Lost in Transition?

Ensuring an Equitable Household Energy Transition in Ireland

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In Summary

- Residential energy poverty and transport poverty have significant impacts on the physical and mental health of children and young people as well as on their educational outcomes.
- Higher energy poverty rates in the older population are related to living alone, poorer self-rated health, and the absence of an occupational or private pension.
- Low-carbon technology uptake is skewed towards affluent households. State supports need reform, with additional targeted investment in retrofitting, public transport and active travel, and social protection to ensure a just transition.
- Public transport poverty and forced car ownership is due to spatial inequalities in public transport provision. A relatively high proportion of older people in Ireland experience public transport poverty, especially in rural areas.

1. Introduction

Access to energy plays a key part in many of the essential parts of life today: including "lighting, heating, cooling, cleaning, cooking, and food preservation" (Dingley et al., 2025, p.1), as well as communication, and inclusion and engagement in employment, social life, health and education.

The imperative for transforming to a low carbon world has never been more pressing. 2026 was the hottest summer on record in Ireland (Met Éireann, 2026), while it has been acknowledged by the UN that the world will unavoidably exceed 1.5°C of warming in the coming years (UNEP, 2026). The need for urgent and immediate further action towards a decarbonised energy system in Ireland is clear.

However, decarbonisation is not automatically just. If low-carbon technologies, retrofit supports and transport alternatives are accessed primarily by more affluent households and communities, the transition may reinforce existing inequalities. Households unable to switch away from fossil fuels may face continued exposure to volatile fossil-fuel prices, poor housing conditions and limited mobility options.

A just transition requires more than avoiding new inequalities. In moving to a low-carbon economy, it requires attention to distributional, procedural, spatial and restorative justice (Banerjee and Schuitema, 2022; Banerjee and Schuitema, 2023).

This policy paper draws on NexSys, the UCD Energy Institute and other relevant research on the health, education and wellbeing

impacts of energy poverty, the social and spatial divide in low-carbon technology adoption, and the design of ecosocial policy supports. It argues that Ireland should treat energy poverty, transport poverty and unequal technology adoption as interconnected policy problems requiring an integrated response.

2. Energy Poverty

2.1 Residential Energy Poverty

Residential energy poverty arises from the interaction of low or insecure income, high energy prices, household energy needs and poor-quality, inefficient housing. Common measurements of energy poverty include proportion of disposable income spent on energy, although this approach has been criticised for failing to capture housing quality, required energy services and the lived experience of cold, damp or under-heated homes.

Energy poverty is therefore best understood as a problem of access to essential energy services, not merely high bills. A household may have a modest energy bill but still be unable to maintain an adequate temperature because the dwelling is poorly insulated, because it sparingly uses expensive fossil-fuel heating, or because income is insufficient after other essential costs (e.g. rent, childcare).

2.2 Transport Poverty

Transport poverty is less consistently discussed than residential energy poverty, but it is highly consequential. It can arise where households lack access to affordable public transport, cannot afford to own or run a car, live in areas poorly served by transport infrastructure, or face long and costly journeys to work, school, healthcare and social activities.

Glossary of Abbreviations and Terms

Term	*Meaning*
EV	Electric vehicle
EVHC	Electric vehicle home charging
HP	Heat pump
PV	(solar) photovoltaic panel
Just Transition	A term that has evolved to mean the transition to a low-carbon economy that distributes benefits and burdens fairly, includes affected people in decision-making, and addresses historical and structural disadvantage
Residential Energy Poverty	A household's inability to afford adequate energy services, including heating, lighting, cooking, cooling and hot water, often reflecting the interaction of income, energy prices and poor housing quality
Transport Poverty	Limited or unaffordable access to transport needed for employment, education, healthcare, social participation and essential services
Double Energy Vulnerability	The combined and mutually reinforcing experience of residential energy poverty and transport poverty
Low-carbon technologies	Technologies that reduce fossil-fuel dependence, including heat pumps, solar PV, EVs and EVHCs

Transport poverty is particularly significant in rural and peripheral areas, where car dependence is often high and alternatives may be limited. It can also affect urban households excluded by fare prices, service frequency, safety concerns, accessibility barriers or the absence of suitable routes.

2.3 Evidence of Energy Poverty and Transport Poverty in Ireland

Residential energy poverty and transport poverty should not be treated as separate issues. Many households face both: they may live in inefficient homes while also facing high travel costs or limited public-transport options.

This matters because of the compounding effects of 'double energy vulnerability' (Robinson and Mattioli, 2020). A household may reduce heating use to manage bills, then face additional costs travelling to school, work or healthcare. Conversely, poor transport access can limit access to employment and services, weakening household income and increasing vulnerability to energy costs.

