated homes. As observed in the Focus Groups and noted by the experts, this is closely associated with risk of energy poverty as citizens reduce their thermal comfort in order to save money. A further point made by the experts was the inelasticity of housing, compared to the relative elasticity of energy consumption including heating, as well as the cross elasticity of these two goods. When citizens are forced to pay more for housing they do so as opposed to moving, when heating prices go up, they simply heat less, and when rent prices increase tenants reduce their heating make up the increase rent costs. All in all, this was viewed extremely critically by the expert groups due to the adverse health effects that living in a cold home can have.

Information and Awareness

The last policy approach is to increase awareness and spread information about energy efficiency. This comes on the one hand from platforms like “Deutschland macht’s effizient” which provides an overview of measures, as well as easily implementable changes including behavioural ones. This also includes energy consultations which citizens can access via consumer advice centres.

The experts agreed that the main problems vulnerable citizens faced in the housing sector could not be attributed to behavioural patterns, but were caused by structural issues as described above. In fact, consumers living in energy poverty need to increase their energy consumption, not reduce it further.

Relief package measures

- One-time energy flat payment in the amount of 300 euros.
- Additional one-time payment for families of 100 euros per child.
- 100 Euro corona subsidies for recipients of unemployment benefit II or basic income support.
- 20 euros per month immediate support for children affected by poverty.
- One-time heating cost subsidy: 270 Euro for recipients of housing allowance (for households with two persons: 350 Euro, per additional family member 70 Euro); 230 euros for trainees and students in receipt of Bafög (student grants).

The relief package offered a range of financial relief measures to private households. These measures were not yet public at the time of the expert meeting, however the concept of putting money directly into the pockets of vulnerable citizens was generally viewed positively. The 300-euro one-time payment only goes to active tax payers, which excludes many unemployed vulnerable citizens, it is however taxed under Germany’s progressive taxation system, so low-income earners will be able to keep more of the bonus than high-income earners.

2.2 Policy recommendations

The policy recommendations were formulated in the expert meetings based on regulatory status quo and a discussion about necessary changes needed, to achieve broader climate targets while ensuring that vulnerable groups are not left behind in this process. These recommendations were discussed in the FEF to receive feedback about whether these policies properly address the needs of the target groups. In the following, the policy recommendations for each sector (transport and housing) are listed and possible conflicts of interest pointed out by the experts, the implementation requirements as seen by the FEF participants, as well as possible financing options (see tables).

2.2.1 Policy recommendations for the transport sector

The main objective in the transport is to reduce the costs of public transport. While the consensus within the expert group was that public transportation was too expensive, the approaches to lowering the prices vary and different approaches should be taken for different groups.

(1) Free public transport for vulnerable groups

This option is the most radical and also the most expensive for the state. The approach is of course very straight forward, and could be coupled to citizens who already receive some social support. Making public transport free, or offering it at a symbolically low price (e.g. the €9 for 90 days) eliminates the question of affordability entirely.

As with any targeted programmes it is difficult to reach the entirety of the targeted group, especially when dealing with vulnerable groups which may struggle with administrative processes or have a general mistrust of government authorities. However, the only way to effectively implement such a programme is to use data that is easily accessible to the public authority or agency in charge. Thus, starting with social welfare programme recipients and setting a household income level under which the person(s) becomes eligible is a start. Importantly the programme and eligibility must be flexible enough to allow citizens not covered by these two approaches to also retain the opportunity to be eligible. This should be done through community and social centres, and other organisations that work with vulnerable citizens and can help these to access a programme such as the one proposed.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (experts)
A conflict of interest could arise from who is eligible for the programme, namely, where the cut-off is. Many of the vulnerable citizens were simply low-income earners, but did not qualify for any social benefits. These would risk being excluded from such a programme even though their budgets are strained by the high public transport prices.	The participants of the FEF mentioned that the implementation should be organized coherently for all transport companies in Germany to avoid restrictions in the usability due to a lack of consistency and unclear ticket systems. It should also be ensured that the transportation system expands to increase the capacity of passengers and to connect rural areas to make sure they also benefit from this policy.	Such a measure would be very expensive and would strain state owned public transport providers who would need additional funds from local and federal governments to fund such a programme.

