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SCIENCE FOR POLICY BRIEF

Fairness policy brief 4/2024

Energy justice from the bottom up: developing a framework to guide energy poverty policy

HIGHLIGHTS

→ Energy justice and the alleviation of energy poverty are key goals of EU energy policies

→ There are no clear criteria for assessing energy justice impacts of policies and current frameworks have limitations

→ Understanding and incorporating socio-technical factors into policies is essential for a just energy transition

→ We apply a participatory qualitative approach to understand the socio-technical landscape

→ We develop a bottom-up energy justice framework incorporating both broader societal and household well-being perspectives

Background

The energy system is undergoing a fundamental transformation, involving changes to technologies, ways of producing, consuming and distributing energy, to regulations, and to the roles of actors. To ensure a just transition, the concept of energy justice can provide a guide for assessing energy policies taking place in socio-technical systems, which are characterised by complexity and a diversity of actors. Energy justice is a policy priority in the EU: the Green Deal establishes the goal that no one should be left behind and points out that a "*transition can only succeed if it is conducted in a fair and inclusive way*[1]". It calls the reduction of energy poverty and citizens and workers most vulnerable to the energy transition to be protected. The Green Deal also aims to "*put sustainability and the well-being of citizens at the centre of economic policy*[2]". Energy poverty is nonetheless one ongoing energy justice issue (among others) in EU, despite policy efforts, affecting around 50 million people [1]. Energy poverty has diverse causes, which are influenced by the socio-technical context, meaning that needs of citizens experiencing energy poverty vary significantly. Recent JRC studies show that the relationship between energy poverty and variables like household income, socio-demographics or housing conditions is not consistent and tends to be highly variable across measures of energy poverty [2][3]. Given the complexity of the issue, policy efforts in this direction might exacerbate existing injustices rather than alleviate them. For instance, a recent JRC study [4] analysed the impact of climate policies and found they may in fact exacerbate energy poverty. Better mental models [5] of the underlying systemic causal factors of energy poverty and their interactions are needed. Furthermore, apart from energy poverty indicators[3], energy justice in a wider sense is not explicitly defined or measured within EU policy. This brief shares the findings from our recent report [6], where we describe important socio-technical factors to consider for energy poverty alleviation policies as well as relevant energy justice guidance criteria.

[1] COM(2019) 640. The European Green Deal, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN

[2] Ibid

[3] https://energy-poverty.ec.europa.eu/observatory

Energy justice: existing frameworks

In recent years, a number of frameworks have been proposed and applied to account for multi-dimensional energy justice concerns [7]. These include the three-tenet framework first developed by McCauley [8] and Sovacool and Dworkin's 8 principle framework. There is now a general consensus [9] on the three tenets of energy justice proposed by McCauley [10]. These comprise: 1) *Distributional justice*: the physical distribution of benefits, harms or responsibilities due to developments in the energy system; 2) *Justice as recognition*: the fair representation of individuals/households within the energy system, as well as their right to political participation; 3) *Procedural justice*: equitable decision-making processes that engage all stakeholders in a non-discriminatory way.

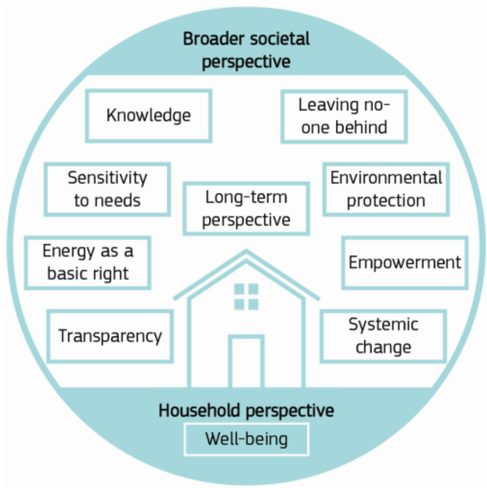
Common approaches to assessing the injustice of energy poverty like cost-benefit analysis (CBA) are criticised for using income and material conditions as the main measure of social progress or well-being [11] or for failing to adequately deal with the social impacts of policy [12–14]. Furthermore, CBA does not uphold the tenets of energy justice, i.e. procedural justice is not upheld because citizens are not involved in designing or carrying out a CBA study; justice as recognition is not upheld, since CBA uses standardized models and generic price tags to determine monetary values of policy impacts; and distributional justice is not upheld since the distribution of benefits and burdens is not analysed in a traditional CBA, which aggregates results [7]. However, recent frameworks such McCauley's or Sovacool and Dworkin's have also been criticised for being limited in how they account for unequal power relations and responsibilities in the energy system [15,16], which is a particularly important consideration for energy poor/vulnerable groups. Further criticisms relate to these frameworks being too prescriptive or top-down, lacking adequate explanation of underlying ethical theories [17], being too difficult to operationalise or lacking description of the justices or injustices relevant to impacted communities or individuals [18].

