

Low income and living in a rural area increases the risk of double energy vulnerability.

Two substantial stepping stones in addressing climate change have taken place in the last three months, with the UK government launching its [Net Zero Strategy, pdfOpens in a new tab](#) in October 2021 and hosting the international community at COP26 in November 2021. Both initiatives aim to work towards delivering a low-carbon, or net-zero, transition. Such a transition must be just and ethical, ensuring that those who are on a low-income, vulnerable or marginalised are not further disadvantaged.

As societies move toward low-carbon futures, it is essential that everyone can access low-carbon energy and transport options. To do that, we need to first reveal who may be currently vulnerable, disadvantaged or excluded, so that they are not further negatively impacted by net zero policies. [New research](#) from our 'Fuel and transport poverty in the UK's energy transition' (FAIR) project has aimed to do just that. Reviewing 250 academic articles on energy poverty and transport poverty, we identified the people and places that each set of literature found to be at greatest risk of experiencing these two problems.

What does 'double energy vulnerability' mean?

We found that there are several groups in society who are disproportionately likely to experience *both* energy and transport poverty simultaneously – a problem sometimes termed 'double energy vulnerability'.

Living on a low-income was the most common factor that increases risk to both energy and transport poverty. Some groups of people, including disabled people, migrants and ethnic minorities, single parents, and older people, also face additional disadvantages that exacerbate a low-income and further increase their vulnerability.

There are also geographical inequalities. People living in rural areas can be especially at risk of double energy vulnerability due to inferior access to important social and physical infrastructures, such as public transport and gas heating networks. This in turn often means that they are forced to pay more for their energy, or to travel further and by more expensive means to access key services.

Overall, the most vulnerable people are likely to be those facing multiple social disadvantages (for example, a disabled person from an ethnic minority background living on a low income) whilst living in a comparatively remote locality. In these situations, energy and transport poverty are not wholly separate issues, but often overlap and intersect – resulting in extreme hardship and exclusion from society.

How can we deliver a fair low-carbon transition?

So what does this mean for delivering a fair low-carbon transition? First, we need to ensure that the most vulnerable people and places are prioritised for access to low-carbon innovations that can reduce energy and transport costs, and that these measures are designed with their needs in mind.

There is also a strong argument for developing more ambitious, holistic policies that can tackle energy and transport poverty *simultaneously*. At the moment, programmes addressing these problems tend to be designed, developed and implemented separately. But there are examples from elsewhere of more comprehensive measures. The [Transit-Orientated DevelopmentOpens in a new tab](#) scheme in San Francisco Bay Area, for instance, seeks to develop energy efficient and affordable housing specifically in localities that are located close to public transport networks. In Chile, a [recent](#)

[development project](#)Opens in a new tab provided isolated rural communities with community solar panels and shared electric boats. The panels provide electricity to buildings but also charge the batteries of the electric boats, enabling a low-cost and low-carbon method of transportation. These projects could act as inspiration for future schemes in the UK and elsewhere.

Finally, it is important to recognise that the causes of double energy vulnerability often extend beyond the design of energy and transport systems, and can be deeply rooted in the structures of society. Addressing this, therefore, also requires going beyond only a technical fix and considering wider, structural change.

What's next?

We need a net-zero transition that does not add to the wider set of injustices experienced by already disadvantaged sections of society. To achieve this, we still need new empirical research to gain a better understanding of how energy and transport poverty can intersect, and more detailed insights into the people and places who are most vulnerable. The FAIR project is currently collecting and analysing new data on double energy vulnerability from interviews, surveys and modelling data, with more new results expected in 2022.