(2) 365 Euro Tickets or “Klimatickets” for vulnerable groups

The 365 Euro ticket, as the name suggests, is a yearly public transport ticket for the equivalent of 1 Euro per day. This represents a heavily subsidised cost compared to current major cities in Germany. Even taking into consideration the that many cities have subsidised prices for certain social groups such as low-income earners, and retirees, the prices for a yearly ticket can represent a major cost for vulnerable groups. Furthermore, receiving a subsidised ticket as a low-income earner can involve high administrative efforts such as lengthy application and approval processes or having to bring proof of eligibility for every month’s renewal.

The “Klimaticket” or climate ticket is an approach already being employed in Austria and may be an approach more suited to the inclusion of citizens from rural areas. While the costs may run higher than the 365 Euros, these tickets allow for travel on regional trains. Both of these models can be applied and made available to the general public, not only targeted at vulnerable groups, and can make public transport both locally and regionally a more attractive option for all citizens.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (experts)
<p>The conflict of interest is the same or similar to the ones discussed above regarding the free public transport. There may be more acceptance of this, as the programs can be targeted at the whole population and because the price paid is still not insignificant and will put less strain on public coffers and the balance sheets of public transport companies.</p>	<p>The provisions for the implementations are similar to those mentioned by the FEF participants for the free public transport. Still, there are specific provisions for a 365 Euro ticket, such as a flexible payment system. Even at low costs, the target group often cannot afford to buy a yearly ticket, but should be given the option to pay on a daily, weekly or monthly basis. This also considers the fact that many people take the bike in summer instead of the bus or metro.</p>	<p>The experts suggested a number of financing mechanisms. The first one being to use revenues from the newly implemented CO₂ price, which effects the transport sector. This could be a direct reallocation of welfare from car drivers to public transport users. Other reallocation mechanism from car drivers, and thus private modes of transport, to public modes of transport could include increasing the motor vehicle tax (“KFZ Steuer”) and increasing parking fees within German cities, which are extremely low in an EU comparison (in Berlin a yearly parking fee for a resident is just €10, in Munich € 30, compared to € 1230 in Stockholm and € 535 in Amsterdam.¹</p>

(3) Improve biking infrastructure

The improvement of bicycle infrastructure include building and improving bike paths so that they are protected for car drivers, well lit, and connected easily to social infrastructure. It also includes things like bike parking spots in public places. The experts suggested that there need to be more reliable bike path connections and generally stretches up to 5km should be trafficable by bike, both in cities and more rural areas. This measure is not targeted at vulnerable groups specifically, but can also play an important role in increasing their mobility, while also decarbonising it.

¹ https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/2020_pp_verkehrswende_fuer_alle_bf_02.pdf

Conflict of interest (experts)	Implementation requirements (target group)	Financing (expert)
<p>The conflicts of interest around this policy were seen as low by the experts. Especially in rural areas where space is abundant, there should not be heavy opposition. That is, given that the bike paths are carefully planned, effectively connect social hotspots and are used by the local population, otherwise they may be seen as a waste of public resources. In the city, bike paths can be more controversial as space is more limited and often road space is reallocated to form a new bike path.</p>	<p>The opinion of the FEF participants was similar to the experts. The space for pedestrians, bicycles and cars should be equally considered and embedded in an overall concept with a consideration for specific needs of specific people and the district they will be implemented. The protection from other traffic, as well as the longevity and maintenance of bicycles lanes should also be considered.</p>	<p>These measures could be financed with a mix of federal, regional, and local funds. Here again it would be worthwhile to increase the allocation from the federal budget as this will increase with the rising CO₂ price.</p>

(4) Reallocation of public spaces

This aspect of the debate and the recommendation concerns how public spaces are distributed and who benefits from this allocation. Two main points were raised here. Firstly, the question of equity. Should so much public space be allocated to cars, in the form of roads and parking spaces? This status-quo affects vulnerable citizens as they often do not have cars, thus they do not benefit from this spatial allocation. The second point is to green urban spaces where possible. Thus, one recommendation is to reallocate space in urban areas, away from car infrastructure to create more green spaces and social gathering points. This could include entirely car free streets, or allowing shops and gastronomic establishments to use parking spaces for commercial activities.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (expert)
<p>Two main points arise here. Firstly, the conflict with car drivers, which may also be vulnerable citizens, who benefit from the existing infrastructure. Secondly, attention needs to be paid that urban transformation projects are also implemented where vulnerable citizens live, not just in city centres – out of</p>	<p>An important consideration for the FEF participants is the accessibility or the barrier-free access, for example ramps and seating options for disabled people. The implementation should also consider the care and maintenance of green spaces. Overall, there should be a general concept</p>	<p>Cities and municipalities must decide where these projects make sense to be implemented. While there are not immediate ways to gain a return on investment from these projects, pilot projects are studying whether such areas increase foot traffic and consumer spending in these areas, increased spending and</p>

