nesc
Taighde, Idirphlé, Comhairle
Research, Dialogue, Advice

COUNCIL

No.170 August 2025

Connecting People to the Energy Transition

National Economic & Social Council

Constitution and Terms of Reference

1. The main tasks of the National Economic and Social Council shall be to analyse and report on strategic issues relating to the efficient development of the economy and the achievement of social justice.

2. The Council may consider such matters either on its own initiative or at the request of the Government.

3. Any reports which the Council may produce shall be submitted to the Government, and shall be laid before each House of the Oireachtas and published.

4. The membership of the Council shall comprise a Chairperson appointed by the Government in consultation with the interests represented on the Council, and

- Three persons nominated by agricultural and farming organisations;
- Three persons nominated by business and employers organisations;
- Three persons nominated by the Irish Congress of Trade Unions;
- Three persons nominated by community and voluntary organisations;
- Three persons nominated by environment organisations;
- Four other persons nominated by the Government, including the Secretaries General of the Department of Finance, the Department of Business, Enterprise and Innovation, the Department of Housing, Planning and Heritage, the Department of Public Expenditure and Reform.
- Seven people possessing knowledge, experience and skills which the Taoiseach considers relevant to the functions of the Council

5. Any other Government Department shall have the right of audience at Council meetings if warranted by the Council's agenda, subject to the right of the Chairperson to regulate the numbers attending.

6. The term of office of members shall be for three years. Casual vacancies shall be filled by the Government or by the nominating body as appropriate. Members filling casual vacancies may hold office until the expiry of the other members' current term of office.

7. The numbers, remuneration and conditions of service of staff are subject to the approval of the Taoiseach.

8. The Council shall regulate its own procedure.

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COUNCIL PAPER

No.170 August 2025

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Abbreviations

ATU	Atlantic Technological University
BER	Building Energy Rating
BETT	Behavioural Energy and Travel Tracker
BRP	Building Renovation Passport
CaaS	Cooling as a service
CAN	Climate Action Network
CAROs	Climate Action Regional Offices
CBF	Community Benefit Fund
CCAC	Climate Change Advisory Council
CEG	Clean Export Guarantee
CRU	Commission for Regulation of Utilities
DZs	Decarbonising Zones
ECIs	Energy Cooperatives Ireland
ECs	Energy Communities
EEOS	Energy Efficiency Obligation Scheme
EERP	Energy Efficiency Retrofit Programme
EPA	Environmental Protection Agency
EPBD	Energy Performance of Buildings Directive
ESBN	ESB Networks
ESOs	Electricity Supply Organisations
EVs	Electric vehicles
FETA	Fair Energy Transition for All
GDSEC	Greystones and Delgany Sustainable Energy Community
GHG	Greenhouse-gas emissions
HaaS	Heating as a service
HEMS	Home Energy Management Systems
LCDCs	Local Community and Development Committees
MSS	Micro-generation Support Scheme
NECP	National Energy and Climate Plan
NUIG	Galway University
NZEB	Nearly zero energy building
OPR	Office of the Planning Regulator
PEDs	Positive Energy Districts
PSO	Public Service Obligation
RAP	Regulatory Assistance Programme
RBTs	Rising Block Tariffs
REFIT	Renewable Electricity Feed-In Tariff
RESS	Renewable Electricity Support Scheme
SDGs	Sustainable Development Goals
SEAI	Sustainable Energy Authority of Ireland
SECs	Sustainable Energy Communities
SEM	Single Electricity Market
SESWG	Smart Energy Services Working Group
SETU	South East Technological University
SFRC	Southend Family Resource Centre
SILC	Survey on Income and Living Conditions
SRESS	Small-Scale Renewable Electricity Support Scheme
ToU	Time-of-use (tariffs)
V2H	Vehicle-to-house
V2L	Vehicle-to-load

Glossary of Terms

Building Energy Rating (BER): A rating system used for domestic buildings.

Clean Export Guarantee (CEG) tariff: An export payment for residual renewable electricity exported to the grid by renewables self-consumers and renewable energy communities.

Decarbonising Zones (DZs): Areas designated under the Climate Action Plan 2023 where local authorities test low-carbon solutions.

Demand-side management: Allows active energy customers to respond to signals and adjust their energy use, storage and local generation dynamically.

District heating: A heating solution for densely populated areas that distributes heat and hot water from a central source, increasingly using renewables or 'waste' heat.

Dynamic tariffs: Electricity tariffs where the price varies by time of day.

Embodied carbon: Emissions from the manufacturing of materials, transportation, construction, maintenance and deconstruction of a building.

Energy affordability: A principle of energy policy focused on ensuring the cost of energy is manageable for consumers. Energy bills are influenced by supply costs, network costs, excise levies and taxation.

Energy community: A group of active consumers who voluntarily commit to providing environmental, social or economic welfare by engaging in renewable energy generation, energy sharing or trading; storage or supply, provided these activities are not for commercial purposes and do not constitute the primary profession of the members of the community (CRU, 2025).

Sustainable Energy Communities (SECs): Energy communities that are registered with SEAI's Sustainable Energy Community Programme that engages community involvement, allowing shared learning and implementation of energy solutions locally.

Energy poverty: A complex issue related to income levels, energy efficiency and energy costs, where households are unable to keep their home adequately warm.

Energy resilience: The capacity or ability to avoid, withstand and recover quickly from any unforeseen disruption or shock to the energy supply.

Energy sharing: A concept allowing citizens and energy communities to share self-generated energy, which is being introduced in Ireland following EU policy.

Energy sufficiency: A state in which people's basic needs for energy services are met equitably, and ecological limits are respected.

Energy Transition: The transformation of Ireland's energy system from fossil fuels to largely renewable sources to achieve climate neutrality by 2050.

Fuel Allowance: A scheme to assist qualified households in receipt of certain social welfare benefits with their heating costs.

Heating as a service (HaaS): Business models where service providers, rather than end users, own and operate heating equipment and charge fees for the service.

Heat pumps: A technology that can produce heat from renewable sources like air, water or ground, used in individual buildings or district heating systems.

Home Energy Management Systems (HEMS): Technologies that can automate demand shifting for customers, potentially based on price signals from dynamic tariffs.

Household Benefits package: A benefit paid to people aged 70 and over, which is not means-tested. Certain people under 70 can also get it if they meet qualifying conditions, including an electricity or gas allowance.

Islanding: The ability of a local energy system – such as a community microgrid – to operate independently of the main electricity grid for a period of time, using its own local generation (like solar, wind or battery storage).

Just Transition: An approach that seeks to ensure that the process and outcomes of the energy transition are fair and equitable, ensuring equitable distribution of costs and benefits while protecting vulnerable groups.

Just resilience: A concept that prioritises vulnerable and marginalised communities, ensuring that adaptation efforts are inclusive and support fair and equitable outcomes.

Microgeneration: The generation of energy (e.g. electricity or heat) on a small scale by individual households, farms or businesses, such as through rooftop solar PV systems.

Micro-generation Support Scheme (MSS): A scheme that includes capital grants and tariffs for homes, farms and businesses with solar panels to sell unused electricity to the grid.

Microgrid: Small-scale power grids that operate independently to generate electricity for a local area, such as a hospital or community.

One Stop Shop Service (National Home Energy Upgrade Scheme): A scheme for homeowners, landlords and approved housing bodies who want to bring their homes to B2 or higher BER rating, managed by SEAI.

Place-based approach: An approach to energy transition that supports local area energy and climate action planning, involving local authorities and communities.

Positive Energy Districts (PEDs): Energy-efficient and flexible urban areas that produce net zero greenhouse-gas emissions and actively manage an annual local or regional surplus production of renewable energy.

Prosumers: Households or individuals who both consume energy and produce it, for example through microgeneration like solar PV.

Public Service Obligation (PSO) levy: A levy on household bills that supports national policy objectives, including renewable energy schemes.

Renewable Electricity Support Scheme (RESS): A scheme supporting renewable electricity generation, where energy communities can apply through an auction.

Rising Block Tariffs (RBTs): Electricity tariffs that charge more as consumption increases, intended to encourage savings and improve affordability.

Smart meters: Meters that measure household energy demand profiles and monitor electricity export to the grid. They can provide real-time data, often requiring an additional device.

Split incentive: A problem, particularly in the private rented sector, where tenants and landlords both lack incentives to upgrade buildings for energy efficiency.

Small-Scale Renewable Electricity Support Scheme: A renewable electricity scheme to support renewable electricity generation technologies with an electricity output greater than 50kW, but smaller than typical commercial generators.

Standing charges: Charges on electricity bills to cover grid maintenance.

Strategic Emergency Management Framework: Ireland's Emergency Framework sets out the national arrangements for the delivery of effective emergency management.

Time-of-use (ToU) tariffs: Smart services where the cost of electricity changes depending on the time of day.

Transition risk: A risk associated with transitioning to a lower-carbon economy, potentially involving extensive policy, legal, technology and market changes.

Vulnerable Customer Register: A register with additional customer protection measures for vulnerable customers.

Warmer Homes Scheme (Better Energy Warmer Homes Scheme): A fully funded scheme providing free home energy upgrades for homeowners who receive certain social welfare payments and live in the oldest, least energy-efficient homes.

Wellbeing: Used as a multidimensional concept reflected in the National Wellbeing Framework, having 11 dimensions for a good quality of life such as health, community, housing, skills and work.

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Executive Summary

Ireland is undertaking a large-scale transformation of its energy system, moving from fossil fuels to largely renewable sources to achieve climate neutrality by 2050. With legal targets to be achieved and a widening gap between current progress and required reductions, the Council recognises that this is a societal as well as economic and technological challenge. The transition must ensure that emissions are reduced while also protecting energy security, affordability and reliability for people. There will be costs and risks; some people will be more affected than others.

There are challenges in delivering a just transition and there are new risks to energy reliability, highlighted by extreme weather events. In this report, the Council recognises that this transition must be just, ensuring equitable distribution of costs and benefits while protecting vulnerable groups. Adopting a societal lens is crucial for understanding how households are connected to the energy system and strengthening this connection for successful implementation.

The Council focuses on five broad areas where actions can be taken.

Energy Affordability, Energy Poverty, Monitoring and Targeting: There is potential in social tariffs, taxation and other measures to increase affordability. Measures could be further strengthened by targeting support for vulnerable groups; by enhanced monitoring and data analytics; and by addressing the "split incentive" for landlords and tenants. There is potential to work to end energy poverty through collaborative and integrated action, particularly in strengthening and aligning energy transition and energy poverty actions.

Scaling Up Energy Efficiency and Clean Heat: Scaling up energy efficiency and transitioning to clean heat (like heat pumps and district heating) in existing residential buildings is vital for decarbonisation and a just transition. Ireland has ambitious retrofit targets, but barriers need to be addressed to support increased uptake. Recommended areas of action are: leveraging social and behavioural insights; using trusted messengers and local actors; supporting group delivery schemes (such as Solar Meitheals, where neighbours can avail of an opportunity to have solar panels installed as part of a larger group); demonstrating clean heat technologies; and exploring models like Heating as a Service for vulnerable groups.

Helping Households to Reap Electricity Benefits: Households can become more active participants ("energy citizens" or "prosumers") through demand-side management, microgeneration and energy sharing. Smart meter functionality and accessibility to data for households is needed, with support for effective use. Microgeneration, particularly rooftop solar PV, is growing rapidly, and energy sharing can allow households and energy communities to share self-generated energy, offering potential cost savings and local value, particularly for vulnerable groups. Increased measures to ensure equitable access for all could be supported by secure application of digital/AI technologies.

Building Place-Based Energy Resilience and Local Production: A place-based approach, involving local authorities and communities, can enhance local energy resilience and support decarbonisation. Extreme weather events highlight the need for energy resilience at a local level. Building local energy resilience can be enabled through use of batteries and resourced community hubs.

Energy communities can be key actors and there are growing numbers in Ireland. However, there are barriers to be addressed. Policy needs to address these by expanding ownership models (e.g. co-ownership with developers or potentially with public bodies/local authorities), providing better early-stage funding, supporting communities to act as intermediaries for households, and facilitating their role in local heat generation (biogas, district heating) and energy sharing.

Strengthening Energy Connections: Strengthening the connection between people and the energy transition is essential for a just, inclusive and wellbeing-focused outcome. This involves equitable sharing of costs and benefits, protecting vulnerable groups, and fostering collaboration across society.

Governance for the transition requires further engagement, collaboration and potentially developing a shared vision or "galvanising mission" through participative approaches. Addressing the long-term costs of the transition and how they will be shared is crucial and requires a clear approach beyond consumer bills. There is also potential for increased collaboration and mutual learning with Northern Ireland on energy transition and tackling energy poverty.

In this report, the Council sets out a range of actions, in each of these areas, that can support a just energy transition and strengthen connections between people and the energy transition.

Chapter 1: Introduction

Energy is of critical importance to Irish daily life and the wellbeing[1] of all and becoming even more so in our digital world. Ireland has set out to transform its energy system away from one that's reliant on imported fossil fuels to a system based largely on renewable sources of energy such as wind and solar. This underpins Ireland becoming a climate-neutral and climate-resilient economy, biodiversity-rich and environmentally sustainable by 2050 (Government of Ireland, 2021a). There is an urgent need to act. Ireland is legally bound to stay within three sequential carbon budgets between 2021 and 2035 (Government of Ireland, 2024c) and greenhouse-gas emission projections from the Environmental Protection Agency (EPA) are pointing to a widening gap between what is being delivered and what is required (EPA, 2025e).

Transforming the energy system is a considerable technical, economic, financial and logistical challenge, but it is also a societal challenge. Achieving the energy transition is an unprecedented socio-economic endeavour (Heflich & Saulnier, 2022; Thorne *et al.*, 2023). Emissions must be reduced while also protecting energy security, affordability and reliability for people.

There will be costs and risks, and people who are more affected than others. Energy has become a more central concern for people in different ways. For those living in energy poverty, the cost of using energy is always a dominant issue. In the last two years more have struggled too with energy affordability.

Extreme weather events have brought reliability and security concerns closer to home. Following Storm Éowyn in January 2025, issues of energy reliability and local energy resilience are shaping the discussion on energy, particularly in rural communities. Ireland is not only working to mitigate against climate change through reducing emissions, but also has to adapt to its impacts, representing a significant risk (Murphy, C. *et al.*, 2023).

There are also benefits. All clean energy transition policies are ultimately about enhancing people's lives (Motherway, 2024). The co-benefits include reducing exposure to energy price fluctuations and higher energy prices as well as reducing pressure on public health and social welfare budgets through reducing energy poverty and improving health and wellbeing (Jammet, 2023: 4). Environmental, health, social and economic benefits of energy efficiency are rarely measured and often overlooked (Jammet, 2023). Health benefits include reduced symptoms of respiratory and cardiovascular conditions, rheumatism, arthritis and allergies, and fewer injuries (IEA, 2015).