NexSys research by Da Silva Pedroso and colleagues, using the Growing Up in Ireland (GUI) longitudinal dataset, examined the effects of residential energy poverty and transport poverty on children and adolescents (Da Silva Pedroso et al., 2025). The research found that:

- Children experiencing both residential energy poverty and transport poverty at age 9 have significantly lower reading and mathematics scores
- By age 17, cumulative exposure to residential energy poverty is associated with poorer mental-health outcomes
- Impacts vary by age, gender and urban-rural location
- Girls in rural areas and children in low-income households face particular risks from poor transport access
- The effects of energy and transport poverty compound disadvantage, independently of household income

An analysis of data from the longitudinal survey of older people in Ireland (TILDA) reveals that a relatively high proportion of older adults experience public transport poverty, especially in rural areas (Dingley, 2026a). Risk factors for experiencing higher energy poverty in this group include: living alone; poorer self-rated health, and the absence of an occupational or private pension.

Qualitative research with older people in the midlands revealed that their capacity to adapt to the energy transition was shaped by financial resources, but also by confidence, trust, and the opportunities available to them (Dingley, 2026b). On energy retrofitting, it highlighted the need for trusted and impartial advice, reducing practical barriers, and ensuring that appropriate services are available. On transport, local bus services were rarely viewed as a realistic substitute for private car use because they were consistently described as infrequent, unreliable, and inconvenient.

Data on utility bill arrears and energy disconnections must be highlighted when considering the harms of energy poverty. As of the end of June 2026, 323,559 households were in arrears with their electricity bills, 187,792 households were in arrears with their domestic gas bills, and over 1,000 households had been disconnected by their provider (CRU, 2026). Data from the Statistics on Income and Living Conditions (EU-SILC) reveals that lone parent households are much more likely to be in arrears with their utility bills compared with other household types with approximately one quarter in arrears (Eurostat, 2026; Winston et al., 2025).

These findings demonstrate that energy poverty is not only a cost-of-living issue. It has long-term consequences for human development, educational equality, mental health and social mobility. Early intervention is therefore essential, including housing retrofit, affordable heating, safe and accessible transport, and targeted school-transport support.

3. Policies Tackling Energy Poverty

Ireland already uses a broad range of instruments to address energy poverty, affordability and decarbonisation, including:

- Grants and subsidies for low carbon technologies like home energy upgrades, heat pumps, solar PV, EVs and EV charging infrastructure (Government of Ireland, 2026)
- Recurring and temporary, time-limited social-protection payments, including energy-related supports and broader income supports
- Tax measures affecting household incomes and energy costs
- Targeted schemes for lower-income homeowners and those living in social housing
- Investment in public transport, active travel and transport infrastructure

These measures can have different distributional impacts. Income supports can cushion price shocks, while grants can support technology adoption, but neither automatically addresses the underlying drivers of energy poverty: energy inefficient homes, fossil-fuel heating systems, insecure incomes, poor transport access and unequal access to capital.

3.1 Low-Carbon Technology Adoption

The uptake of low carbon technology can create significant health, comfort and financial savings for those in a position to do so. Heat pumps, electric vehicles, solar PV and battery technologies have advanced significantly in recent years, and Ireland offers grants and incentive schemes for their uptake at a residential level (Government of Ireland, 2026).

NexSys research by Singh and Caulfield examines adoption of these four household-level low-carbon technologies. Using data across 2,804 electoral divisions, the study finds that adoption is strongly associated with affluence, professional employment and homeownership (Singh and Caulfield, 2026). Key findings include:

- More affluent areas have 1.2% to 2.9% higher adoption of low-carbon technologies than more deprived areas
- EV and heat-pump uptake can be five to seven times higher in wealthier locations, with some gaps reaching thirteen-fold between the highest- and lowest-income areas
- Higher reliance on fossil-fuel heating reduces heat-pump adoption, illustrating the risk of fossil-fuel lock-in
- Spatial spillovers matter: EV adoption in one area can increase adoption in neighbouring areas by approximately 2.6%
- Renters, apartment dwellers and lower-income households face particular barriers, including lack of control over property upgrades and limited access to EV charging

This constitutes a green divide: the households most able to benefit from grants, lower running costs and improved comfort are often those least in need of support. Without corrective action, the transition may widen the gap between energy-secure and energy-vulnerable households.

3.2 Grant Structures for Decarbonisation

Ireland relies heavily on financial incentives to support household decarbonisation. However, many schemes operate on a pay-then-reimburse basis: households must meet substantial upfront costs before receiving support (Singh and Caulfield, 2026).