Tackling shortcomings with a new framework

In order to tackle some of the aforementioned shortcomings of existing frameworks, we aim to develop a bottom-up, participatory energy justice assessment guidance framework for energy poverty alleviation policies. In order to assess energy justice, a pluralistic approach that captures the values of different affected groups is needed. Both individual and broader societal factors of the socio-technical system, which influence end-user energy behaviours, (see our previous policy brief [19]) also need to be better understood and incorporated in policy assessment and design to ensure justice concerns are properly addressed. Assessment tools based in humanities and social sciences, particularly qualitative methods, are useful for capturing social context and human concerns and promoting participation. We therefore used a qualitative approach, with data gathered from interviews and a survey (see quick view section for more details of methodology). We explore the conceptualisation of energy justice, in its wider societal sense, from the point of view of energy actors (e.g. consumer organisations, energy communities, NGOs, researchers) with knowledge of broader societal issues and also from the point of view of households (illustrated in Figure 1).

In exploring the conceptualisation of energy justice from the point of view of the households we draw on the Capability Approach (CA) [20]. The CA conceptualises economic and social development in terms of the opportunities of impacted people for living a good life, rather than on material wealth alone. At the same time it acknowledges that people have diverse needs and may prioritise different aspects of well-being in different ways [18]. The CA has been frequently advocated as an alternative to existing frameworks, particularly in the field of energy poverty. Since energy poverty can be explained more broadly as a state of reduced capabilities [16], using the CA highlights the negative impact of energy poverty on capabilities and hence well-being [21]. Our survey questions therefore gathered data on household conceptualisations of well-being.

Figure 1 – Elements of bottom-up energy justice framework



Source: JRC, 2024

Important socio-technical factors for energy poverty alleviation policies

Energy poverty alleviation policy does not take place in a vacuum but within a particular socio-technical landscape. Based on our qualitative analysis we found that this landscape is characterised by occurrence of particular geographical or climatic conditions in each country, as well as particular cultures and customs. The (global) crises such as the COVID pandemic also impact on energy poverty alleviation efforts. Physical factors such as inadequate housing stock, or inadequate energy infrastructure influence energy poverty as well as economic factors such as the costliness of renovations. Political and institutional factors include power imbalances, lack of coordination or inadequate policy. Individual factors include a lack of energy-related knowledge among energy actors, a lack of accountability for tackling energy poverty in institutions, a lack of motivation on the part of households or public sector workers and a lack of trust in government by citizens. The existence of poverty also results in additional stressors and an under-consumption of energy by households. A tentative conceptualisation of these socio-technical factors and how they are interconnected may be found in our report [6].

Energy justice criteria for energy poverty alleviation policy

We identified important criteria that should be fulfilled to promote energy justice when carrying out energy poverty alleviation projects. In the context of our study, energy justice criteria identified were:

Knowledge

Different groups of actors have the knowledge they need to advance the energy transition

Knowledge: Access to appropriate information that is clear and understandable is crucial for a just energy transition. Information could relate to available options for households, e.g. financing or other tools that could help them to save energy/money; energy bill contents (often these are difficult to understand); or to different types of energy contract available. Once people have the right information and understand it well, they can make better informed choices for themselves and feel more in control and empowered about their energy use.

Energy as a basic right

Citizens have the right to accessible and affordable energy

Energy as a basic right: For a just transition, equal access to energy (and other services, e.g. water) is seen as a basic, universal right, allowing everyone to have a dignified and decent life. Affordability is an important requirement in this regard.

Empowerment

Citizens are empowered in production of energy, decision-making and other key competences

Empowerment: This means helping people to help themselves and to exercise their right to choose and decide with regard to certain aspects of energy (supply, contract, etc.). Empowerment also means giving people a voice in energy decision-making, including making their own decisions, as well as access to producing one's own energy and fostering energy independence (e.g. in a community). Energy communities are seen as a key tool for achieving this.