which vulnerable citizens have often already been priced out.	considering the opinions and needs of all local residents.	VAT revenues, more attractive commercial real estates and thus increased trade tax can make this an attractive investment for municipalities.
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2.2.2 Policy recommendations for the housing sector

In the housing sector a majority of the participating experts felt that price signals were the most important tools. Adequately pricing the externalities of fossil-fuels, via the CO₂ price, will lead to behavioural change and new investment in the medium-long term. The government should be hesitant to distort the price signals created by carbon pricing and thus the rising costs of fossil fuels. Policies that protect citizens who cannot cope with the rising prices need to be precise with whom they reach. It should be a target to implement progressive policies, to use the energy transition as a way of redistributing wealth.

(1) Base energy supply

The experts recommended a base energy supply for every citizen. Under this policy a certain amount of KWh of energy is granted to each household for free or at a heavily discounted price. Every KWh consumed above this limit is subject to a price, which should include a heavy CO₂ price component. The KWh in questions should differ depending on the size of the household. Vulnerable households tend to consumer significantly less energy, and this policy would ensure that their basic energy needs, necessary to avoid health and social issues associated with energy poverty, are covered. Thus, the policy is progressive in that households with a higher energy consumption, which is associated with higher income, would be the ones exposed to the higher energy price. At the same time, it also works as a strong incentive for these (higher-income) households to reduce their energy consumption, in an effort to also lower their consumption to the base energy limit. For this, the prices above the base limit need to be high enough to properly act as a price signal and disincentivise use above the limit.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (experts)
As with any blanket policy, the conflicts of interest are minimized. Similar to a flat climate dividend, everyone receives the same but low-income households with a lower energy consumption would benefit disproportionately. Conflicts may arise concerning the level at which the base supply is set, and how high the price once the base load is exceeded. Retail energy suppliers would also need to be heavily involved in this process and avoiding any negative impacts on their	It is important to consider the increased energy needs of chronically ill or disabled people, pensioners and unemployed people within the allowance. They require more heat and electricity as they spend more time at home and have different energy needs compared to those of average citizens. Furthermore, it should be considered whether increased energy consumption is linked to the behaviour of a tenant, or a low energy efficiency of the apartment. Individual	The financing of such a policy would prove more complex than a flat payment to households. The costs of the base supply would be dependent wholesale market power prices; thus the costs of the programme would fluctuate depending on when and how far in advance the energy is procured. The policy should be financed via a mix of sources such the federal household budget (which includes the income from the CO ₂ price) and should be cross subsidised by levies

business models and keeping retail competition healthy would need to be a priority for policymakers.	electricity meters should be guaranteed in order to avoid disadvantages caused by for example larger apartments within one house that increase the average energy need.	on the energy consumed above the limit.
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(2) Energy efficiency renovations targeted at vulnerable households

In order to relieve structural drivers of energy poverty, which affects vulnerable households disproportionately, more investments are needed in building retrofits in the housing where vulnerable citizens live. As described in the status-quo section, while there are many grants and loan programmes for building renovations and retrofits, they are often still not enough to spur investment in the building stock with the lowest rents. If the costs were to be passed on this would put more financial pressure on vulnerable households, and in many cases force them to move. Thus, the government needs to step in. One approach would be direct investment by the government, targeted renovation in buildings and houses of vulnerable citizens. This would of course increase the value of the assets of the landlords, thus the investment should be in the form of a grant, under the condition that the landlords do not increase rents. Should the assets be sold, or rented out at a higher price in the future, then the landlords should be required, at least in part, to repay the government.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (expert)
As vulnerable households are not concentrated in specific buildings, the targeting of the policy will be difficult to target. The difficulty of defining vulnerable households will also be an issue. Making sure that such a policy does not work as a direct subsidy to landlords, in terms of increasing the value of their assets at no cost to them (without achieving the intended social targets) will be crucial.	According to the comments of the FEF participants, any renovation should be planned carefully to noticeably lead to a reduction of the energy needs and consequent cost savings. Still, environmentally friendly materials and technologies should be used in order to reduce the carbon footprint of renovations. It should also be considered that home owners with less financial resources often cannot afford renovations and need to be funded specifically. Most importantly, as the consequence of the renovation the rent should not increase.	Depending how broad the targeting is this could be a very expensive policy. Current funds for renovations and retrofits, as mentioned by the participants, could be reallocated, with a more specific targeting to vulnerable households.