This model is inherently difficult for low-income and some middle-income households when energy and food price inflation is high. It favours those with savings, access to credit, secure homeownership and the ability to manage upfront expenditure. It is less accessible to renters, social-housing tenants, apartment residents and households with limited financial buffers.

The result is that grant schemes can be formally open to all while substantively regressive in their distributional effects. The policy question is therefore not simply whether supports exist, but who can realistically access them, when support is received, and whether the support addresses structural barriers.

Renters are also particularly impacted by the structure of household improvement and low carbon technology adoption for changing their home energy conditions, due to their "lack of autonomy over property improvements" (Da Silva Pedroso et al., 2025, p. 2582). In addition, the split incentive problem tends to act as a deterrent for private landlords in that they are responsible for the financial cost of energy retrofitting, while the tenant receives all the benefits of lower bills and thermal comfort.

3.3 Social Protection Supports and Public Services

Social measures which specifically aim to meet social goals such as supporting vulnerable social groups, are a significant feature of Irish state supports related to energy. The Fuel Allowance, Household Benefits Package and Additional Needs Payment are means-tested and delivered through the social protection system. Alongside this, the Government relied in the context of the 2022 energy crisis on four universal energy credits given to all households (Winston et al., 2025). While income supports and credits can help households manage energy costs, they do not by themselves solve poor housing quality, fossil-fuel dependence or transport exclusion. Further, better targeting of supports for vulnerable households beyond tackling income poverty are necessary to effectively tackle energy poverty (Da Silva Pedroso et al., 2025).

In addition to social protection measures, the tax system has also been used as a policy lever in relation to energy costs, for example, a reduction in VAT on electricity and home heating fuels. These measures are "regressive in its distributional outcomes" (Winston et al., 2025, p. 204; Barrett, Farrell and Roantree, 2022). Affordable, reliable public transport, safe walking and cycling infrastructure, rural mobility services and school transport can reduce transport poverty while lowering emissions.

4. Policy implications

- State supports can play a vital role in tackling energy poverty and ensuring a just energy transition for households
- There is a green divide in the adoption of low-carbon technologies skewing towards more affluent households, and the structure of state grant supports impacts this
- Reform of existing state supports is necessary to combat residential energy and transport poverty, and to ensure more equitable access to low-carbon technology adoption
- Building on recent and substantial increases in investment in public services like transport in recent years, additional and targeted investments and social protection supports for vulnerable social groups, are necessary to ensure a just transition for households.

4.1 Energy poverty requires an access-based approach

Policy should move beyond a narrow income or expenditure definition of energy poverty (Dingley et al., 2025). It should measure whether households can afford and obtain adequate energy services: warmth, hot water, lighting, cooking, cooling where needed, and essential mobility.

A transport poverty measure needs to be developed and included in all key social surveys such as the EU Statistics on Income and Living Conditions (EU-SILC), Growing Up in Ireland (GUI) and The Irish Longitudinal Study on Ageing (TILDA). This requires better data on different forms of poverty and deprivation, and their drivers, which is absent from some social surveys.

4.2 Transport poverty in an integrated energy policy

Transport poverty should be treated as a core component of energy poverty policy, not as a separate transport issue. Energy-poverty strategies, retrofit programmes, climate-action plans and rural-development policy should explicitly address both transport and energy poverty.

This means coordinating home-retrofit investment with public transport, school transport, rural mobility, active-travel infrastructure and affordable EV-charging access for households without private driveways.

4.3 Grant design must be equitable by default

Where upfront 100% payment is required for a state grant, this impacts accessibility to that support for vulnerable and low income groups.

Ireland should reform support, grant, and financing schemes so that equity is built into their design rather than addressed after unequal take-up becomes evident.

4.4 Support should prioritise those least able to adapt

Households with the lowest capacity to adapt to climate and energy risks are often those most exposed to those risks. Policy should therefore prioritise resilience for households facing the greatest barriers: low-income households, renters, social-housing tenants, lone parents, older people, people with disabilities and households dependent on expensive fossil fuels.
While funding for the Warmer Homes Scheme and retrofit of social housing has increased, finance should be targeted at these more vulnerable groups for a period of time.

4.5 Investment in the most disadvantaged communities

While the focus of this paper has been on household Just Transition issues related to energy access and affordability, there are significant issues at a community level which are essential to consider in the wider scheme of Just Transition. Individualised supports are inadequate on their own, and community-level engagement, empowerment, and support is necessary.

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Policy Engagement

The UCD Energy Institute and the NexSys programme are committed to leveraging their research in support of evidence-based public policy. This policy paper adds to the portfolio of policy engagement, which can be explored on the UCD Energy Institute and NexSys websites.

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