An increasingly digital, renewables-based and more decentralised energy system will change people's relationship to energy. The production of renewable energy, in contrast to fossil fuels, is more suited to localised production. This brings new opportunities that were not possible a few years ago, such as the microgeneration evident from the growth of solar photovoltaic (PV) installed on rooftops.

1 Wellbeing is used here as a multidimensional concept reflected in the National Wellbeing Framework, with 11 dimensions of wellbeing for a good quality of life, such as health, community, housing, skills and work (Government of Ireland, 2024h).

A different energy system is not that easy to envision and make tangible for people. To engage people in the energy transition, to make it work for them, these impacts – negative and positive – must be carefully and fairly analysed to ensure the transition is just. A just transition approach seeks to ensure that the process and outcomes of the transition are fair and equitable (Government of Ireland, 2024b) (See Box 1.1).

Box 1.1: Just Transition Approach

A just transition approach seeks to ensure the process and outcomes of the transition are fair and equitable (Government of Ireland, 2024b) and it can ensure that the climate transition strengthens communities, protects those most at risk, and builds resilience across society (Just Transition Commission, 2025). The Council has outlined a just transition approach to employment (NESC, 2020), international case studies and approaches (Mercier, 2020; Moore, 2020) and its application to agriculture and land use (NESC, 2023).

The Climate Action Plans since 2019 and the Just Transition Commission are working to deliver a just transition approach that is a principles-based approach and part of the Just Transition Framework (Government of Ireland, 2023; 2019). This follows the Climate Action and Low Carbon Development (Amendment) Act 2021 that places responsibility with the government to have regard to a just transition to a climate neutral economy, in so far as practicable (Government of Ireland, 2021; Government of Ireland, 2019; Government of Ireland, 2024). The first report of the Just Transition Commission (2025) outlines that a just transition is not a one-time policy fix but an ongoing process and sets out initial recommendations. These include the need for a clear, strategic vision for a just transition to a climate-neutral society, putting fairness at the heart of climate action and building a deeper understanding of vulnerabilities related to climate action.

It is not clear if people's experience and role in the energy system now and into the future is fully understood. Living in transition brings an awareness of two systems in flux but coinciding: the emergent new decentralised system and the established old centralised one. However, there is little sense of what a new energy system will bring people in terms of their wellbeing, their economic and social development, and their role in it.

The Council believes it is not clear yet what 'the ask' to transition for people in Ireland is. Households and communities can potentially play a significant and immediate role in making energy savings and generating renewable energy and building energy resilience if enabled to do so.

Currently there are cost-of-living pressures on households, worsened by high energy prices. Cost-of-living measures introduced by the Government in 2022 have helped to protect vulnerable groups. However, such measures are not expected to be repeated. This makes consideration of the energy transition as a societal challenge by the Council timely and appropriate.

There is value in reflecting on how households and energy communities[2] are connected to the transition in policy and practice, and in considering how best to strengthen this connection, to examine what can engage, enable and persuade households to act, while protecting those without the capacity to do so. There are many co-benefits for people in households to live in healthier energy-efficient homes. Taking a broad, strategic view of the energy system in relation to households and energy communities, this report draws on lived experience and social and behavioural insights. With pressing technical, economic and environmental considerations, there is a risk that societal considerations of the energy transition in public policy development are not as well understood. The Council believes that adopting a societal lens to the energy transition can help to ensure it includes, protects and benefits people and their wellbeing, informed by social science and humanities research (Moriarty *et al.*, 2023; Torney, 2018) and lived experience (e.g. (Moore-Cherry *et al.*, 2022; SEAI, 2024a).[3]

Globally and in Ireland, there is increasing recognition of the critical role that the societal dimensions play in the success of the energy transition. This is contributing to recalibrating why and how transitions are delivered effectively with and for people. Ireland's Climate Change Assessment stated that 'the transition therefore requires paying attention to environmental, societal, economic and governance – along with technical – dimensions' (Thorne *et al.*, 2023: 20). In addition, the World Economic Forum (2024) states:

> A just, equitable and inclusive energy transition is not only a moral imperative; it is a social, economic, environmental and geopolitical necessity. Neglecting to place people at the core of this accelerated and scaled-up effort risks eroding the trust necessary for a stable and secure future and jeopardizes the entire energy transition (WEF, 2024: 6).

In this report, the Council considers how people can be better connected to the energy transition. It examines how to ensure that households share in the economic, environmental and wellbeing benefits of the energy transition while protecting the most vulnerable from negative impacts, leaving no-one behind.[4]

The International Energy Agency (IEA, 2024b) has outlined the principles and approaches of ensuring that the energy transition is people-centred. A people-centred approach to clean-energy transitions focuses on making sure that these transitions are fair and inclusive, and that they benefit all individuals and communities. It involves examining the social dimensions of clean-energy transitions and designing policies that deliver greater affordability, optimal distribution of benefits and costs, and more equity in energy systems.

2 An Energy Community is defined by the Commission for Regulation of Utilities (CRU) as 'a group of active consumers, who voluntarily commit to providing environmental, social, or economic welfare by engaging in: renewable energy generation, energy sharing or trading; storage, or supply, provided these activities are not for commercial purposes and do not constitute the primary profession of the members of the community' (CRU, 2025a).

3 Societal considerations are an important part of recent climate and energy discussions by the Intergovernmental Panel on Climate Change (IPCC) (2022), the EU (EPRS, 2023; European Commission, 2019b) and the International Energy Agency (IEA, 2024b), and in Irish climate legislation and policy (Government of Ireland, 2024b).

4 The Sustainable Development Goals (SDGs) or Agenda 2030 reflect the objective to 'leave no-one behind' (UN, 2015) and sets out a roadmap towards a safer, fairer, more prosperous and sustainable world, bringing together social, economic and environmental objectives (Government of Ireland, 2022c). 'Leave no-one behind' is also become integral to a just transition approach (Robinson, 2019).

In 2024, the G20 agreed voluntary 'Principles for Just and Inclusive Energy Transitions'. These aim to promote clean, sustainable, just, affordable and inclusive energy transitions, with the overarching goal of leaving no-one behind. They include energy planning, ending energy poverty, social dialogue, social protection, policy inclusiveness, respecting rights and investment, policy implementation, quality jobs, and social and economic development (G20 Research Group, 2024).

The Council report aims to help address short-term bottlenecks and risks in current policy efforts to support households and energy communities. It provides insights on implementation challenges on the ground such as information gaps and access, administrative burden, feasibility and practical issues, cultural barriers and others. It also brings fresh understanding to some of the societal considerations of a longer-term energy transition.

This report has been informed by interviews with over forty key stakeholders in policy, research and practice, including 14 research experts on energy in households and energy communities. This included online meetings with 11 energy communities directly, with the aim of better understanding the experience of groups on the ground. Discussion was further held with a network of energy communities, climate action officers and local authorities through the Pobal-supported Climate Connected project (Climate Connected, 2025). In addition, online interviews with a small number of households were undertaken around energy use and efficiency. This was not intended to be a representative sample but to illustrate some issues for households.[5]

The report is structured around five areas of action.

Line of Action One: Energy Affordability, Energy Poverty, Monitoring and Targeting
The Council recognises that the global factors have shaped high energy costs for households. Nonetheless, action is required. As transition costs remain uncertain, it is timely to reflect on how Ireland can bring assurance to households that the economic and wellbeing benefits of energy efficiency and clean-heat (non-fossil fuel heating) action outweigh the up-front investment costs.

The Council recognises the harmful impacts of energy poverty on the most vulnerable in society and that, despite efforts to address it, vulnerabilities remain. Ending energy poverty is a potentially achievable social objective of the energy transition. However, this will require a holistic and integrated approach that builds on and strengthens existing measures on incomes, energy efficiency and social protection. Enhanced monitoring and data analytics are needed to track the impact on vulnerable groups and ensure a just transition. Energy poverty policies can be more tailored and integrated with energy transition goals.

Line of Action Two: Scaling Efforts to Improve Energy Efficiency and Clean Heat
Households and communities can share the benefits and opportunities of the energy transition as they develop but they will need to be enabled to do so. Households need advice and support from those familiar with the local context and increase the potential for them to take part in local co-ordinated action.

5 This work was carried out by Jeanne Spillane, (2025), on behalf of NESC and published as part of the NESC Research Series.

Scaling household energy efficiency and transitioning to clean heat are vital, with policies promoting retrofits and clean technologies to be scaled up. Enabling greater uptake involves reducing costs, simplifying processes, providing trusted advisors, and supporting group schemes.

Line of Action Three: Helping Households to Reap Electricity Benefits
Opportunities for households to get actively engaged in the energy transition include energy demand management, microgeneration and energy sharing. Real-time data on energy use has not yet been fully enabled for households. Demand-side management and dynamic tariffs offer potential for emissions reduction, cost savings and grid security, but widespread accessibility and support are needed.

Fully enabling smart meters to be useful for households is necessary for them to better manage energy demand and make cost savings. Actions are needed to ensure that smart energy solutions benefit the most vulnerable. Home energy 'assets' like heat pumps and batteries can provide flexibility, but benefits may not be equitable due to lifestyle or income differences. There is potential for microgeneration now and energy sharing in the near future to bring energy and cost savings.

Line of Action Four: Place-Based Energy Resilience and Local Production
The Council believes that recent extreme weather events provide a key moment of reflection to consider how to ensure the energy transition brings local energy resilience for rural communities. The Council recognises the need to develop place-based approaches to the energy transition to support and drive local action. A placed-based approach can help to share benefits and opportunities, build local energy resilience and deliver on energy efficiency, energy generation and storage, and decarbonised heat.

There are opportunities to strengthen local energy action and build resilience and energy production through a place-based approach involving local authorities and communities. Building local energy resilience is vital, particularly following extreme weather events. It requires trusted information and communication strategies, and the enabling of local energy assets like batteries and community hubs.

Energy communities have grown in Ireland; Renewable Energy Communities can be important energy actors in generating and sharing renewable energy. However, they encounter barriers to delivering projects such as funding, grid access and limited ownership options. Strengthening energy communities requires addressing these barriers through early-stage funding, expanding ownership models (including co-ownership), supporting their intermediary role, leveraging energy sharing, and showcasing projects.

Line of Action Five: Strengthening Energy Connections
The report argues that strengthening the connection between people and the energy transition requires considerable and wide-range expertise, collaboration, resources and planning. Strengthening the connection between people and the energy transition can help to ensure a just, inclusive outcome that supports wellbeing.

A just transition requires equitable sharing of costs and benefits and protecting the most vulnerable. This requires strengthening public governance and potentially adopting a galvanising mission for the transition. Participative approaches can be used, such as developing an inclusive energy forum. Addressing transition costs requires a broader range of mechanisms, in addition to household utility bills; and these can be considered and there is a need to consider how the long-term costs will be shared. There is significant potential for collaboration and mutual learning across the island of Ireland regarding the energy transition and tackling energy poverty.

Appendix One provides a summary of all the action points identified in each of these areas.

Before examining each of the areas of action, the report provides an overview of households and their relationship with energy.

Chapter 2: Considering Households in the Energy Transition

2.1 Introduction

This chapter outlines the characteristics of Irish households and their energy use, and the incidence of energy poverty in Ireland. It outlines the current challenges to energy affordability as well as some of the risks to a just transition. It concludes by outlining some of the perceptions of the energy transition.

It is structured as follows:

- Section 2.2: Irish Households and Energy Use
- Section 2.3: Energy Poverty
- Section 2.4: Perceptions of the Energy Transition
- Section 2.5: Risks to a Just Transition
- Section 2.6: Conclusion

2.2 Households and Energy Use

There are over 1.8 million households[6] in Ireland (CSO, 2023c). Residential buildings contribute to nearly a tenth of Ireland's greenhouse-gas emissions in their energy use – amounting to 9.7 per cent of Ireland's greenhouse-gas emissions in 2023 (EPA, 2024b). The way energy is used is influenced by factors such as gender, age, ability, income, wealth; access to technologies such as electric vehicles, heat pumps and solar panels, and social and behavioural differences. There is no 'average' energy consumer.

The characteristics of Irish households that shape how energy is used also include building and household size (Housing Commission, 2024). This is shaped by high levels of detached housing in Ireland, the use of oil, the number of one-off rural households and our heavy reliance on oil and gas.

This section provides an overview of the housing stock and energy use across key characteristics:

- **Number of dwellings:** Census 2022 recorded 1,841,152 private occupied dwellings (habitable permanent housing), with 5,046,681 people (CSO, 2023b). Approximately 1.3 million of these households (69%) contained families, 23 per cent were one-person households and the remaining 8 per cent were non-family households (CSO, 2023a).
- **Building type:** 13 per cent (240,958) of Irish dwellings were flats, apartments or bedsits (CSO, 2023b). Housing stock in Ireland has more one-off rural dwellings and fewer apartments than in other developed countries, leading to a high share of oil and solid fuels in central heating (Gaur *et al.*, 2024).

6 Household here refers to any individual, group or family unit living in any type of dwelling, but this work primarily focuses on houses and apartments as they are the most common forms. Other households include families using homeless services, families living in multiple family units; members of the Traveller and Roma communities; and families in direct provision (Laurence *et al.*, 2024).

- **Energy Efficiency:** 27 per cent of domestic buildings were recorded as having A or B Building Energy Ratings (BER) in 2023 (CCAC, 2024a). Newer buildings are energy-efficient due to building regulations and fuel standards. Nearly all, 99 per cent of homes built between 2020 and 2023 of audited domestic buildings constructed between 2020-2024 were given an A Building Energy Rating (BER) (CCAC, 2024b; CSO, 2025b). And nearly all (96.32%) of new dwellings built in 2023 were using electricity as their main space heating fuel (CCAC, 2024b).
- **Emissions:** Increased energy efficiency and renewable energy, particularly in new homes, contributed to emissions from households falling by 28 per cent between 2010 and 2022, compared to overall emissions for Ireland falling by 3 per cent (CSO, 2025b). The residential sector's operational emissions decreased for the third continuous year in 2023 (EPA, 2025) and is reported as being on track to meet its 2021-2025 sectoral emissions ceiling. Emissions are projected to decrease by between 19 and 22 per cent to 2030 in residential buildings, if all Climate Action Plan 2024 measures are implemented in full, including home retrofits, supports for domestic electric heat pumps and district heating[7] (EPA, 2025e). However, with a growing population and rising energy demand, faster annual reductions will be needed to stay within carbon budgets and sectoral ceilings (EPA, 2024d).
- **Digital profile:** In terms of access to digital/smart energy options, 1.53 million households – 83 per cent of occupied dwellings – had an internet connection. In 20 per cent of the dwellings headed by someone aged 65 and over, there was no internet connection of any kind (CSO, 2023b).
- **Tenure:** Approximately two thirds (65.9%) of households are owner-occupied (with and without a mortgage), 18 per cent privately rented and 8.3 per cent rented from a local authority (Housing Agency, 2023). More than 330,000 homes were rented by a private landlord. There are currently 103,000 landlords holding 230,000 tenancies, 52 per cent of which are in houses and 48 per cent in apartments. About 20 per cent of these are large institutional landlords, a growing sector, with mainly newer buildings and relatively good BERs.
- **Household size:** This is reducing. The average size is 2.74. Eight per cent of all people living in private households are living alone (425,974 people) – an increase of 7 per cent (+26,159) since 2016.