(3) Increase accessibility of “Mieterstrom” (Tenant-electricity)

Tenant electricity models are alternatives to traditional retail suppliers. Tenants buy their electricity directly from a rooftop solar installation either on their building or in the immediate vicinity. Electricity generated by the solar PV should not flow through the grid to reach the consumer. Beyond this, the generator, or supplier, acts as a normal supplier, with all the obligations that that entails. Tenant-electricity can increase the amount of PV installed on buildings, increasing awareness and exposure to RES, and directly including vulnerable groups in the energy transition.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (experts)
There are no conflicts of interest. Tenant-electricity models compete freely on the retail market with traditional retail suppliers.	An important consideration of the FEF participants for the implementation is the sufficient funding by the state. Citizens need to be rewarded for saving energy, sustainable behaviour and the usage of green electricity. Due to the nature of solar cells to only produce energy during the day it is important that energy can be stored. Lastly, it should be guaranteed that tenant-electricity is not more expensive than conventional options.	Tenant-electricity installations receive a feed in tariff for 20 years. This is currently paid for by the EEG-levy, which is being phased out and will in future be paid for by the CO ₂ price revenues.

(4) Expand appliance swap programmes

A very simple policy, already in place through projects such as the Stromsparcheck (run by Caritas), where old, energy inefficient appliances are swapped for newer more efficient ones in order to save energy. Similar to poor insulation, inefficient household appliances can greatly increase energy bills and thus also exacerbate negative climate impacts. Appliances that are older than ten years consume significantly more than modern ones. The current programme by Stromsparcheck applies to fridges and freezers and takes the form of a 100-Euro grant, with more funding available based on the city or region. This could be expanded to other electronic devices such as washing machines and electric water heaters. These micro-interventions can save significant energy starting immediately and thus also money.

Conflict of interest (experts)	Implementation requirements (target group)	Financing (experts)
There was no conflict of interest identified regarding this policy.	It needs to be discussed which electrical appliances can be exchanged. Some participants are in favour of being able to exchange all	Cities and states already work with Caritas in the realisation of this programme. Financing could be slightly increased to

	<p>types of appliances (cooling units, washing machines, dishwashers and TVs), others are in favour of only allowing the exchange of cooling units. The size and energy consumptions of the exchangeable appliances should be defined in order to not give advantage to unnecessary large appliances. In a current project by the Caritas only large refrigerators can be exchanged. However, also refrigerators of single person households need to be considered. Lastly, the connection fees and transport costs should to be covered.</p>	<p>cover more product categories and/or increase the funding per appliance.</p>
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2.3 Communication

An important issue discussed by the experts is the need to distinguish between price increases caused by climate policies and ones caused by, for example, the energy crisis. Keeping in mind the goal of increasing public support for climate policies and the energy transition, it is crucial for citizens to be able to distinguish between cause and effect. The war in Ukraine has made this causality easier to identify than the energy crisis that preceded it, however, it is critical to clearly communicate the effects of policies on households and why they are implemented, and to do this in non-abstract terms that are tangible for citizens.

Particular when it came to vulnerable citizens, as exemplified via the personas, a couple of points were raised. Firstly, the experts acknowledged that, particularly, vulnerable citizens did not have access to the political arenas where they could air their grievances, have their voices be heard, and contribute to the public discourse. This was closely linked with the second point, that communication around climate policies did not reach the most vulnerable groups, and tailored communication strategies are required to bring these citizens on board. Programs like the Caritas-Stromsparcheck which work directly with vulnerable households and address environmental and energy topics are an exemplary direct communication channel. Both, experts and FEF participants suggested this independently from each other. Beyond this, experts also called for institutions that were closer to the citizens that could alleviate burdens and address the needs of vulnerable citizens without too much bureaucracy. Again, the Caritas-Stromsparcheck came up, but also other approaches such as community help desks where advice and support are offered for free and without discrimination or administrative hurdles. Lastly, reaching people with help offers is a challenge when it comes to vulnerable citizens. Citizens who are considered vulnerable but do not receive any form of social support, and are thus not easily found in a registry, are difficult to identify and reach with help offerings. Here different stakeholders can be involved in order to reach these households, for example job centres, debt counsellors, or social organisations can help fill the gaps in identifying households that would benefit greatly from information materials and advice regarding for

example energy efficiency. Of course, this exchange on information would need to occur in line with data privacy provisions.