Leaving no one behind

All groups in society are able to get on board with the energy transition

Leaving no one behind: This relates to the inclusion of all groups in the energy transition, especially the vulnerable and marginalised, to give them a voice. While some households may be able to afford investments, certain groups may be left behind if energy costs are not reduced, if they do not receive appropriate financial and non-financial support and if they do not have the same opportunities, e.g. for household renovations, as other groups in society. It is not fair to expect households that currently under-consume to save energy or reduce CO_2 emissions, for example, in the same way that it is not fair to expect people to 'get on board' with the energy transition and invest in certain measures in their homes, if they are not provided with appropriate support to do so.

Figure 2 – Conceptualisation of well-being by energy poor households

Source: (Shortall & Mengolini, 2024)

Transparency

Transparency on the part of all actors in the energy transitions

Well-being

Human well-being is an end-goal of the energy transition

Transparency: Transparency is a concern in relation to information about energy. In particular, information about contracts and the information provided on energy bills. Energy utilities have been criticised for not providing clear information about different types of contract, e.g. households may be signed up for an unsuitable contract that is very expensive, but the energy company does not intervene to inform them of this. Electricity bills may be difficult to understand for even the savviest of consumers and it is difficult to know if one is being overcharged. Another issue is the use of data collected e.g. from smart meters. Households may not be aware of how their data is being used. As a result, there is a lack of trust in energy companies. E.g. according to one interviewee, in the UK, the energy sector was least trusted of all.

Well-being: The energy transition should have as its end goal well-being for all, rather than aiming solely to increase renewables, or reduce energy consumption. The burden of reduced energy consumption needs to be fairly distributed in society, as it may not be possible to achieve for everyone. The responsibility of ensuring well-being should also be taken up by actors that hold the power to do so (e.g. energy companies should have a responsibility for well-being and not just profit). Otherwise, there is a risk that the energy transition will mainly benefit those that already hold the power to produce energy for profit. Well-being encompasses a person's whole life and necessarily has a subjective element to it. Each household will have a different conception of well-being. Therefore, understanding and finding pathways to positive well-being should be given more importance when designing policy. Figure 2 details the concept of well-being according to householder responses to our survey.

Sensitivity to needs

Recognition of needs of different groups in society that will be part of the energy transition

Sensitivity to needs: For policy to fit the context, the needs of different groups in society must be understood and taken into account. Households may have different circumstances and needs depending on the context, and these should be understood. E.g. those in rented accommodation cannot make the same changes as home-owners, those who are under-consuming should not be asked to reduce energy consumption, or those who are not eligible for bank loans should not be asked to borrow money to do renovations, etc. Furthermore, the energy poor should not be stigmatised or judged, and their privacy respected, and it should be recognised that some households already have to deal with additional trauma or stressors. This implies that designing policies using 'expert logic' will not work – there is a need for co-design with impacted groups.

Environmental protection

Environmental protection as a key part of the energy transition

Environmental protection: While environmental protection is seen as an important part of a just energy transition, and necessary for well-being, protecting the environment may at times be at odds with a socially just transition. Certain groups in society cannot be expected to reduce CO_2 emissions, for example, as they are under-consuming energy already. The responsibility for environmental protection must therefore be distributed fairly among key actors in the energy system.

Need for systemic change

Whole system, not just individual solutions and change to enable the energy transition

Need for systemic change: While reducing household energy consumption and carbon emissions can play a significant role in the energy transition, it should not fall solely upon the individual or households to make changes. Households are only one sector of energy consumption and have limited power to change aspects of the system. There is a risk of applying 'band-aid' solutions to problems that in reality go beyond the households and relate to governance, or the actions of other key actors. Responsibility should be fairly distributed throughout society and should fall to those who have the ability to make the difference, or if not, giving others the power to make a difference.

Long-term perspective

Long-term solutions are needed for existing problems

Focus on long term results: In order to have an effective and just energy transition, there is a need for a long-term perspective, since rather than just introducing new technology quickly, people also need time to change their way of thinking, gain knowledge about energy issues, and have a fair say in decision-making. This involves changing existing systems to accommodate a more just way of governing.

Policy implications

In this research we elaborated a guidance framework of key energy justice criteria in the context of energy poverty. Included in the criteria are dimensions of household well-being that could be impacted by energy poverty policies. Understanding how households conceptualise well-being can help direct energy poverty policies along pathways to improved well-being. For instance, they could be applied as an assessment tool or guideline when designing research funding calls relating to energy poverty alleviation. Another potential application could be their use as a guideline during impact assessment of energy poverty-related policy e.g. at national level, by energy regulators or national agencies.