2.2.1 Use of Fossil Fuels to Heat

Fossil fuels are predominantly used in residential buildings, with direct use of fossil fuels at 69 per cent, of electricity at 26 per cent) and of renewable energy at just 4 per cent in 2022 (SEAI, 2024c). A large part (61%) of household energy use is taken up by space and water heating, currently drawing on 94.3 per cent fossil fuels, largely oil and gas (*ibid*). In 2023, oil was the dominant fuel in the residential sector at just over 40 per cent. Electricity is the second largest source, with natural gas having the third largest share (*ibid*).

Ireland's residential energy demand decreased by 1.44 TWh in 2023, down 4.6 per cent on 2022 levels due to demand reductions in natural gas, coal, peat, electricity and oil. The only increase in

7 Heat pumps harness energy from the air (air source), ground or water (geothermal) renewable sources to control a building's climate (temperature) and produce hot water (SEAI, website). District heating is a relatively old method for heating and hot water in buildings and cooling across Europe, with approximately 17,000 systems in operation (Muncan *et al.*, 2024). These systems increasingly use renewables such as geothermal and biomass as well as 'waste' heat from other power plants and industrial facilities. There is a well-functioning and mature district heating sector in Sweden and Denmark (Lygnerud *et al.*, 2024).

residential energy demand in 2023 came from renewables, mainly driven by the increased use of heat-pumps in new builds and upgraded homes (SEAI, 2024c). From provisional data for 2024, SEAI estimates that emissions from heating were up 2.4 per cent in 2024 (SEAI, 2025c).

Provisional data also point to electricity generation from solar-PV to be up by 66 per cent in 2024 from 2023, and renewable ambient heat from heat-pumps was up by 19 per cent (SEAI, 2025c).

The high use of oil and solid fuels in central heating, which characterises Ireland's home heating, has been shaped in part by more rural one-off detached housing (Gaur et al., 2024: 14). Whether future population growth will continue to be dispersed, following historical patterns, or concentrate in urban areas, will have a very strong determining role in future energy needs (*ibid*). Forms of secondary heating are more likely to be used in detached homes. This type of home uses secondary heat for longer resulting in higher energy bills than in other types of homes (SEAI, 2025c).

Just under a third of participants in the SEAI survey lit an open fire or stove or used portable heaters on a given day during the heating season, rising to two in five in the coldest months (SEAI, 2025c). Nonetheless, it is worth noting that coal and peat are the most polluting fossil fuels. While accounting for 10 per cent of household energy use in 2022, coal and peat contributed 21 per cent of direct household CO2 emissions. (SEAI, 2023b).

In terms of heat and existing residential buildings, the roadmap to decarbonisation is not yet clear. Overall fossil gas demand in Ireland must reduce significantly by 2030 and continue to decline if Ireland is to meet its legally binding climate targets.

Biogas and biomethane have a potential role.[8] Hydrogen is not expected to be used in home heating, as it's not a proven technology for such use and costly compared to what can be achieved with a heat pump-based system (IERC, 2023: 61). The National Hydrogen Strategy states that hydrogen may play a very minor residential role in future – potentially, for example, as a back-up source for district heating networks (Government of Ireland, 2023d).

2.3 Energy Affordability

High energy costs have been affecting households across Europe in the last three years. These costs include the energy price but also a range of other related energy system charges. The European Commission has listed the elements of these costs to consumers:

> Energy bills are determined by a combination of factors: energy supply costs linked to the overall level of consumption, network costs, and excise levies and taxation. In turn, energy supply costs depend on wholesale prices, driven by diverse factors like supply and demand conditions, energy mix, interconnections, competition, weather and geopolitical realities as well as retail competition among suppliers (European Commission, 2025b: 2).

8 The National Biomethane Strategy sets out that 1.1 TWh biomethane will used in the built environment, in both the residential and commercial sectors by 2030 (Government of Ireland, 2024d).

According to the European Commission, these high energy costs are hurting EU citizens; energy poverty affects more than 46 million Europeans, with a disproportionate impact on vulnerable groups (*ibid*).

Affordability is already a principle of energy policy, and this is critical in a just transition. An expected outcome of a just transition policy is that the cost of climate action will be shared equitably across society (Government of Ireland, 2024b).

Energy affordability is one of the four principles European energy regulators seek to adhere to, according to the Council of European Energy Regulators (CEER, 2014). The risks are both current – high energy prices and energy poverty – and longer-term, with the energy system costs of transition and the costs of increasing energy reliability and resilience.

Historically, energy prices in Ireland have been higher than the European average, in part due to geographical location, the small size of the Irish market, and low population density. However, price rises since September 2021 have been driven by wholesale electricity prices. In January 2025, the wholesale electricity price was 56.8 per cent lower compared with the peak that occurred in August 2022 (CSO, 2025e).

The impact of higher prices is greatest on those with lower incomes, particularly those in or at risk of energy poverty (Government of Ireland, 2022a).

Cost-of-living measures were introduced by the Government in 2022 in the context of rising global energy prices. The first two electricity costs emergency benefit schemes saw a total of €800, inclusive of VAT, applied to more than 2.2 million domestic electricity accounts between January 2022 and April 2023 (Houses of the Oireachtas, 2023).

These measures have continued into 2025 but are not expected to continue. Budget 2025 outlined a €250 energy credit paid in two instalments. The reduced 9 per cent VAT rate for gas and electricity has been extended until the end of October 2025 (DECC, 2025b).

The median or mid-point residential gas bill rose from €740 in 2021 to €972 in 2022 and reached €1,249 in 2023. During the same period (2021-2023), networked gas consumption in the residential sector fell by 23 per cent. This means that, even though people were using less gas, they were paying more for it (CSO, 2025c).

For household consumers in the EU, electricity prices in the first half of 2024 were highest in Germany (€0.3951 per KWh) and Ireland (€0.3736 per KWh). In January 2025, Irish household electricity prices were the fifth highest in Europe. Accounting for purchasing power parity, Ireland has the ninth highest household electricity prices in the EU (DECC, 2025b).

For both commercial and household customers, electricity is the most expensive fuel in Ireland, followed by oil (SEAI, 2024d).

Figure 2.1: Average electricity price to households 2007-2024

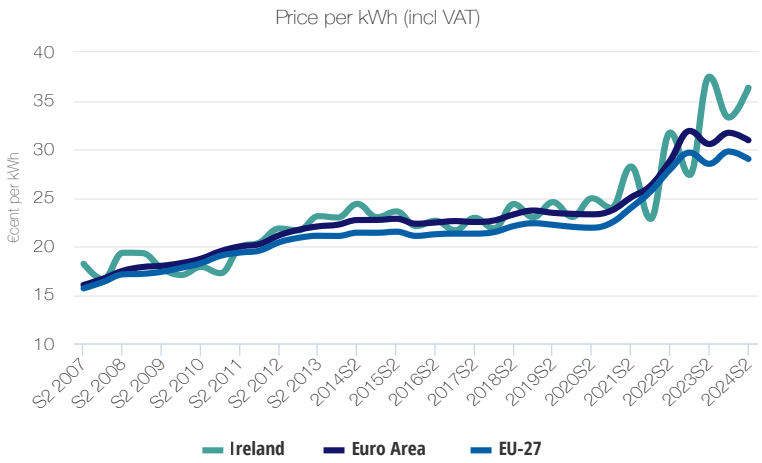
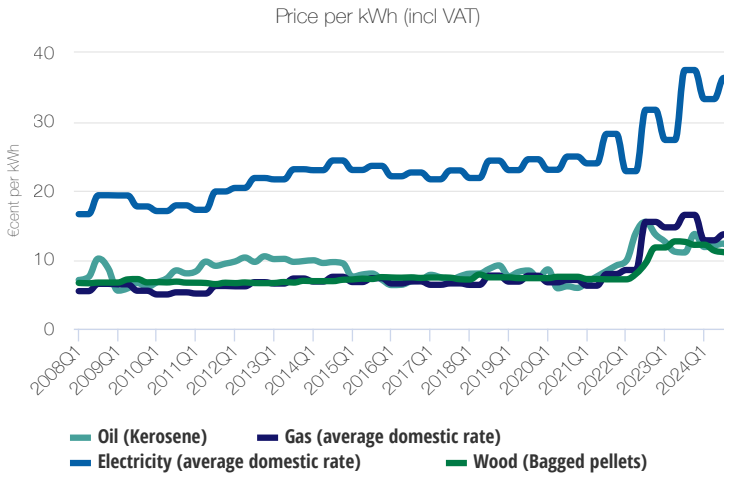


Figure 2.2: Household fuel price comparison 2008-2024



Sources: SEAI, 2024d

However, gas and electricity prices decreased in the 12 months from January 2024 to January 2025. Electricity prices fell by 8.3 per cent and gas prices by 8 per cent (CSO, 2025a). However, there are additional costs to households on their energy bills. Household bills reflect wholesale prices but also include network and supply costs, taxes and levies, including the Public Service Obligation (PSO) levy that supports national policy objectives including the Renewable Electricity Feed-In Tariff (REFIT) and the Renewable Electricity Support Scheme (RESS) (CRU, 2025c).[9]

9 The Renewable Electricity Support Scheme (RESS) operates a 2-way Contract for Difference mechanism, which insulates the PSO from periods of high market prices, with consumers benefiting from the clawback of any revenues above RESS strike prices. This means that when market prices are higher than RESS strike prices (as has been the case in recent times), generators are obliged to pay money back to electricity consumers through the PSO levy) (Correspondence from DCEE to the Secretariat).

Fuel costs have seen recent substantial increases and are increasingly volatile.23 Fuel poverty and energy price rises have impacts on vulnerable households (Government of Ireland, 2024f). While reduced energy consumption may mean fewer greenhouse-gas emissions, higher prices increase fuel poverty (CSO, 2025a).[10]

The cost-of-living measures introduced by the Government in 2022 and 2023 have helped to mitigate some of this burden for households, as indicated by recent SILC data (CRU, 2024b) which show a drop in the percentage of households unable to keep their home adequately warm since 2023. These policy initiatives to support households with energy costs during recent price increases were applied to all households, including those with multiple properties. These cost-of-living measures were not targeted. Other measures were put in place to protect vulnerable customers (CRU, 2023a).[11]

While these payments are an income support measure, they are not currently an energy transition measure. According to the CSO, in 2022 the Household Energy Credits accounted for 22 per cent of total fossil-fuel subsidies (CSO, 2023b).

Additional costs are attributed to capacity payments, estimated to be a fifth of recent price rises and which have reportedly doubled in the last six years. These are payments to electricity providers, including data centres, for being available to supply power when it is needed, and a component of the price of electricity. Reports suggest that, between 2007 and 2018, billpayers paid about €5bn in capacity payments, an average of €454m a year (Reynolds, 2025).

Further costs to be met include repairs to the transmission system after extreme weather events; while this is not expected to be passed to households in 2025, it is not yet clear how these costs will be shared going forward (ESB, 2025c). More broadly, billpayers will be meeting the costs associated with the offshore wind infrastructure, grid resilience, and planned gas generation capacity, as well as the costs associated with the delayed North-South Interconnector (Roddy, 2025). It is not clear how much would be added to household bills or to Exchequer costs, thus raising an affordability risk.

One measure of how Ireland is delivering affordable and clean energy is through meeting the UN Sustainable Development Goals (2030 Agenda for Sustainable Development). Goal (SDG) 7 - Affordable and Clean Energy, has targets and indicators established to assess and monitor progress (UN, 2015). Social Justice Ireland, which tracks Ireland's progress, ranks Ireland last (14th) for this goal across 14 EU countries (Social Justice Ireland, 2024).[12] However, relative to other EU countries, Ireland consumes relatively less energy at home. The final energy consumption in household per capita in Ireland was lower (479 KOE) than the EU average (511KOE) in 2023 (Eurostat, 2025).[13]

10 A recent study of the distributional impacts of price changes during the cost-of-living crisis from April 2021 to July 2022, in various European countries, found that inflation had a regressive effect in Ireland, burdening low-income households the most due to food, heating and electricity inflation. In the case of heating and electricity, the regressive impact was more pronounced in Ireland and Lithuania (Sologon *et al.*, 2025).

11 In 2023, Ireland introduced Additional Customer Protection Measures (CRU, 2023a) which include minimum timelines for debt repayment plans; reduced debt repayment on Pay As You Go top-ups, and discounted tariffs for customers on financial hardship meters, while energy suppliers are required to actively promote their Vulnerable Customer Register and the protections it offers.

12 Affordable and Clean Energy (SDG 7) is monitored using indicators on: the share of renewable energy in total energy consumption; levels of CO2 emissions from fuels and electricity; and the population unable to keep their home adequately warm. Ireland is ranked 10th on this goal in the Sustainable Progress Index 2025 (Clark et al., 2025).

13 Kilogram per Oil Equivalent.

High energy costs for households are both a short-term policy challenge and a potential transition risk if the future economic benefits from the energy transition seem uncertain to them.[14] For those in energy poverty, there are additional risks to be considered.

2.4 Energy Poverty

Those experiencing energy poverty are the most vulnerable group in the context of energy and household policy. The European Commission's Action Plan for Affordable Energy recognises that 'energy poverty affects more than 46 million Europeans, with a disproportionate impact on vulnerable groups' (European Commission, 2025b: 1).

As part of the NESC Energy Programme of work, a detailed analysis of energy poverty was undertaken, including wide engagement with relevant stakeholders across the island, North and South (Johnston, 2025). This analysis concluded that there is no single definition that captures the complexity of energy poverty measurement; different approaches have been explored in Ireland, producing varied results.

Energy poverty is complex and relates to income levels, energy efficiency and energy costs. People and households can find themselves at risk of energy poverty because of low income, poor building condition and/or rising or high energy prices. Groups at risk of energy poverty are also those at risk of general poverty due to low income and deprivation, such as lone-parent households; people with disabilities and/or ill health; older people, especially those living alone; tenants in private rented housing; some people living in rural areas; and Travellers living in mobile homes and trailers.

Households with higher energy needs, which include families with children, people with disabilities and older people, are also more susceptible to energy poverty and its effects. Women, in particular lone parents and older women, are especially affected by energy poverty due to structural inequalities in income distribution, socio-economic status and the gender care gap (IHREC, 2023: 15).