On the other hand, some experts pointed to the need for realistic expectation management amongst citizens when it came to the macro-goals of the energy transition. The energy transition is an enormous political, economic, and social shift, and will affect people's lives, this must not be downplayed or "covered-up" via blanket relief measures. Implementing or promising relief only delays behavioural change in response to price signals. Instead, communication needs to focus on which behavioural changes can and should be undertaken in order to align personal behaviour with the goals of the energy transition.

Lastly, an increase communication with the target group and an easy to understand language can reach more people and increase the commitment of the target group as well as the effect of the measures.

2.4 Other interesting findings, recommendations and observations

An important takeaway was the consensus that price signals need to work for an extended period of time until behavioural change follows. Any price instruments reduce the effects of price signals. It is important to reduce the burden on vulnerable citizens, but the burden will be felt across all of society, thus it is unrealistic that one group will be sheltered entirely. Experts warned of presenting an overly optimistic outlook for the energy transition, especially, in the short term, citizen will need to understand that the energy transition is a lengthy process and will not result in an immediate "green utopia".

A second relevant point is the question of equity between low-income households and vulnerable households. The lines can be blurry and the government will need to be careful offering generous relief to one group while offering less generous help and support to citizens who feel they are not far better off than the group receiving more support. The target group is also very small in Germany, and thus does not carry a lot of political weight. The role of marginal groups the policy process needs to be strengthened and increase, but policymakers must strike the right balance between these vulnerable groups and the wider public, who are also affected by the same topics and issues.

When discussing the policy recommendations with the participants during the FEF, some other topics related to fairness were also raised. In general, there was a fundamental support for the proposed measures. Individual energy consulting can be key in reducing energy consumption and is available to everyone. Consulting in groups of several households is also already useful and may reduce the number of required personal. Especially during the recent energy crisis related to the Ukraine war, participants pointed out that everyone should know their energy consumption. Fairness was an important buzzword when discussing who should pay for the energy transition, who should be beneficiaries of subsidies and how target groups should be addressed within the policy recommendations. For most measures related to housing and transport, for example, individual solutions to specific groups such as pensioners, unemployed, pupils, student, should be targeted, since they often have very different needs. However, the measures for each group should be standardized across the states to maximize their application and increase public acceptance.

3 Acknowledgements

We would like to thank all participants of the Focus Groups, all intermediaries, who helped us with getting in touch with participants and implementation of the Focus Groups, expert meetings and the Fair Energy Forum for their dedicated participation and discussion. This includes the identification of social challenges within the energy transition, the valuable discussion on potential counter-measures, as well as the feedback of the participants of the Fair Energy Forum on the policy recommendations. They provided important insights in their daily life application and struggles when saving energy and how potential measures can better address the target group.

List of intermediaries helping with the Focus Groups:

Caritasverband Berlin e.V.: Stromspar-Check, Berlin
Caritasverband Dortmund e.V.: Stromspar-Check, Dortmund
Caritasverband Düsseldorf e.V.: Stromspar-Check, Düsseldorf
Evangelische Familienbildungsstätte Werra-Meissner, Eschwege
DRK Welcome-Point Hassel Nord, Düsseldorf
ESTAruppin e.V., Neuruppin
JOBLINGE, Berlin
Jugend in Arbeit e.V., Marl
RUHRWERKSTATT – Kultur-Arbeit im Revier, Oberhausen

List of participants at the expert meetings:

1. **Audrey Dobbins**, *University of Stuttgart*
PhD candidate and researcher at the University of Stuttgart. Specialises in energy economics and social science analyses, her PhD topic is energy poverty.
2. **Anna Wolff**, *Deutsche Umwelthilfe*
Project Manager: Energy and Climate Protection.
3. **Dr. Philipp Biermann**, *University of Magdeburg*
Chair of the economics faculty at the University of Magdeburg, specialised in economic policy. Dr. Biermann's research lies at the intersection of energy policy and subjective wellbeing.
4. **Dr. Michael Pahle**, *Potsdam Institute for Climate Impact Research*
Leader of the working group on climate and energy policy. Dr Pahle's research focus lies on carbon pricing and recent journal publications have focused on fairness and acceptance.
5. **Dr. Antonia Schwarz**, *Potsdam Institute for Climate Impact Research*
Postdoctoral researcher in the department of transformation pathways, part of the climate and energy policy working group focusing on carbon taxation.
6. **Michel Picke**, *Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection*
Policy officer in the unit on social Affairs, environmental policy, and social justice.
7. **Vera Günther**, *Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection*
Senior policy officer in the unit of Socially Just Climate Protection Policy, Climate Protection & Acceptance
8. **Laurenz Hermann**, *CO₂ Online*

Senior advisor at CO₂ Online. Mr Herrmann manages projects on the topics of energy monitoring and industrial renovation on behalf of public clients.

9. **Marlene Potthoff**, *Caritas Association Frankfurt*
Project manager of the federal project "Stromsparcheck Aktiv" of Caritas Germany.
10. **Astrid Schaffert**, *Caritas Association Germany*
Advisor at German Caritas Association in the area of organisation, strategy and theology.
11. **Prof. Dr. Katrin Großmann**, *University of Applied Sciences Erfurt*
Prof. for urban and spatial sociology in the faculty of architecture and urban planning at University of Applied Sciences Erfurt.
12. **Dr. Eva-Maria Mädje**, *Federal Ministry of Labour and Social Affairs*
Policy officer in the unit "Unit "Social Dimension, Climate and Environmental Policy, and Sustainability Strategy" with a focus on mobility.
13. **Lisa Bundke**, *Federal Ministry of Labour and Social Affairs*
Policy officer in the unit "Unit "Social Dimension, Climate and Environmental Policy, and Sustainability Strategy" with a focus on Housing.
14. **Carolin Oppenrieder**, *Caritas Association Frankfurt*
Regional coordinator at Caritasverband Frankfurt e.V.

4 Annex

Results of the Fair Energy Forum (FEF)

In the following, recommendations are listed given the prioritisation of the experts and FEF participants, as well as comments. These comments consider questions regarding important considerations for the implementation, what politicians should know when implementing these measures, what is necessary for the implementation and when the recommendations is fair.

The prioritisation of the expert is made from 1 to 4 for each, the transport and housing sector. The prioritisation from the participants is made from 1 to 8 according to their overall prioritisation independent of the respective sector.

Table 2: Recommendations & commentary for the transport sector.

	Free public transport	365€ "Climate Ticket"	Expansion and protection of cycle paths	More green spaces - less traffic
Prioritization Experts	1	2	3	4
Prioritization Citizens	7	8	5	4
Comment #1	It should be considered that more capacity is needed to be able to transport the increased number of customers. In addition, the public transport system must be reliable.	It must be considered that it is affordable. 365€ is too much money to pay at once. Even 30€ a month is too much in some cases. Also, many people cycle more in the summer and use the train less. Another suggestion: One should pay 1€ per accrued day (Introduction of prepaid system)	It must be considered that sufficient space is provided for bicycle traffic, cars and pedestrians in an overall concept.	It must be considered that the public space is designed barrier-free (e.g. ramps, seating for impaired people).
Comment #2	The measure should only be implemented if there are uniform regulations for use and financing	Individual funding and flexible concepts must be found considering different groups	It must be considered finding both overarching and individual solutions (special needs of	Consideration must be given to ensuring protection for all those involved in public local transport. This