As a policy assessment approach, we believe the approach we present in this brief has good potential for capturing multiple points of view when designing assessment criteria. A similar approach may be useful for other complex policy contexts of the energy transition where there is a plurality of viewpoints and values at stake. An important next step for users of our guidance framework will be to define measurement methods for the energy justice criteria. These could be either qualitative (e.g. perceptions of different actors) or quantitative (clearly defined indicators and metrics). In either case, the measurement method should be defined in collaboration with key stakeholders in a participatory process, e.g. using focus groups, deliberative processes [22] such as citizen's assemblies, or others, as appropriate.

Limitations and future work

This study carried out a qualitative data analysis on a particular set of data from a sample of EU-funded R&I projects during a certain time frame. While the derived criteria may be applicable at other policy levels, their generalisability should not be automatically assumed. We were limited in our ability to contact households because of privacy issues, so our main means of contact was via a survey; a one-way communication method. Further two-way dialogue with households and other energy system actors would provide us with richer insights and a means to further check the validity and comprehensiveness of the criteria. In order to test our approach in the context of a just energy transition, one possibility is to carry out a study using a larger number of households using the criteria from this study along with appropriate indicators, which should be developed in collaboration with key stakeholders, especially impacted groups.

QUICK GUIDE

We use qualitative data extracted from interviews with project coordinators and field workers, and a survey of energy poor households that participated in EU-funded projects. The interviews were recorded and transcribed into Microsoft Word document files for NVivo* analysis. A purposive sample of projects was targeted based on two broad inclusion criteria: participating households already had experience of an energy intervention in their household and the household was considered as energy poor (this was a pre-requisite for the projects in any case, but we mention it here for clarity). A search was conducted using the CORDIS database of EU-funded research and innovation projects that fulfilled the following criteria:

- Project involved technologies or measures used for household energy poverty reduction.
- Project was completed in the last five years or close to completion, with sufficient data to draw (preliminary) conclusions from.
- Project worked directly with consumers/citizens.
- Project was funded under the H2020 funding program.

This search produced 18 potential projects. Of these, we were able to gather qualitative data from 7 projects in total, via survey questions and interviews. These 7 projects had activities across a broad range of EU member states. 5 of the 7 projects were able to organise access to participants for a survey of households via an intermediary. This had to be done for privacy reasons and had the added benefit of using a trusted intermediary, previously known to the participants. The projects that agreed to take part in the survey were spread across 16 different countries and the survey was therefore published in the relevant languages. The questions used simple wording to accommodate possible low levels of literacy and were designed to explore participants' understandings of their concept of well-being or 'good life' and their most important needs in relation to this. In total, 67 survey responses were received. The participants varied in terms of geographic location, type of energy intervention, type of household (e.g. income level), age group and gender.

Semi-structured interviews were also conducted via Teams with 11 project coordinators and field workers, taking part in 7 different projects. Interviews were conducted during the period December 2022 – Feb 2023. Each interview was approximately 1 hour in duration.

All interviews were conducted in English, audio- recorded, and transcribed, before importing into NVivo*. The interview guide was divided into 3 sections: (1) Introduction, (2) Background/experience of interviewee, (3) Questions relating to overall experience of the project and perceptions of energy justice for the project.

The qualitative data gathered was analysed using the strategy of thematic analysis [23,24]. Thematic analysis is a method for identifying, analysing and reporting patterns (themes) within data [24]. Data-driven inductive coding was used to identify themes in the data, combined with the deductive use of the researchers own theories [23] i.e. a hybrid approach. The iterative six phase approach for coding and analysis from [25] was applied as follows: (1) familiarisation with the data, (2) generating initial codes and sub-codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, (6) producing a report. The data analysis process was carried out using NVivo software. All open question responses in the interviews and surveys were analysed and coded, which resulted in a workable coding scheme after which codes and sub-codes were compared, merged, and refined according to the iterative process outlined by Braun and Clarke [25].

** NVivo is a qualitative data analysis computer software used in social sciences to organize, analyse and find insights in unstructured or qualitative data like interviews, open-ended survey responses, journal articles, social media and web content, where deep levels of analysis on small or large volumes of data are required.*

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