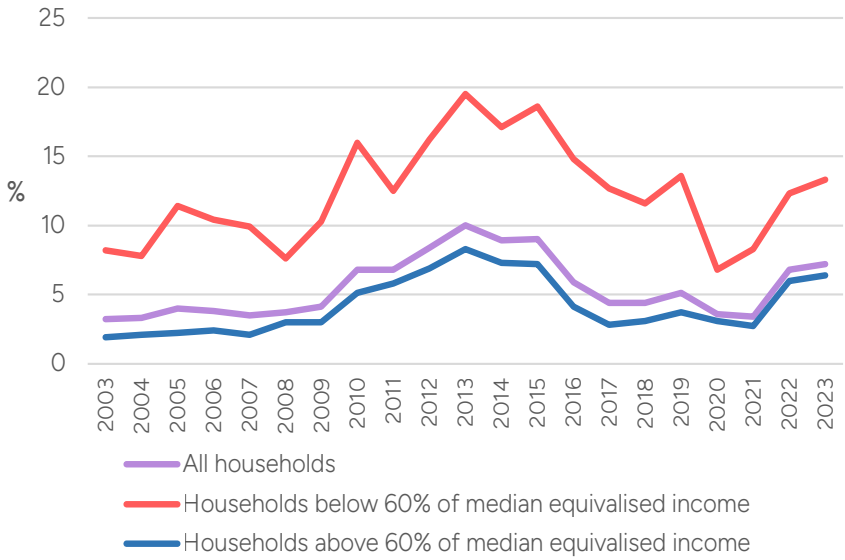
Households using solid fuel or oil as their main fuel source are more likely to be in energy poverty than those using electricity or gas or renewables. The former fuel types tend to be used by people living in rural areas. Households living in detached properties are more likely to be in energy poverty than those in semi-detached accommodation, who in turn are more likely to be in energy poverty than those living in apartments or bedsits.

The impacts of energy poverty are considerable. Energy poverty has been shown to have a detrimental impact on physical and mental health, leading to excess winter deaths, especially among older people (Lawlor & Visser, 2022). Ageing may worsen all these vulnerabilities, including the increasing demand for energy services from those who spend progressively more time at home. Sloyan and Maitre (2024) found a strong association between open-fire use and respiratory disease, which is particularly pertinent for older adults (aged 50 and over) who are more likely to use solid fuels and spend more time at home. As many as 2,800 excess winter deaths have been associated with energy poverty in Ireland, with the majority in the 65+ age group (FoE, 2025).

14 A transition risk is one associated with transitioning to a lower-carbon economy, which may entail extensive policy, legal, technology and market changes to address mitigation and adaptation requirements related to climate change (EPA, 2024c: 68)

Data from the Survey on Income and Living Conditions (SILC) for 2024 show that the proportion of people experiencing energy-related deprivation is 4.9 per cent and of those without heating is 8.2 per cent – which is just one measure of energy poverty. These figures declined from the previous year, possibly reflecting the impact of the cost-of-living measures. The proportion of those unable to keep their home adequately warm is higher among those with lower household incomes.

Figure 2.3: Share (%) of households in Ireland unable to keep home adequately warm, by household income



Source: Eurostat, 2025

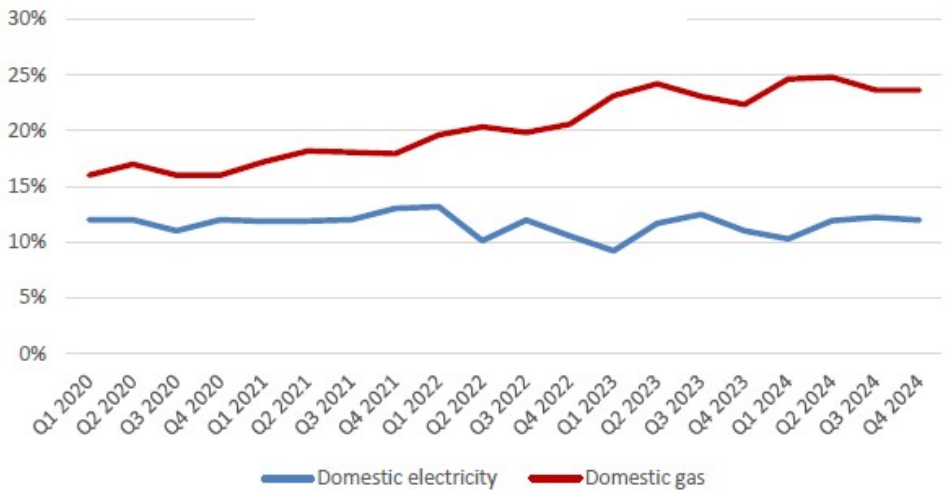
The unemployed and people unable to work due to illness or disability were most affected, while people unable to work due to long-standing health problems (18.1%) and the unemployed (15.6%) were also more likely to have gone without heating at some point in the last year.

Regarding another aspect of energy poverty, the proportion of people in arrears with utility bills twice or more in 2024 rose to 13 per cent (from 11.5% in 2023). Arrears on utility bills has been proposed as a proxy indicator for energy poverty in several composite measurements, including by the European Parliament (EPRS, 2023).

Statistics published by the Commission for Regulation of Utilities on domestic energy arrears point to high levels of arrears, particularly in gas. The percentage of domestic electricity customers in arrears in February 2025 was 11 per cent (258,338) and the percentage of domestic gas customers in arrears in February 2025 was 25 per cent (171,330) (CRU, 2025b). Provisional figures point to this rising to 13 per cent (286,553) for electricity and remaining at the same level 25% (175,514) for gas in March 2025.[15]

15 Correspondence from DCEE to the Secretariat.

Figure 2.4: Percentage of domestic customers in arrears per quarter 2020-2024



Source: CRU, 2025b

A recent report from SEAI provides a detailed and multifaceted picture of energy poverty in Ireland using the Behavioural Energy and Travel Tracker (BETT). This report outlines that energy poverty was highly prevalent in Ireland in 2023, although estimates vary according to the measure used. It analyses data on three self-reported measures of energy poverty, as well as a commonly used expenditure-based measure. Nearly a fifth of people went without heating in the preceding month (before the SEAI study) and on average across the year, and two in five billpayers had difficulty paying their last bill. These results highlight the lived experience of energy poverty (SEAI, 2025b).

Tenants in the private rented sector are some of those most at risk of energy poverty, yet this is one of the most difficult tenures to improve because of the 'split incentive' problem. This is where tenants and landlords both lack incentives to upgrade buildings (CCAC, 2024a; Housing Commission, 2024). ESRI research has shown that it would cost landlords €7bn to €8bn to raise the roughly 250,000 rental properties with below B ratings to B2 standard (Kren *et al.*, 2025).

Housing in the private rented sector is more poorly insulated and less energy-efficient than similar properties in the owner-occupied sector (Petrov & Ryan, 2020; Winston *et al.*, 2024). An estimated 80 to 85 per cent of private rented dwellings currently have a BER rating below B – approximately 240,000 to 260,000 properties (Kren *et al.*, 2025: 68) Compared to owner occupiers, renters were far more likely to be unable to keep the house adequately warm (9.4% compared to 2.9%) or go without heat (13.2% compared to 6%) (CSO, 2025d).

In the rental sector, there are notable barriers to investment; combined with the sector's increasing share of overall housing provision, this points to considerable challenges in attempting to meet the climate targets set for this residential housing market cohort (Kren *et al.*, 2025).

Older people and those experiencing energy poverty clearly have acute energy support needs, may use more energy than others and also be limited in making improvements. Age Action (2022) states that an estimated 300,000 homes with poorer building energy ratings – E, F or G – are occupied by older people and that nearly 7,000 homes occupied by older residents have no central heating, with many living alone.

Households, therefore, may be vulnerable in the energy transition for a variety of interconnected, ongoing and complex reasons.[16]

2.5 Risks to a Just Transition

Several factors could undermine the transition, principally because citizens may not perceive the changes and costs involved as fair, feasible or even legitimate. Over the longer term, households face additional costs to pay for the energy transition as well as for their own changes to how they heat and power their homes.

Current high energy costs to households (further outlined in Chapter 3) represent both a short-term policy challenge and a potential transition risk if the future economic benefits of transition for households are uncertain.

This section highlights three key risks: willingness to pay (for the transition); inability to participate, and energy reliability and resilience.

2.5.1 Capacity to Pay

A central challenge for policymakers is funding the energy transition without overly burdening consumer and commercial energy bills. As Hawkey (2024) highlighted in a Scottish report, affordability is a short-term challenge, but it also ties into broader, long-term questions about how much households will pay for the transition.

The IEA (2024b) raises concerns about the affordability risks during clean-energy transitions, questioning how these will be funded and how costs and benefits will be shared. They argue that the key test for affordability is the impact on consumer energy bills. Ultimately, consumers will cover the costs of transforming the energy system, either directly through bills or indirectly via taxes or higher goods and service prices (IEA, 2024b: 16). McCarthy (2023: 67) also warned that achieving sustainability and security in electricity supply may require higher costs for consumers than expected. However, Thalberg and Hajdinjak (2024: 11) note that individualising responsibilities for costs can provoke social backlash if adequate support measures are not provided.

Early action can lead to savings. UK research suggests that households could have saved around £3,750 over the past two years if planned government energy efficiency measures had been implemented earlier (ECIU, 2024). The European Central Bank (Adhikari *et al.*, 2023: 8) argues that accelerating the transition would lower financial costs and risks in the medium term by reducing energy expenses through increased renewable energy capacity.

16 Previous work from the Council on lessons for public policy from Covid-19 (NESC, 2022) suggest that different cohorts are vulnerable for different reasons, shaped by pre-existing factors and previous experience. These shape the ways that people, communities, infrastructure, sectors and processes become vulnerable at times or in a particular circumstance.

Many clean-energy technologies are already affordable. The development of wind and solar has reduced costs for Irish consumers, insulating them from rising fuel prices (Wind Energy Ireland & Baringa, 2025). While clean-energy costs are expected to fall after 2030, high upfront costs remain (Hassett *et al.*, 2024). There's growing concern that, due to the costs of electrification – such as grid infrastructure and managing intermittency – household energy costs may not become more affordable in the short term (Helm, 2023).

Electricity customers pay standing charges to cover grid maintenance. Network costs are rising, and the European Commission estimates that €500bn is needed for network development by 2030 (European Commission, 2022). These investments are likely to increase electricity prices, even as the EU presses for lower energy costs to enhance industry competitiveness and address high consumer bills (Gibb *et al.*, 2023).

In Ireland, households face high transmission costs due to the dispersed population. The Commission for Regulation of Utilities (CRU, 2024a) announced an increase of over €100 annually to domestic electricity bills, starting on October 1, 2024. These network charges are set by the CRU, but suppliers decide whether to absorb or pass on the costs to consumers, affecting standing or per unit charges.

2.5.2 Risks of Exclusion

As households move away from fossil fuels for heating and increase electrification, those unable to switch will be left with outdated technologies – stranded assets – reliant on fossil fuels. Low-income households will be disproportionately affected, facing higher infrastructure costs and exposure to price shocks from replacement fuels (Sutherland, 2020).

Homeowners with low-energy-efficient homes may also face potential disadvantages as retrofitted properties become more common. In Germany, research predicts that unrenovated homes could see price reductions of 20–30 per cent (Der Spiegel, 2024). In Ireland, properties with high BER energy efficiency ratings (A-B) were valued 28.6 per cent higher than less efficient homes (class C-G) (Giardina, 2024).

Structurally vulnerable groups are more at risk of being negatively affected by climate policy, raising concerns that the transition could lead to more homes falling into energy poverty and more people struggling to heat their homes (IHREC, 2023; Kelly *et al.*, 2025). There is a risk that the costs and benefits of transition may not be fairly or equitably shared, while locking vulnerable groups into fossil-fuel use and fossil-fuel technologies has health and cost implications.

Not all low-income households or community groups have equitable access to energy efficiency solutions and microgeneration technologies like solar PV, despite the availability of grants and initiatives for some key groups. Grants may not fully cover costs for some, and others may be excluded from targeted supports (Ó Maonaigh *et al.*, 2024).

These risks can be mitigated by progressive climate policies, such as energy efficiency grants and just-transition measures. However, despite available grants, energy efficiency initiatives remain cost-prohibitive as they often do not fully cover the total costs (Ó Maonaigh *et al.*,

2024). According to BER data analysis by GammaLabs (2024), in Ireland, 33 per cent of A-rated homes and 22 per cent of B-rated homes are in the wealthiest 10 per cent of the population. For the most deprived 10 per cent, 26 per cent of homes are rated E or worse, and only 2 per cent are A-rated.

Households in rural Ireland may face unique energy-related challenges and have fewer resources to address them. Some regions experience financial barriers to accessing renewable technologies due to lower average household incomes, along with difficulties connecting to the grid (Ó Maonaigh *et al.*, 2024).

2.5.3 Energy Reliability and Resilience

Developing the resilience of Ireland's energy system is crucial to mitigating the extent, severity, duration and impact of any disruptions (Government of Ireland, 2023c). In many rural communities, people are increasingly aware of the risks of extreme weather events and their energy vulnerabilities, which became more evident after Storm Éowyn (24/1/25). An estimated 768,000 customers were affected, and almost 11,000 faults were logged on the system, indicating the unprecedented scale of damage to the electricity network (ESB Networks, 2025c).

The extended power outages were mainly due to damaged distribution lines, with Ireland having more overhead wires than other EU countries. Heating systems like boilers and heat pumps could not operate without electricity, and water supplies were also interrupted.

This unprecedented event led to prolonged power losses, lasting weeks in some areas, causing disruption to farms, businesses, schools, families and wider society. The hardship and distress experienced by those affected was the focus of public debate and frustration (Houses of the Oireachtas, 2025a).

Some households were without heat and electricity for days, and in some places, up to two weeks. Areas more exposed to the storm included the western parts of Ireland, the Midlands, and northern counties like Cavan. Loss of power and heat, as well as interrupted water supplies, highlighted energy resilience issues in the transition to cleaner energy.

Some people in energy-efficient homes were without secondary heat source. Those with solar PV, EVs, and batteries couldn't use them for backup power because they couldn't disconnect from the grid without a changeover switch, and regulations were unclear. However, some were able to use their EV batteries as backup with certain models and adaptors. Others found ways to use available resources with the right information and infrastructure in place. Early in the outages, there was a lack of clear guidance, and some misinformation spread.

UCC's Professor Daly has warned that 'transitioning to clean energy without considering resilience leaves people vulnerable, especially in rural areas' (Daly, 2025). She stressed that energy resilience requires systemic solutions, not just individual preparedness. 'Storm Éowyn exposed our energy vulnerabilities, and it's essential to assess whether our approach is making us more resilient or more fragile' (*ibid*).