	<p>for the whole of Germany.</p> <p>(The question of whether bicycle transport should be possible was controversially discussed.)</p>		disadvantaged groups).	<p>applies in particular to impaired and limited persons. To this end, all groups are to be included in the planning process.</p>
Comment #3	<p>The need for creative incentives to motivate people to use public transport must be considered. For example, public transport could be free of charge when the driver's license is handed in or linked to honorary positions.</p>	<p>Implementation must consider that rich people can and should pay more ("strong shoulders can carry more"). Financing models should be income-based, but more affordable for all.</p>	<p>This measure should only be implemented once the maintenance and upkeep of the bike lanes has been clarified.</p>	<p>When implementing car-free zones, it must be considered that there are fixed time windows for delivery traffic. In addition, the appropriate infrastructure should be created that considers the individual needs of individual groups (patient transport, shopping, etc.).</p>
Comment #4	<p>The measure should only be implemented if the connectivity of rural areas is ensured.</p>	<p>It should be considered that different groups (pupils, students, people with disabilities, etc.) have different needs and requirements.</p>	<p>This measure should only be implemented with a concept for the clear separation of bicycle and car traffic to protect cyclists. In particular, attention should be paid to child-friendly bike lanes.</p>	<p>It should be considered that traffic protection can be combined with ideas for more green spaces. More green spaces also help climate protection and animal welfare. For example, wildflowers can be sown and mobile green spaces can be established.</p>
Comment #5				<p>The measure should be implemented only if the green areas are regularly</p>

				cleaned and maintained.
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Table 3: Recommendations & commentary for the housing sector.

	Basic energy supply	Promote renovations of low-income households	Tenant electricity	Exchange programs
Prioritization Experts	1	2	3	4
Prioritization Participants	1	6	3	2
Comment #1	<p>When implementing this recommendation, beneficiaries, persons with chronic diseases, disabled persons, pensioners, unemployed people, financially weak people, etc. must be considered in the calculation, in which they receive a more generous allowance. Reason is: they are more at home (unemployed) and have other needs than the average citizen.</p> <p>For example, some need more heat. This leads to electricity costs being about 1.5x higher than for the average German.</p>	<p>This measure should only be implemented if the renovation is well planned and really leads to a long-term cost saving.</p>	<p>This measure should only be implemented if the subsidy is high enough. Citizens should be rewarded if they behave sustainably and purchase green electricity.</p>	<p>It must be determined in advance which devices can be exchanged. Discussion point: Should it be possible to exchange all devices or only certain devices? Most participants are in favour of exchanging necessary household devices in particular, including not only refrigerators but also washing machines, dishwashers and televisions. Few participants are in favour of the change of refrigerators only. Beyond that, the question arises as to whether only devices that have certain savings potential (starting from a certain device size) are</p>

				exchanged or all devices that are broken (i.e. also smaller ones).
Comment #2	It must be considered whether increased energy consumption is due to the behavior of the tenants or whether the house/apartment is not energy efficient. If this is the case, heating and electricity costs should be shared between tenant and landlord. If the landlord shares in the costs, they would have an incentive to make energy-efficient renovations.	The implementation must consider the use of environmentally friendly materials, so that the renovation as a whole has an environmentally friendly effect.	It must be considered that energy/electricity can be used flexibly. Especially on days when little electricity can be generated via solar systems due to the weather, it is important to continue to secure the energy supply.	This measure should only be implemented if refrigerators of single-person households are also exchanged. Currently, only large refrigerators or refrigerators with a certain savings potential can be exchanged.
Comment #3	Basic fees for energy use are to be abolished in principle.	The implementation must consider that tenants have no influence on the rehabilitation of their rented apartment/house.	This measure should only be implemented if it is transparently communicated where the electricity comes from (Is it really green electricity, or conventional electricity?).	This recommendation should only be implemented if connection fees and transportation costs do not fall on private individuals.
Comment #4	It has to be considered that tenants have different incomes. Disagreement on the question of fairness: (1) fair if beneficiaries receive a higher allowance or (2) fair if everyone is treated equally.	Rehabilitation is not affordable for some apartment/house owners. Owners with low incomes often cannot afford to renovate. There are also "social landlords" who charge little rent and thus have	This measure should only be implemented if electricity does not become more expensive for the consumer. Renewable energies should be affordable.	

		less money to renovate. Implemented requires corresponding subsidies from the state.		
Comment #5	It should be considered that electricity consumption cannot always be precisely allocated among different households (often only one central meter per house and not per household). People who live alone are put at a disadvantage because they live in a proportionally larger apartment but consume less than families, for example. However, setting up individual meters per household would be costly.	This measure should only be implemented if the rent costs do not increase enormously as a result of the renovation. One participant report that the heating costs have become cheaper due to the renovation, but the rent has increased.		
Comment #6		Instead of renovations, reliable building techniques and also provide good insulation and energy savings may be an option.		
Comment #7		Publicly owned buildings and housing cooperatives should be required to become carbon neutral.		

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