Expanding the Concept of Energy Poverty to Include Transportation

BY ORLA DINGLEY

Abstract

Addressing energy poverty is seen as the way to ensure a just energy transition. However, energy poverty research and policy to-date has generally only considered energy use within the home. This article advocates expanding the concept of energy poverty to include the energy a household uses for transportation.

Introduction

We all rely on energy in our everyday lives. Within the home we use energy for purposes such as heating, cooling, lighting, cooking and food preservation, etc. However, many people also use 'transport energy' to commute to work, and to access essential services such as education, health care, or to purchase clothing and food. For this reason, an individual's income and their quality of life can be highly influenced by their access to affordable and reliable transport.

With the introduction of climate change policies and with depleting levels of fossil fuels, fuel prices for both household energy and transport energy are expected to rise. As a result, an increasing number of households could face difficulties in their ability to warm their home, pay their energy bills, or fulfil their travel needs.

Addressing energy poverty is being heralded as the way to ensure a 'just' energy transition. However, to-date energy poverty research has overwhelmingly focused on energy use within the home and not the energy used for transportation. To ensure a just energy transition, energy poverty research needs to encompass all aspects of a household's energy consumption, both within the home and for transport.

Transport Poverty

The impact of a lack of access to reliable and affordable transport on the quality of life of an individual has been investigated in the field of transport poverty. Historically, energy use for transportation and energy use within the home have been treated as different areas of research. This segregation has led to the evolution of two fields of research - transport poverty (access and affordability of private and public transport) and energy poverty (access and affordability of energy use within the home). However, recently some academics and policy makers have begun to recognise the significance of transport energy use in relation to energy poverty. A new argument being made is that researchers should study all levels of a household's energy consumption together (e.g. Furszyfer Del Rio et al., 2023; Lowans et al., 2023; Martiskainen et al., 2021; Mattioli et al., 2017; Robinson & Mattioli, 2020; Sareen et al., 2022; Simcock et al., 2021). By uniting these two fields of research we might be able to understand any overlapping causes and links between both issues, and any cost trade-offs households make between aspects of their energy consumption.

A cross-national study into transport poverty and energy poverty across Ireland, Mexico and the United Arab Emirates (Furszyfer Del Rio et al., 2023) found that transport poverty and energy poverty were common issues across each of the different national, and sub-national contexts. In addition, the authors identified the occurrence of a 'double energy vulnerability', where people were simultaneously at risk of transport poverty and energy poverty. They argue that double energy vulnerability was identifiable in each country regardless of the political regime, level of economic development and sociodemographic profile.

Mahumane & Mulder's (2022) case study of energy poverty in Mozambique revealed that expenditure for transport can make up about 50 percent of all modern energy used by households. They conclude that for households in urban areas with a high modern energy source usage, transport fuels can have a significant impact on energy poverty levels. Similarly, in France, research has suggested that high transport costs for commuting can result in energy poverty (Rosales-Montano et al., 2009; Jouffe & Massot, 2013). Rosales-Montano et al. (2009) argue that people living in areas with a lack of public transport are dependent on personal cars for transportation and this makes them vulnerable to energy poverty when transport fuel prices increase. Studies such as these highlight the impact transportation can have on energy poverty and the possible insight that can be obtained by studying both areas of energy use together.

Developing Effective Policies

To make public policies effective the policies need to target the right people. Since energy poverty is typically only associated with heating and energy services within the home, if we introduce transport energy to the analysis it might reveal sections of the population not currently identified as being in energy poverty. For this reason, the success of energy poverty policies will depend on the dimensions of energy consumption measured when targeting remedial policies.

A study from the UK (Salutin, 2023) investigated the financial burden of transport on UK households. The study revealed that transport is the largest single household expense, excluding mortgage repayments, for rural families, but the second largest for urban

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families. Households in urban and rural areas were impacted by energy costs in different ways. Similarly, another study from the UK (Chatterton et al., 2016) which combined the car usage data from over 27 million individual vehicles and the readings from over 24 million domestic energy meters, found that energy usage patterns differed across urban and rural areas. The researchers concluded that location had an influence on energy consumption. The results from studies like these would suggest that including transportation in the concept of energy poverty would require energy poverty policies to apply a spatial dimension to its targeting. Energy poverty policy would need to expand and adapt to include a wider set of energy-related vulnerabilities.

Channelling energy use into just one energy source

Under current plans for the energy transition, direct energy use for heating, cooking, and transport is likely to become increasingly electrified. As a result, many aspects of a household's energy consumption may become channelled into just one household expense - the electricity bill. This development could push households into making cost trade-offs between aspects of their electricity consumption including transportation and heating. By including transportation in current energy poverty research, it would be possible to prepare for a time when all aspects of direct energy use will become further intertwined.

Conclusion

To support a just energy transition, we need to implement energy policies that tackle climate change while improving, rather than worsening, socioeconomic and spatial inequalities. Addressing energy poverty is a necessary step to ensure a just energy transition. However, energy poverty measurement needs to encompass all aspects of a household's energy consumption not just energy use within the home. If energy poverty measurement is flawed, then the policy recommendations and remuneration will also be flawed.

To enable the formulation of effective energy poverty policies we need to collect more data on the trade-offs households make between all energy sources, and the impact of energy expenses felt across all groups of society. A changing energy system will impact individuals in different ways. If we include the transport dimension to energy poverty research, we may notice the influence of location on patterns of energy poverty. For example, in rural areas where transportation is the largest single household expense, households may react to changes in transport costs in a different way from households in urban areas where transport expenses are less important.

Since the quality of life of many people is affected by their access to affordable and reliable transport energy, it must be an aspect of energy poverty research. For this reason, there is a need to re-examine the specification and targeting of energy poverty policy and research to include energy used for transportation.

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