These issues reflect a disconnect between societal expectations of energy reliability and the actual capacity to deliver, especially in the face of increased risks from extreme weather.

Vulnerabilities can be heightened in particular locations for a variety of reasons. New research has mapped an index of social vulnerabilities to climate hazards in case studies across Europe, including Cork (McCullagh *et al.*, 2025). This research shows the different social dimensions at play in different localities and regions and which ones are more vulnerable to climate hazards. This spatial consideration of vulnerability could be applied to areas more vulnerable to power outages, for example.

2.6 Perceptions of the Energy Transition

This section reviews perceptions of the energy transition, drawing on secondary research and a small qualitative study carried out for NESC.

2.6.1 Secondary Research

A review of a range of studies suggests there is a broadly positive Irish attitude towards climate action and the need to reduce emissions. However, there is less knowledge of the energy transition and what it entails. Those surveyed recognise that switching to renewable energy has a large impact on their carbon footprint and they support its development, but there is a lack of knowledge about the scale of what is required in the energy transition (DECC, 2024).

Irish people generally support climate action and recognise its benefits for quality of life, though many don't fully grasp the scale of the energy transition. Three in four (74%) believe it will improve quality of life, and 87 per cent think Ireland has a responsibility to reduce emissions (O'Mahony *et al.*, 2024). However, the National Dialogue on Climate Action's Climate Conversations (2024) highlight a public gap in understanding the scale of infrastructure required. Most people do not regularly think about energy use, and international surveys show limited knowledge of how energy is consumed (SEAI, 2018).

There is also limited understanding of the impact of household actions on emissions. While 70 per cent correctly recognise that switching to renewable energy has a large effect, only 28 per cent accurately assessed retrofitting's medium impact, and most overestimated the effects of energy-efficient lighting (O'Mahony *et al.*, 2024).

Support is strong for renewable energy, retrofitting and clean energy systems, but less so for banning coal, oil and turf, especially among those struggling financially. Still, 59 per cent support such bans, though support is higher among those not facing financial hardship (63% vs. 53%). There is overwhelming support for grants to encourage clean heating and energy efficiency, especially for low-income households. A strong majority (96%) support grants for cleaner heating systems, and 95 per cent support using carbon taxes for clean energy and helping low-income households. Additionally, 82 per cent support building local infrastructure like pylons or substations to meet the 2030 renewable electricity target.

Heat pumps are less positively perceived than solar PV, being often associated with poor heating and high costs. Solar PV is seen as an accessible first step, while retrofits are viewed as disruptive. Grant structures do not align well with the preferred staged approach (solar > retrofit > heat pump), and the process is complex, particularly regarding BER outcomes.

Cost is a major barrier to renovations. In a survey (FoE & IGBC, 2024), 61 per cent cited cost, with younger people and Dublin residents most affected. Over 16 per cent would not consider renovating, even with grants. Another 19 per cent cited lack of information as a key barrier. DECC (2024) identified other barriers such as disruption, confusion and lack of trust. A 2025 KPMG survey found that 54 per cent of people were unwilling to pay higher energy bills or taxes to fund the transition.

European research found that 57 per cent of respondents saw their role as limited to household actions, often constrained by financial barriers. Motivations included saving money (76%), accessing subsidies (60%), contributing to the common good (55%) and frustration with government inaction (51%). The research stresses the need to better recognise collective forms of public engagement. KPMG (2025) found that Irish people are largely supportive of decarbonisation infrastructure if it will benefit local communities and create jobs.

2.6.2 Appetite for Energy Efficiency

There is momentum in energy efficiency action in Ireland. One-quarter of homeowners are planning or considering energy retrofits (i.e. may apply for SEAI retrofit grants) but more than half of homeowners are not actively contemplating energy retrofits (Curtis *et al.*, 2024).

Households do perceive barriers, particularly in relation to deep renovation. These are perceptual, technical, practical and financial, along with concerns about ongoing running costs, building and space requirements, trust in and awareness of the technology, and a lack of suppliers (CCAC, 2024a; IGBC, 2020).

Research also finds that households tend to wait until their current heating system needs replacing to act but may not opt for a heat pump if unfamiliar with this option and if they have little time to consider it (SEAI, 2024b). Administrative burdens to accessing grants may also be an issue (Spandagos *et al.*, 2023) as well as the 'hassle' factor and disruption if having to move out while work is carried out (Curtis *et al.*, 2024).

2.6.3 Qualitative Research in Households

Drawing from a small qualitative research study on households commissioned by NESC, some insights can illustrate some of the issues for households and energy (Spillane, 2025).

Those interviewed in the household research included both people who have made energy efficiency improvements to their homes and others who were not in a position to do so. Some conveyed no interest, others a sense of helplessness, inertia and futility in taking action or doing more. Others thought about energy use and have taken some energy efficiency action which they found to have positive impact. Older residents and those renting were not able to do more for a variety of reasons.

This work highlighted that energy use and efficiency were not a concern for some but, for those who took energy-saving action, the motivations were to reduce costs, protect the planet, and ensure comfort and security. Along with providing financial support for people to make changes in their homes, and increased access to trusted advisors, the researcher concluded that a message that the transition is good for the planet and for people's pockets, comfort and wellbeing would resonate.

2.7 Conclusion

The residential sector must rapidly scale up efforts to replace fossil-fuel heating systems and increase energy efficiency as it contributes to nearly a tenth of Ireland's greenhouse-gas emissions. This chapter illustrates the variety of household dwellings, tenure and usage of energy that need to be considered in the energy transition.

It highlights that those experiencing energy poverty represent the most vulnerable group in the context of energy and household policy. Vulnerable older people and those renting can face energy poverty and transition challenges.

Research highlights broad support for using less and cleaner energy, but cost is the dominant issue, with some households indicating that they feel they lack capacity to act and deal with barriers.

The chapter highlights three key risks to the just energy transition, linked to people's willingness to pay, ability to participate in the changes and to capture opportunities; and the concern, particularly in rural areas, around energy reliability.

Table 2.1: Insights from NESC's household and energy interviews	
Energy is not generally high on the list of what some people think about day to day compared to other more pressing issues and has to be put in context of daily life.	'Nobody really talks about climate change and the energy transition' (R3).
Energy efficiency has a range of meanings to households.	 
Cost is currently a dominant issue in terms of energy and energy efficiency action.	'I'd have a lot of renovation to do in my house, which would be hugely expensive. Cost would be a massive factor.' (R7)
Households lack capacity to act at times.	'I think the only thing preventing is that we don't own the place, so it's not our own place to make those kinds of decisions.' (R5) 'So I'm aware of the urgency, but it's just, on a personal level, what can I do? Because that's all I can control and sometimes I'm stuck on that. What can I actually do in my little world?' (R8)
More trusted information and advisors would help.	'At the moment anybody that you speak to generally [about energy] is working for somebody that's going to try and sell you something.' (R9).
There are benefits to taking energy action.	'Certainly the solar PV has made the energy bills manageable for our household.' (R6)
Technology can help households manage energy but some weren't sure about it or able to use it.	'Having technology there could help us to track in real time how you're doing, how you're performing, how you're performing versus the previous month, and what improvement can you take.' (R5)

Source: Spillane, 2025.

Chapter 3 : Line of Action One – Addressing Energy Affordability and Energy Poverty, Monitoring and Targeting

3.1 Introduction

This chapter examines energy affordability for households and energy poverty action. It focuses on more targeted measures and increased monitoring as two key areas for strengthened action. It is structured as follows:

- Section 3.2: Action on Affordability
- Section 3.3: Monitoring Affordability
- Section 3.4: Targeting Energy Poverty
- Section 3.5: Conclusion

3.2 Affordability Measures and Monitoring

While the EU's Affordable Energy Action Plan includes areas for potential action by countries to address high energy costs, there is a lack of specific measures to increase household energy affordability, with further detail expected in the final plan (FEANTSA, 2024).

While no single country has addressed this issue, there are areas which can be further explored here. Other countries are considering transition costs and how to pay for them fairly. Options include using exchequer funds for transmission costs and spreading PSO charges over time. Reducing or reforming standing charges is also under review. Ofgem's UK review explores fairer cost sharing, including zero or income-based standing charges, and involves consumer engagement (Ambrose, 2025; Mills, 2025).

The Netherlands protects a basic energy amount from tax via a credit per electricity meter. This supports the shift to electric heating. They've also raised gas taxes and reduced electricity taxes (Government of the Netherlands, 2025). France has proposed a 'transition kitty' – a Personal Energy Transition Account – to help low-income households save for sustainable purchases like EVs, insulation or heat pumps (FETA, 2022).

Demand-side flexibility – rewarding households for shifting usage from peak times – is another way to reduce costs, recently endorsed by the Climate Change Advisory Council (CCAC, 2025).

Alternative funding mechanisms can be used, enabling the public to invest and 'have a stake' in the energy transition directly. Mechanisms could be considered to create opportunities for citizens to have a stake in the energy transition through public/community share offer schemes to raise capital for co-owned renewable energy projects. For example, Community Energy Together (CET), a collaboration between five community energy groups in England and Wales, launched share offers to fund the transfer of seven operational solar farms into community ownership (Longo, 2024).

Action Point

A review of additional approaches to meeting energy transition costs beyond consumer utility bills would be of value to widen options for use over the longer term.

The European Commission has recently set out that it intends to increase analysis on the affordability for households and business. In the Action Plan for Affordable Energy, the Commission proposes measures to lower energy bills in the short term as well as reform to the energy market and strengthening of the energy system (European Commission, 2025b).

In Ireland, energy affordability is closely monitored by policymakers and the regulator, CRU, as part of its consumer protection role. The Government has outlined its commitment to ensuring that policies that have an impact on consumers are evidence-based, costs minimised as far as possible, and assessed according to the policy objectives of sustainability, security and affordability (Government of Ireland, 2023c). The increased energy cost pressures are being considered by a cross-government Energy Affordability Taskforce to identify, assess and implement measures that will enhance energy affordability for households and businesses in the short and medium term (DECC, 2025a). The taskforce will develop an Energy Affordability Action Plan, including a focus on energy poverty, and is expected to identify a range of solutions, including demand-side solutions for households (Houses of the Oireachtas, 2025c).[17]

The distributional burden of energy costs and energy policies for households is kept under review, particularly for those living in or at risk of energy poverty (Government of Ireland, 2023a). Due to the direct impact on price, carbon taxes have strong distributional implications, and Ireland has sought to use carbon tax revenue on energy poverty measures to address this through climate action programmes including the Warmer Home Scheme as part of the national retrofitting programme.[18]

There will be a need for metrics to monitor how energy policy measures are contributing to a just transition.[19] New spatial mapping tools will be of value. Enhanced data analytics can help identify vulnerable groups, using tools like BER data at small-area level (Clarke, 2024).

Action Point

Enhanced monitoring and data analytics (and spatial mapping) is required to inform a just energy transition, including energy use and energy costs, grants awarded, BER and income. A just transition requires better understanding of household energy use across societal groups and locations.

17 Correspondence from DCEE to the Secretariat.

18 Households in the bottom five income deciles are reportedly better off due to the social protection measures funded by carbon tax funds (Government of Ireland, 2024a); €951m has been allocated in 2025, of which €469m will be spent on energy efficiency upgrades and retrofitting. In total €3.1bn was allocated between 2020 and 2025 for retrofitting and other non-energy measures to support farmers.

19 Legislation is not in place for carbon tax to be ring-fenced; a report by the Comptroller and Auditor General found it was difficult to confirm that the additionality from carbon tax expenditure had been achieved (Comptroller and Auditor General, 2024). The proceeds from carbon taxes are allocated for measures related to the Just Transition and climate action (Houses of the Oireachtas, 2025f).

3.3 Targeting Energy Poverty

When low-income households are retrofitted, improvements in health account for up to 75 per cent of the economic benefits (FoE, 2025). The Warmth and Wellbeing research in Dublin shows that over a three-year period following their energy efficiency upgrade (under the Warmth and Wellbeing Pilot Scheme), participants living with respiratory conditions who were at risk of energy poverty reported fewer GP consultations, fewer emergency room visits and fewer hospital admissions, particularly in relation to respiratory conditions as well as fewer prescriptions for medication (Milner *et al.*, 2024).

Action Point

Given the need to improve health outcomes for people with respiratory health conditions or vulnerable older people using solid fuel and living in energy-poor homes, and given the health benefits, consideration should be given to further supporting and promoting retrofitting for these groups.

The Energy Poverty Action Plan included measures to alleviate short-term pressures, and a policy mix of income supports (the Fuel Allowance[20] and the Household Benefits package) and energy efficiency schemes (Warmer Homes Scheme).[21] Ireland's Energy Poverty Action Plan (Government of Ireland, 2022a) was being reviewed in 2024 to take into account the EU Recommendation on Energy Poverty (European Commission, 2023b).[22] Instead this will feed into the Energy Affordability Action Plan being prepared in 2025 (Houses of the Oireachtas, 2025b).

The opportunity is there to consider better alignment between energy poverty actions and energy transition policy. The European Commission has observed that Ireland's National Energy and Climate Plan does not provide a concrete target for reduction of energy poverty as energy poverty is defined under the social policy, and that a measurable reduction target is required (European Commission, 2025c).

Action Point

Develop pathways to achieve the end of energy poverty and explore the potential for its adoption as a key outcome of the energy transition.

20 The Fuel Allowance scheme was introduced in 1988 'to assist qualified households in receipt of certain social welfare benefits with their heating costs. The allowance represents a contribution towards a person's normal heating expenses. The Household Benefits package is paid to people aged 70 and over and is not means-tested. Certain people under 70 can also get a Household Benefits package if they meet certain qualifying conditions. The Department of Social Protection pays an electricity or gas allowance under the Household Benefits package, which is separate from the Fuel Allowance. In addition, hardship funds have been provided by energy suppliers since 2022.

21 Some households in energy poverty may not qualify for the Fuel Allowance or the Household Benefits package, e.g. some jobseekers and low-income workers. These are groups who experience energy poverty as well (O'Carroll, 2023).

22 This focuses on implementation of a legal framework, affordability and access to energy, governance, communications, energy efficiencies, access to renewables, skills and financing to tackle energy poverty (European Commission, 2023f).

Energy efficiency action for low-income households is a key area of action in energy poverty policy and part of a just transition approach in the Climate Action Plan (Government of Ireland, 2025a).[23] SEAI operates the Warmer Home Scheme on behalf of the Department of Climate, Energy and the Environment. This scheme is part of a retrofitting programme outlined in the National Retrofit Plan (Government of Ireland, 2022d). It helps to address energy poverty and contributes to energy savings. Eligibility criteria are linked to certain Department of Social Protection payments, with those in the least efficient homes prioritised. The scheme is targeted at those in receipt of fuel allowances eligible for 100 per cent funded retrofitting (Government of Ireland, 2020: 71).[24]

Home energy improvements are offered including attic and wall insulation, plus secondary measures such as draughtproofing. In some cases, heating systems and windows can be replaced (SEAI, 2025f).

In 2024, the Warmer Homes Scheme provided 7,743 upgrades for homeowners at risk of becoming fuel-poor; 70 per cent of these received deeper renovations. An expansion of the Fuel Allowance eligibility criteria has led to an increase in applications since 2022. The average cost of works for homes upgraded in 2024 was €27,411.[25]

However, the scheme has been critiqued for being over-focused on recent energy price increases rather than on longer-term issues associated with energy poverty such as underlying income inadequacy and energy inefficiencies.

Action Point

In terms of the energy transition, the Fuel Allowance is not intended as a climate measure as it does not consider fuel type. In transitioning to a carbon-neutral society, consideration needs to be given to how energy income supports can best support the transition from fossil fuels to renewable energies.

The case for action is clear but, given finite resources, energy poverty policies and supports should be further tailored to the groups most at risk (SEAI, 2025b). These include people on lower incomes, renters, households in which someone has a disability, lower social grades, those with lower educational attainment, and those living in homes with poorer BERs.

23 Budget 2025 has allocated almost €650m to SEAI and local authority retrofit schemes, with 57 per cent of this funding ring-fenced for fully funded upgrades under the Warmer Homes and local authority retrofit schemes. From the remaining funding, lower-income households, such as Approved Housing Body tenants, are supported under the National Home Energy Upgrade (One Stop Shop) scheme and the Community Energy Grants scheme (data provided to NESC via correspondence with DCEE).

24 Other eligible Department of Social Protection (DSP) schemes that qualify include: Job Seeker's Allowance for more than 6 months with a child under 7; Working Family Payment (previously the Family Income Supplement); One Parent Family Payment; Domiciliary Care Allowance; Carer's Allowance (where you live with the person you are caring for); and Disability Allowance for more than 6 months with a child under 7.

25 This compares to an average cost of works of €59,734 for private homes under the National Home Energy Upgrade Scheme, with an average cost to the homeowner of €37,489 and average grant of €22,150. Under the same scheme, the average cost of works for homes belonging to Approved Housing Bodies (AHBs) was €30,046, with a €14, 699 cost to the AHB and €15, 900 average grant. The average cost of upgrade works under the Better Energy Homes Scheme was €7,300, with an average grant of €3,100 paid. (Data provided to NESC via correspondence with DCEE.)

Other targeting needs identified include prioritising people with disabilities on the Warmer Homes Scheme waiting list and exploring the possibility of energy-saving advice to alleviate some of the burden of energy poverty in tandem with more substantial supports.

Action Point

Further measures are required to support groups at particular risk of energy poverty, including older people, people with disabilities and lone parents, to ensure they are included in energy efficiency actions.

Revising tariffs can help tackle energy poverty and affordability. Social and block tariffs offering basic electricity at below-market rates, with rising costs for higher usage, are common in Japan, South Korea and some EU countries, such as Belgium (Chapman, 2024). These could support low-income and near-energy-poverty groups, with phased reductions as incomes or energy efficiency improve.

Social tariffs target vulnerable groups like the elderly or people with disabilities, correcting market outcomes for social goals. Belgium's social tariff supports around 20 per cent of households, including benefit recipients, pensioners and lower-middle income groups. Such tariffs must avoid discouraging energy efficiency (Lausberg & Croon, 2023).

Rising Block Tariffs (RBTs) charge more as consumption increases, encouraging savings and improving affordability (Foster & Witte, 2020), but may penalise high-use, low-income households. Tariff design must be tailored carefully (Chapman, 2024).

An energy guarantee scheme was proposed by the Vincentian MESL Research Centre (2024) as a form of targeted support that 'guarantees' essential energy at an affordable cost, replacing the Fuel Allowance scheme. While their analysis showed the potential benefits of such a scheme in eliminating expenditure-based energy poverty, it noted that it could not fully address income inadequacy issues.

Action Point

A review of the potential impact of alternative tariff mechanisms, taxation measures, an energy guarantee or energy credit should be undertaken to identify impacts and benefits for vulnerable groups and to assess the potential impact on energy efficiency action.

Addressing the split-incentive issue is important to tackle energy poverty and from an environmental point of view (CAN Europe, 2024). Currently, a package of measures is in place for small-scale private landlords.[26]

26 These include grants through the National Home Energy Upgrade (NHEU) scheme and the Better Energy Homes and Solar PV scheme. The NHEU scheme provides low-cost loans for homeowners whose energy efficiency and renewable energy upgrades are being grant-aided by SEAI. Tax relief is available for landlords of rented residential properties whereby they can deduct certain expenses incurred on retrofitting such premises in calculating their rental profits, for a maximum of two premises.

In France, landlords are obliged to provide decent accommodation that complies with certain energy performance levels. From 2025, regulations prohibit renting properties with a G energy rating; this is a key part of the country's energy efficiency strategy (Government of France, 2024).

SEAI's report on energy poverty (SEAI, 2025b) points to the need to introduce legislation mandating minimum energy efficiency standards to further incentivise the uptake of retrofitting grants by landlords. Where energy efficiency improvements are carried out by landlords, there is a need to ensure that tenants are protected from eviction or significant increases in their rent.

Ireland's Housing for All policy contains a commitment to develop a roadmap to implement minimum BER standards for the private rental sector to increase energy efficiency, help alleviate fuel poverty, protect tenants' health, and improve comfort levels in rental homes. This commitment has not yet been implemented, mainly because of a shortage of accommodation to rent and the potential to restrict supply through placing specific requirements on landlords, sometimes referred to as 'cold home versus no home'. However, with many children in the private rented sector, there is an impetus to have minimum energy standards in the sector to prevent children growing up cold (SVP, 2019).

Action Point

Consideration should be given to expanding the current framework of measures to encourage landlords to upgrade their properties, in consultation with them, and introducing minimum BER standards for the rental sector, with protections in place for tenants against evictions following their introduction. Measures should also be considered that enable and support tenants to make energy and cost savings through increased energy efficiency.

The Programme for Government includes a commitment to explore using surplus renewable energy to reduce energy poverty, building on EnergyCloud's work delivering free hot water to low-income households.

EnergyCloud Ireland is a non-profit supported by EirGrid, ESB and others. It uses excess renewable energy to heat water in social housing. A small device links the household to EirGrid, enabling free hot water during times of low demand and high wind energy. Around 80,000 households are participating.

Action Point

Examine the potential for wider adoption of the Energy Cloud model and any cost and regulatory barriers that need to be addressed.

3.4 Conclusion

For households, energy transition considerations are currently shaped by high costs for all and energy poverty for some. The transition costs look set to rise and there are affordability and increased vulnerability risks to households that need to be addressed.

Those in energy poverty are most acutely at risk of negative impacts, but affordability is a challenge for many others, due to the short-terms additional costs of new technologies. A more targeted approach to addressing energy poverty has been outlined and a need to better align energy poverty action with action to progress the energy transition.

Chapter 4: Line of Action Two – Scaling Efforts to Improve Energy Efficiency and Clean Heat

4.1 Introduction

This chapter examines the key areas of action for households as part of the transition to clean energy and heat. It identifies opportunities that can further connect households and strengthen their capacity to act.

Households can support the energy transition at home in four main ways: (i) Reducing the emissions intensity of their energy use (e.g. opting for renewable energy); (ii) Using energy more efficiently/managing/sharing energy (e.g. insulation, using energy-efficient appliances); (iii) conserving energy (e.g. reducing heat or power used); and (iv) producing/generating energy (microgeneration) (Hassett et al., 2024: 10). Chapter 5 will examine involving energy demand management, microgeneration and energy sharing.

This chapter is structured as follows:

- Section 4.1: Energy Efficiency Action
- Section 4.2: Supporting and Emerging Policy Context
- Section 4.3: Enabling Greater Take-Up of Energy Efficiency
- Section 4.4: Scaling Clean Heat Technology
- Section 4.5: Conclusion

4.2 Energy Efficiency Action

It is recognised that the residential sector must rapidly scale up efforts to replace fossil-fuel heating systems with low-carbon alternatives such as heat pumps and district heating. It will also be essential to continue upgrading and improving the energy efficiency of buildings (CCAC, 2024a).

Households have been incentivised to improve the energy efficiency of their homes. With 'deep' measures, the amount of energy required to heat the home to an adequate degree is decreased, which reduces greenhouse-gas emissions, but it also protects households from the impact of rising energy prices (Government of Ireland, 2024c). However, this requires households' capacity and willingness to act.

EU and Irish regulatory and policy action on new buildings means that new residential buildings are effectively decarbonised, except for embodied emissions.[27] The proportion of A or B domestic dwelling energy ratings is one of five best-performing indicators in the National Wellbeing Framework over approximately a five-year period, for which data are available for more than one year (Government of Ireland, 2024h).

27 Emissions from the manufacturing of materials, transportation, construction, maintenance and deconstruction of a building are known as 'embodied carbon'. Revised lifecycle GHG emissions will need to be calculated and disclosed through an Energy Performance Certificate (EPC) for all new buildings from 2030, to inform citizens and businesses. In addition, EU member states will have to adopt national roadmaps and set targets to reduce such lifecycle emissions.

Thousands of residential buildings are being retrofitted each year following the National Residential Retrofit Plan, with legislative requirements to cut the energy demand and increase the energy efficiency of the worst-performing buildings.

The National Residential Retrofit Plan sets out how to deliver retrofitting of the equivalent of 500,000 homes to a BER of B2/cost-optimal and installing 400,000 heat pumps in homes by the end of 2030 (Government of Ireland, 2022d; SEAI, 2024f). In the new Programme for Government, there is commitment to continue to increase B2 equivalent home retrofits each year to 2030, with a focus on lower-income households, and to revise and improve the provision of grants and financing models for homeowners who wish to retrofit, thus enhancing energy efficiency and reducing costs (Government of Ireland, 2025c). The Government is also considering mechanisms to incentivise households to adopt renewable energy sources for their homes (Government of Ireland, 2025c).

A range of SEAI programmes deliver energy efficiency action, ranging from fully funded schemes for those on low incomes to One Stop Shop grants and services for others who can afford to undertake some energy efficiency work on their homes, for example through increasing insulation, changing doors and windows and installing solar PV and batteries.[28]

Table 4.1 provides a list of the current energy efficiency schemes in Ireland.

28 As well as accessing grants for energy efficiency measures from SEAI, the Home Energy Upgrade Loan Scheme supports homeowners to undertake retrofitting through the Strategic Banking Corporation of Ireland, with state support (CCAC, 2024a).

Table 4.1: Main energy efficiency schemes in Ireland

Scheme	Focus
Warmer Homes Scheme (Better Energy Warmer Homes Scheme) (Grant)	Fully funded/free home energy upgrades aimed at homeowners who receive certain social welfare payments; oldest and least energy-efficient homes.
Better Energy Homes and Solar PV Scheme (Individual Energy Upgrades) (Grant)	For homeowners and landlords who want to do certain energy upgrades on a 'step by step' basis and manage the process themselves.
National Home Energy Upgrade Scheme (One Stop Shop Service) (Grant)	For homeowners, landlords and Approved Housing Bodies that want to bring homes to B2 or higher BER rating. Managed by the SEAI One Stop Shop Service.
Home Energy Upgrade Loan Scheme (Loan)	Supports households' investment in energy efficiency measures. They can borrow €5,000–€75,000 at low interest rates. PTSB, AIB, Bank of Ireland, Avant Money (in partnership with An Post Money) and seven credit unions from the Irish League of Credit Unions (ILCU) offer loans under the scheme, with rates starting from 2.99% (pricing varies depending on finance provider).
Warmth and Wellbeing Pilot Scheme (Pilot)	Pilot scheme (2016-2022) targeted at low-income people with chronic respiratory illness, if on Fuel Allowance and living in owner-occupied home or social housing in some disadvantaged areas of Dublin.
Energy Efficiency Obligation Scheme (Suppliers Obligation)	Large energy companies are legally required to achieve a certain amount of energy savings among lower-income households at risk of energy poverty and can operate in combination with other SEAI grants.
Energy Efficiency (Social Housing) Retrofit Programme (EERP)	36,500 local authority homes to be retrofitted by 2031 to be brought to B2 standard.

Source: Johnston, 2025; DCEE[29]

29 Additional information from DCEE correspondence to the Secretariat.

Overall, households are being incentivised to increase energy efficiency action and take up retrofitting grants and loans in greater numbers than ever before. However, barriers include resources, information and supports, capacity to act and a lack of certainty in making choices.

Behavioural research by SEAI and the European Environment Agency focus on the 'energy efficiency gap' – the slower-than-optimal rate of energy efficiency action improvements despite the benefits they bring. This is further complicated in that energy efficiency actions do not always necessarily lead to reductions in energy consumption, for example, with bigger houses, and higher energy use. One study found that Ireland has a smaller 'gap' than other European countries (Chlechowitz *et al.*, 2022; Ramboll, 2022).

There has been less focus on the potential benefits and opportunities from moving away from fossil fuels at home, improving air quality and reducing risks from carbon monoxide poisoning.

Action Point

Further research is needed on the health and wellbeing benefits for households in Ireland using clean heat sources.

4.3 Supporting and Emerging Policy Context

There are a number of supportive policy strands which will have an important bearing on energy efficiency in Ireland.

First, the recast Renewable Energy Directive (2023), to be transposed in EU member states by May 2025, requires a binding target for the share of renewable energy in heating and cooling, as well as indicative targets for district heating, buildings and industry.[30] The recast Energy Performance of Buildings Directive (EPBD) is currently being transposed and implemented in Ireland (Houses of the Oireachtas, 2025e).

There is policy commitment to scale up renewable heat but also recognition that it will take time and investment to bring changes to existing buildings. The Government has introduced the General Scheme of the Heat (Networks and Miscellaneous Provisions Bill 2024)[31] which includes plans to develop district heating. Those living in urban areas will have options not available to those in rural areas which needs to be acknowledge (Coyne *et al.*, 2022).

Delivering significant changes in household heat raises social and political as well as technical and economic considerations. The main areas of focus are electric heat pumps and district heating. The phasing-out of fossil-fuel boilers is also under consideration.

30 The Recast Energy Efficiency Directive (European Commission, 2023c) sets a requirement for all municipalities of over 45,000 inhabitants to produce their own individual heating and cooling plan, to be transposed in Ireland by October 2025.

31 See 20240912 General Scheme of Heat (Networks and Misc Provisions) Bill 2024 [accessed 16.06.25].

Second, the Energy Performance of Buildings Directive (European Commission, 2024d) to be transposed by May 2026, will bring opportunities for households as they undertake energy efficiency action, with the development of the Building Renovation Passport (BRP). This document (paper or digital) will bring a long-term (up to 15-20 years) step-by-step renovation roadmap to achieve deep renovation for a specific building and is intended to reduce complexity and ensure coordination beyond the ownership of the home. It is intended to be an effective and transparent advisory tool. Guidance on the Building Renovation Passport, which will be voluntary for energy efficiency work on a property, is being developed at EU level. This would provide an opportunity to make the household's journey more personalised and stepwise, with the potential role for AI-supported apps and platforms. With the technical skills and capacities well developed in Ireland, households can be further supported to take energy efficiency action.

Third, the revised EU Buildings Performance Directive requires countries to strive to phase out fossil-fuel boilers, with no financial incentives allowed for installation of standalone fossil-fuel boilers from 2025 (European Commission, 2024d). There has been progress through regulation and standards to effectively phase out fossil-fuel boilers in new buildings in Ireland, installing heat pumps instead.

Member states will need to develop national renovation plans to include a phase-out roadmap by 2040. There is no binding target for the phasing-out of fossil-fuel boilers, as had earlier been proposed by the EU. An obligation to cease public funding for installing new fossil-fuel boilers came into effect on 1 January 2025. Grant support is still available for repairs or installation of second-hand fossil-fuel boilers under some schemes (Houses of the Oireachtas, 2025e). Some installations of oil and gas boilers are permitted under the Warmer Homes Scheme if households were surveyed before the regulations came into effect (SEAI, 2025f).

The pace and process of phasing out fossil-fuel boilers in buildings will likely be approached incrementally and over time. The Government is developing a roadmap under the auspices of the Heat and Built Environment Taskforce to align with EPBD requirements in 2025 (Government of Ireland, 2025a).

The political and social context brought challenges for other countries in introducing a fossil-fuel boiler phase-out (e.g. in France and Germany). However, Denmark has agreed that gas must be phased out of heating by 2035 at the latest, with district heating seen as a key solution to help achieve this (Green Transition Denmark, 2023).

Phasing out fossil-fuel boilers will be a significant step, but it will not have an immediate impact as boilers installed today have a lifespan of 15-20 years; across Europe, millions will remain in use into the mid-2040s (FEANTSA, 2024).

Action Point

There is a need to bring greater clarity to the phasing-out of fossil-fuel boilers for residential buildings.

Cultural approaches to heat can be explored using participative approaches. In the Netherlands, the Heat Expedition Challenge in the city of Utrecht involved civil society organisations developing a gas exit strategy. This focused on principles of 100 per cent renewable, accessible to all, local ownership, cooperation, safety and reliability, and local integration. In Ireland, the hearth and the solid fuels used in it have deep resonance culturally. The benefits of a future clean energy system could be further explored to help people see the value of the transition away from fossil fuels, particularly in the home.

Action Point

Decarbonising heat is not just a technical challenge. Participatory research on the cultural role of the fireplace or hearth could inform more inclusive and effective energy transition policies.

4.4 Enabling Greater Take-Up of Energy Efficiency

Schemes for households are being increasingly taken up but not yet at the pace needed to meet targets (SEAI, 2024g).

There is progress on retrofitting, however; it increased by 78 per cent last year, with the use of grants, and there was also an increase in the number of local authority-funded retrofits (CCAC, 2024a).

Under the National Residential Retrofit Programme, approximately 55,893 homes have been retrofitted to BER B2 standard in the five years. An average annual retrofit of around 63,444 homes is required if the target set is to be met by 2030 (SEAI, 2024g). A total of 15,660 property upgrades were carried out under the Better Energy Homes scheme in 2024 and 7,743 households received retrofits under the Warmer Homes Scheme, while 28,424 received grants for solar PV. Local authorities are retrofitting social housing under the Energy Efficiency (Social Housing) Retrofit Programme (EERP) to support local authorities with the retrofit of local authority owned homes requiring insulation and energy upgrade works. This is funded to retrofit 2,500 local authority homes in 2025.

The three-year Just Housing research project, funded by the EPA, is investigating the social justice implications of Ireland's housing retrofitting policies (JustHousing, 2025). Early findings focus on some of the poor conditions in two Dublin flat complexes and the need for retrofitting. Further work to explore spatial aspects suggest that locations in the east of the country are more likely to have high retrofit rates than those in the west, and urban areas more likely to have higher rates than rural areas.

Energy suppliers also offer energy efficiency supports to households or work with local authorities under the Energy Efficiency Obligation Scheme (EEOS) to meet their annual energy efficiency targets. This can involve energy efficiency upgrades and particularly targets households in energy poverty (SEAI, 2023a). For example, SSE Airtricity has helped local authorities deliver their Energy Efficiency Retrofit Programme (EERP) obligation and delivered energy upgrades to fuel-poor and social housing units (Housing Ireland, 2024).

While good progress has been made towards the State's residential retrofit targets, observers have argued that these are challenged by financial, structural and policy-related obstacles (Ahern & Essien-Thompson, 2025). Ireland is still 'in the foothills' of its retrofit journey as the goal of retrofitting 500,000 homes by 2030, with 400,000 adopting heat pumps, will require 'another leap in ambition and innovation' (Quinlan, 2025). There is also said to be a disconnect between action and policy intent (Coyne *et al.*, 2022).

Action Point

More data and analysis will be needed to assess the distribution of energy-related supports across income cohorts and regions. Further analysis examining energy price impacts, energy use and income would be valuable. Barriers experienced by households in taking energy efficiency action should be further informed using social and behavioural insights and appropriate measures developed to address them.

Reducing investment up-front costs, increasing household engagement in the decision-making process, and properly using technology are critical to increasing the adoption of energy efficiency measures (ECF, 2022; Estévez & Tovar, 2024: 38).

A report for the European Environment Agency pointed to the need to simplify financial and administrative processes and stressed the key role of trusted messengers and community engagement in retrofit action. It also pointed out that a primary driver of action is to improve living and building conditions, and not energy efficiency *per se* (Ramboll, 2022).

Communicating the schemes and opportunities in the energy transition is important but also represents a challenge for service delivery capacity to be able to meet the increased response from rising interest. There is a waiting list for the Warmer Homes Scheme of approximately eighteen months (Houses of the Oireachtas, 2024). In addition, some older homes in need of energy efficiency improvements do not meet the criteria (Houses of the Oireachtas, 2024) and face complex technical and cost challenges (Estévez & Tovar, 2024).

Action Point

Building greater interest and supporting households to apply for retrofitting schemes requires that services keep in step with demand where possible.

The Programme for Government outlines a commitment (not fully progressed to date) to support group retrofitting projects, allowing neighbours to upgrade their homes together with guided support – making the process easier and more economical – and to develop innovative finance solutions (Government of Ireland, 2025c). The Climate Action Regional Offices (CAROs) play an important role in supporting local authorities to address climate change in Ireland, while energy agencies such as Codema in Dublin and the Tipperary Energy Agency have also played a key role in developing local energy action.

A key approach to strengthening energy efficiency action is through local energy actors. The household research commissioned by NESC pointed to the value of non-technical, technical and financial advice and support to households.

Polling undertaken by Friends of the Earth (FOE) found that 74 per cent of those surveyed agreed with the proposal to introduce 'local community energy advisors in all local authorities to support households with renovation grant applications'. (FoE, 2024b). In the UK, Energywise used customer field officers employed by local charities to support households to manage their energy use and make savings (Kacha *et al.*, 2024).

The use of trusted messengers and a bottom-up community approach may be more effective in making key issues feel relevant to people (SEAI, 2023c).[32] Box 4.1 outlines a successful initiative in Southend, Wexford in which a local energy champion was resourced to provide support to local residents in accessing the Warmer Homes Scheme.

Box 4.1: Retrofitting homes in Southend, Wexford

In February 2023, a local energy champion was appointed under the Sláintecare Healthy Community Programme to provide two hours per week to promote energy improvements in the local community. Earlier exploratory work by Wexford Town Sustainable Energy Community (SEC) contributed to a project developed from a collaboration between Wexford County Council and the Southend Family Resource Centre (SFRC), the Department of Health, the SEAI and others.

The energy champion is a staff member of the SFRC who lives in the local community and is known and trusted by the families living there. One of their roles is to assist people in completing Warmer Homes Grant applications. Co-designed research led by the South East Technological University (SETU) is an important part of the initiative, providing objective evaluation of the project.

To date, more than 25 houses have received retrofit upgrades, including the use of heat pumps, and feedback has been very positive. Much of the positive experience is attributed to the role of the energy champion who explained the retrofit process and the behavioural changes required. While the project was undertaken as a pilot, it is now intended to replicate the model in other areas through training volunteers.

Source: Personal communication with project implementers.

32 A policy guide to communication from SEAI's Behavioural Economics Unit to encourage energy conservation points out that quality information alone does not change behaviour but it is still an essential element (SEAI, 2022a).

Partnering with trusted local organisations to enrol hard-to-reach households can be effective in energy efficiency action, particularly for purchasing solar PV installations.

Local energy actors have supported households to get cheaper rates and support by advisors and helped to reduce the administrative burden. SEAI's Solar Meitheal has been an effective approach in supporting neighbours collaborating on solar PV installations. More than 30 energy communities have taken part (SEAI, 2024a). The Greystones and Delgany Sustainable Energy Community (GDSEC) in Co. Wicklow is running its third Solar PV Meitheal (Greystones & Delgany SEC, 2025). In the Netherlands, the Energiesprong Global Alliance project aims to make heat pumps cheaper for private individuals by purchasing them jointly with municipalities and facilitating the purchasing process. The project will run from 2023 to 2026 and will be tested in France, Germany, Italy and the Netherlands (Energiesprong Global Alliance, 2024).

Action Point

Group delivery of energy efficiency actions, including retrofitting and Solar Meitheals, should be actively supported to make take-up easier for households.

The IEA (IEA, 2024a) emphasise in a policy toolkit for energy efficiency that information provision is essential to support people to make more efficient choices. In addition, the greatest energy efficiency gains are achieved by a package of policies that combine three main types of mechanisms: regulation, information and incentives. According to the IEA (2024a), policy measures are more effective when framed within clear strategies and measurable targets, supported by adequate resources for implementation, and enhanced through behavioural insights, while combining regulation, information, and incentives to support scalable action.

Social and behavioural insights will be increasingly valuable for the social/cultural shaping of future energy use and can inform a holistic and inclusive scaling-up of energy efficiency action. Progressing an integrated and holistic approach would be underpinned by appropriate metrics, testing and research to review what works, and how to further engage households to progress further towards high energy-efficient homes.

Action Point

Local energy and community actors can play an increased role in supporting take-up of energy-efficient measures and new technologies, such as Solar PV. Consideration should be given to supporting them in areas with high levels of energy poverty.

Action Point

Informed by the IEA energy efficiency toolkit, consideration should be given to reviewing the current suite of policy measures to ensure they can bring about the increases in energy efficiency action required to meet current targets.

4.5 Scaling Clean Heat Technology

The Council believes that creating clean heat for use by households is a key to Ireland's energy transition. Heat pumps and district heating are two technologies which have transformative potential if effectively scaled up and supported.

4.5.1 Heat Pumps

Heat pumps are a flexible, efficient technology that can produce heat from the air, water or ground and can be used in an individual building or as part of district heating systems (Yule-Bennett & Sutherland, 2024). Heat pumps are a key part of Ireland's heat decarbonisation plan, powered by increasing levels of renewable electricity. The installation of heat pumps is a critical step in the reduction of GHG emissions in large numbers of homes and buildings as early as possible (SEAI, 2024e: 39).

Heat pumps are technically suitable for 78 per cent of residential buildings in Ireland (SEAI, 2022). Targets for the installation of heat pumps is 170,000 for new dwellings by 2025, and 280,000 by 2030; and 45,000 for existing dwellings by 2025, and 400,000 by 2030 (Government of Ireland, 2025a).

Progress has been made in heat-pump installations to date.[33] At the end of 2023, there were approximately 112,000 dwellings (new and existing) with heat pumps, and 22,000 heat pumps were installed in the first nine months of 2024 (SEAI, 2023b).[34] SEAI noted in 2024 that 'this number will need to dramatically increase in the coming years' (SEAI, 2024f: 5). The magnitude of the scale-up required post-2025 presents a substantial risk that the 2030 target will not be achieved without additional policy effort (SEAI, 2024e: 40).

The scaling-up of heat pumps has been challenging to deliver across Europe due to cheap gas and expensive bank loans in 2023, among many factors (EHPA, 2024). The high cost of electricity compared to gas is a barrier to the adoption of heat pumps in many countries, and the financial return on investment can be perceived as too long due to low gas prices when compared with electricity prices (Eurofound, 2024: 1). However, there was growth in some countries; in France, for example.[35]

SEAI (2024e) has identified particular heat-pump issues and concluded that there are challenges to be overcome to provide assurance and advice to households. Research has identified how psychological factors, social networks and consumers' characteristics have a role in heat-pump take-up. Motivations for using heat pumps include energy bill or energy savings, increased home comfort, and concern for the environment. Early adopters in Ireland were more likely to be homeowners, households who live in Dublin County, households with higher education, and those with a larger number of bedrooms (Meles & Ryan, 2022).

The European Commission launched the Heat Pump Accelerator Platform in November 2024 to encourage collaboration and exchange of best-practice ideas between experts and policymakers (Eurofound, 2024; European Commission Energy, 2024). It outlined a policy framework of incentives, regulation, education and communication for heat pumps in Europe to ensure that the relevant EU and national policy objectives are met.[36] Meanwhile, the Regulatory Assistance Project (RAP), an independent, global NGO, has produced a toolkit for mass deployment of heat pumps across Europe and the UK (Lowes *et al.*, 2024).[37]

Action Point

Greater clarity is needed on the pathways to clean heat for residential buildings in cities, towns and rural areas.

33 While physically larger than most gas or oil boilers, they are installed outside the property and bring a steady temperature state rather than being turned on or off seasonally. Heat pumps cost more than gas or oil boilers to buy; the median cost of heat pumps in 2023 was €14,868, with a median grant of €6,500 available from SEAI (CCAC, 2024a).

34 Data from SEAI schemes shows that, in the 167,947 property upgrades supported by SEAI in the period 2019 to end-August 2024, 12,940 have heat pumps installed (SEAI, 2024c) (Joint Committee on Social Protection, 2024).

35 France has tiered subsidy schemes that make heat pumps affordable for most, with targeted programmes that benefit low-income households while financial support for individual gas boilers has been removed. In addition, heat-pump manufacturing targets were introduced, with one million new heat pumps a year to be manufactured in France by 2027 (Energy in Demand, 2024; Gibb *et al.*, 2023).

36 They recommend 100% funding for low-income households or those in energy poverty and a minimum 30% subsidy/financial support for eligible costs associated with heat-pump installation as well as national/regional campaigns to promote alternatives to fossil fuels, e.g. 'Adieu Oil' in Austria (Eurofound, 2024: 32).

37 They focus on a coordinated policy package with the foundation of coordination and communication, and key pillars of economic and market instruments, financial support and regulatory policies. For effective deployment all elements must work together (Lowes *et al.*, 2024).

New technologies require engagement to familiarise people with them. Sweden and Finland invested in communications and stakeholder forums to help familiarise people with the new technology (Amelang, 2023). Incentives and supports have to be designed carefully to reach those who are socioeconomically disadvantaged, and this must be accompanied by a robust communication campaign to engage and encourage people to avail of these supports (Eurofound, 2024). As part of Kildare's Decarbonising Zone action in Maynooth, the Demo House, built in the early 1990s, has undergone a comprehensive energy upgrade and retrofit, with scientists from Maynooth University set to quantify the energy savings over the coming year. Kildare County Council has invited the public to visit the Demo House and learn more about the benefits of energy-efficient living (Kildare County Council, 2025).

Action Point

Consideration should be given to increased public engagement around heat pumps and demonstrating them in action. More demonstration homes would be valuable for expert-led tours and information sessions for the public.

4.5.2 Heat as a Service (HaaS)

Denmark, Germany and the UK have adopted models of heat provision that reduce the reliance on individual households purchasing their own electric heat pumps. Heating as a service (HaaS) and cooling as a service (CaaS) are business models in which service providers, rather than end users, own and operate users' heat pumps, boilers, chillers or other equipment. The providers charge fees for the services they offer, which can include heat and electricity, and also cooling (IRENA, 2023).

Set Alliance (Ottosson et al., 2023) outlines the potential of residential heating as a service (HaaS) models but notes the lack of household demand currently compared to commercial models. Companies offering appliance rentals and service for heat pumps include Thermondo and Warmly in the United Kingdom (Thermondo, 2025; Warmly, 2025). Where introduced, these service models require regulation and safeguards as well as inclusive access. This model could be used to remove the initial outlay for those without the capacity to take action otherwise.

Action Point

Research would be of value on the potential role of the heating as a service (HaaS) model for those living in energy poverty.

4.5.3 Bringing On District Heating

District heating is a proven heating solution for densely populated areas that is used in Denmark, Sweden and other European countries. For example, central Stockholm has one of Europe's largest district heating and cooling systems; 90 per cent of the city's buildings are connected along a distribution system of 3,000 km, using sources that include excess heat and wastewater. In Ireland, district heating accounts for less than 1 per cent of the heat market (Government of Ireland, 2023b). This is despite it being used as a technology in the 1960s to heat the Ballymun development in Dublin.

It is estimated in the National Heat Study that over 50 per cent of Ireland's building stock would be suitable for connection to a district heating network (SEAI, 2022b). It may be the most economically viable low-carbon heating option for 64 per cent of the Irish population (Rihtaršič, 2024). Currently, two areas for district heating in Dublin are progressing, Tallaght and Poolbeg, supported by Dublin City Council and Codema Energy Agency. The Tallaght District Heating Scheme, operational since April 2023, uses recycled heat from the Amazon data centre (Amazon Web Services AWS), led by South Dublin County Council (SDCC) with the assistance of its energy agency, Codema, and will extend to residential developments.

There is a policy commitment to progress district heating in Ireland[38] but it requires a long-term strategy and is still in its establishment phase; pace of development has been slow (Stapleton/SEAI, 2024, District Heating Conference).[39] There have been calls for district heating schemes to be accelerated (CCAC, 2024a; Lygnerud *et al.*, 2024). Ireland can benefit from being a late technology taker and adopt '4th generation' systems (Coyne *et al.*, 2022). However, there is uncertainty over the installation costs and road disruption can arise when connecting to heat networks. A plan-led approach is required.

In 2024, a General Scheme of a Heat Bill was introduced to establish a regulatory model for district heating that ensures consumer protection and the delivery of a vibrant district heating industry.[40] It will provide the statutory underpinning for developing and expanding district heating networks in Ireland. This will allow it to develop nationally as a sector under central direction, with a single state entity or utility overseeing the development and expansion of networks.

Local authorities are now including district heating in local community development plans (Cussen, 2024). The Centre for Excellence at SEAI is preparing guidance for local areas considering heating solutions, including district heating. Early notice to households in areas where district heating is planned will be important to avoid households investing in alternative heating such as heat pumps. Households are not yet familiar with this technology or its potential role in Ireland's heat decarbonisation plans, which highlights the value of demonstration projects to show the benefits (Connolly, 2024).

38 The Programme for Government commits to enacting legislation in 2025 to accelerate the roll-out of district heating systems (Government of Ireland, 2025c). This follows analysis from the SEAI (2022b), recommendations from the District Heating Steering Group (Government of Ireland, 2023b) and a Heat and Built Environment Taskforce established last year.

39 The Climate Action Plan 2024 has a target of up to 0.8 TWh of district heating installed capacity across the residential and commercial building stock by 2025, and up to 2.7 TWh by 2030 (Government of Ireland, 2024b).

40 See https://assets.gov.ie/static/documents/general-scheme-of-the-heat-networks-and-miscellaneous-provisions-bill-2024.pdf [accessed 16/06/25].

Planning for the energy transition in household heat will be important to ensure that all households can avail of clean-heat options when they are readily available. With the timeline for phasing out fossil-fuel boilers not yet clear, there is a risk that those who lack capacity to act will be left with fossil-fuel heating systems for decades to come.

Action Point

Heat pumps and district heating require more urgent and coordinated efforts to identify and address regulatory, technical and impediments to scaling them up. To avoid low-income households being left behind with polluting fossil fuel at home, clean-heat deployment should be accelerated.

A plan-led approach is ideally suited for district heating. Santini et al. (2024) stress the importance of local heat plans, identifying zones for district heating and supporting energy efficiency. Local roadmaps, such as the Dutch WHEN map in Rotterdam, offer transparency by showing when each area will transition from gas (City of Rotterdam, 2021; OECD, 2023a). As plans progress, the Climate Change Advisory Council (2024a) has advised that clear rules for pipe access on public ground are needed, and that a proper consenting process be put in place. Careful coordination among utilities will be needed; for example, as already initiated by ESB Networks.

4.6 Conclusion

Policy action has effectively focused on improving residential buildings' energy performance; while there has been success in the case of new buildings, this is more complex to deliver in existing households.

There is an appetite among households to do more on energy efficiency but there is a need for further measures to encourage take-up. Clean-heat action is urgent; district heating and heat pumps both require acceleration if targets are to be achieved. Households are at risk of having fossil-fuel-based heat at home for longer than necessary, as these technologies are more familiar and readily accessible.

Chapter 5: Line of Action Three – Helping Households to Reap Electricity Benefits

5.1 Introduction

This chapter outlines some of the near-future developments that will increase how households can engage with electricity at home beyond the usual consumer role, with the potential to bring energy and cost-saving benefits. There are increasing possibilities of benefitting from managing electricity at home, from energy demand management, energy generation and energy sharing. However, these may not be readily accessible to everyone.

People can increasingly play a more active role in the energy transition as 'energy citizens' and prosumers, as part of an increased European focus on energy democracy (DCENR, 2015; European Commission, 2019b). This 'hands on' participation has implications for inclusivity (e.g. who can participate) and the potential effects over time (e.g. who can benefit) (Ryghaug et al., 2018; Wahlund & Palm, 2022).

The chapter is structured as follows:

- Section 5.2: Managing Energy Use at Home
- Section 5.3: Microgeneration Opportunities
- Section 5.4: The Potential of Energy Sharing
- Section 5.5: Conclusion

5.2 Managing Energy Use at Home

Demand-side management allows active energy customers to respond to signals and adjust their energy use, storage and local generation dynamically (ESB Networks, 2024b: 10). A shift to increased demand management is underway in technologies, digitalisation and smart metering, bringing real-time choices for consumers around the world, but this has been slow to develop in Ireland.

It is important as it can deliver emissions reductions, cost savings and improved energy affordability (EPA, 2024a: 313). By shifting demand away from times when renewable generation is low to when renewable generation is high, less carbon will be emitted, overall costs will be lower, and the energy system will be more secure (CRU, 2024c).

A new report from SEAI argues that electricity demand-side flexibility is necessary to manage rising electricity demand and renewable energy integration (SEAI, 2025a). SEAI outlines strategies to encourage households and SMEs to participate in energy-saving or shifting behaviours, smart technology adoption and flexible use, and time-based tariffs and demand-response programmes.

ESB Networks has sought to increase awareness on the timing of household energy use, experimenting with demand reduction strategies. 'Is This a Good Time?' is a 'Beat the Peak' Domestic Initiative which invites those who have signed up to use less or more electricity at a particular time of day and report back. Some customers receive small gift vouchers for their participation (ESB Networks, 2025a).

Calls for Ireland to strengthen focus on managing energy demand and dynamic pricing across the economy have come from the European Commission (European Commission, 2025a) and the OECD, in its economic review of Ireland (2025b), which noted the slow uptake of time-of-use or smart tariffs.

ESB Networks has introduced flexibility products, providing insights to customers on their electricity use, based on smart-meter data (ESB Networks, 2024a), and the CRU has produced the National Energy Demand Strategy[41] (NEDS) which aims to align electricity and gas demand with the country's carbon sectoral emissions ceilings (SECs) by implementing measures that prioritise demand flexibility (particularly non-fossil fuel flexibility) and demand response initiatives.[42]

Dynamic tariffs, in which the price of electricity varies by time of day, are being introduced; the largest suppliers must do so by June 2026 (CRU, 2025d). These could be a key tool for energy demand management. However, without supports, smart technologies and advice, not all households will achieve benefits. Innovative, dynamic time-of-use tariffs are often more accessible to certain types of households with better knowledge, time availability and access to technology (Chapman, 2024).

As well as pricing, two technologies will shape how households can manage their energy usage: smart meters and smart AI.

Action Point

Households could make energy and cost savings using dynamic tariffs and these should be introduced as soon as possible. All households should be enabled to easily access a range of flexible tariffs, with support for those who need it to manage their energy demand.

41 The National Energy Demand Strategy (NEDS) aims to achieve 20% to 30% flexibility in energy demand by 2030.

42 Smart Services Measures 'include efforts to increase the availability and uptake of time of use (ToU) and dynamic tariffs and increase uptake of microgeneration'. Demand flexibility and response measures 'will focus on increasing the potential for demand response from users' (CRU, 2024c: 3). This will include large energy users (LEUs) and storage, at times when it is beneficial for the system and for energy users.

5.2.1 Smart Metres Can Deliver More

Households are not fully using smart metres and remain somewhat in the dark on their energy usage.

The National Smart Metering Programme, coordinated by the CRU, is being delivered by ESB Networks (ESBN) on a phased basis. To date, 1.9 million meters have been installed, with the installation of over two million meters expected in 2025 (ESB Networks, 2025b). Smart meters can measure the profile of demand in a household and monitor the export of residual electricity to the grid (DECC, 2021). There are already time-of-use (ToU) tariffs, smart products and services, which households can sign up for, that provide electricity rates for different times of the day and week.[43]

Despite the roll-out, most households are still not using their electricity smart meters or changing from their flat tariffs. Two-thirds of homes now have one installed but 89 per cent of consumers were on previous payment arrangements in 2024 (CRU, 2024d). With an ESB Networks online account, households can access some energy usage data online. While smart meters can provide real-time energy usage data, accessing that data in real time typically requires an in-home display (IHD), which can be purchased, that connects to the smart meter.[44]

The Climate Change Advisory Council has highlighted the need for smart metering functionality to be enabled to provide customers with feedback on their electricity use in real time with in-home displays and the potential for feedback messages (CCAC, 2025: 11). The Smart Energy Services Working Group (SESWG) is considering measures to empower citizens to play a central and active role in the energy transition, including a Smart Energy Users Portal, for educating, encouraging and empowering active consumers to engage in demand flexibility activities (Government of Ireland, 2025a).

Ireland has lacked the clear legislative basis to support access to smart metering data (CCAC, 2024b). The OECD (2025b) has pointed to the need for Ireland to create the legal basis for third-party and customer access to smart meter data in real time; this would enable price signals to incentivise demand-side responses. Without smart meters being used fully in Ireland, households are not yet able to monitor their energy use and manage it better to save money and energy and to support the energy system.

Action Point

The work of the Smart Energy Services Working Group is of value and action is needed to identify and implement measures which would empower and encourage citizens to make more use of smart meters. Consideration should be given to engaging households in this work to ensure that solutions meet the needs of different household types and involve them in energy demand management.

43 A TOU tariff is a smart service that means the cost of electricity changes depending on the time of day (CRU, 2024d).

44 ESBN states that access to real-time data use requires the use of a third-party device that is attached to the front of the smart meter where the LED pulse is located. This device typically includes an in-home display or app which displays one's electricity usage from the smart meter.

5.2.2 Secure Smart/AI Home Energy Management

Smart home technologies such as SmartThings, Apple Home, Alexa and Nest, which allow manual and automated control over smart appliances, are already in use (Pereen, 2023). AI-informed apps are being developed; for example, the iFLEX assistant developed in EU research which found that it could help consumers in Finland to manage their energy options, but only under certain conditions (Immonen & Kiljander, 2024). Other EU research – EU DREAM with an Irish partner, SEE Airtricity – will be using AI algorithms and an AI assistant to help improve consumer awareness, trust and engagement with the energy market (Irish Tech News, 2024).

In the future, it is likely that Home Energy Management Systems (HEMS) will play a role in enabling greater flexibility as they can automate demand shifting for the customer, and, when dynamic tariffs are available, they can automate demand management, based on price signals (CRU, 2024c). Stecula *et al.* (2023) detail how AI will have implications for smart home energy usage, adjusting settings to reduce costs and increase energy efficiency; and to improve predictions of supply and demand, among many other areas.

In an overview of potential AI positives for energy users, Yule-Bennett (2024) suggests that AI could support more customised solutions for user needs, potentially lowering costs and emissions – but only if carefully managed.

There are capability and capacity issues for a growing digitalised AI energy service, putting an emphasis on the need for smart users rather than smart systems. Digital exclusion is a barrier to smart local energy systems. UK research found that, even when supported in accessing smart technologies, households need the requisite skills, confidence and trust in suppliers to make informed decisions about new energy service contracts and requirements (Smith *et al.*, 2023). As smart technologies and AI become more prevalent in the energy sector, it will be essential to ensure that households can participate in and benefit from developments.

5.2.3 Home Energy 'Assets'

In the coming years, heat pumps and hot-water tanks may be on different dynamic price tariffs, which would give them increased potential as 'assets' in the energy system – using renewables when plentiful and cheap, and potentially providing storage for use at a later date.

UK research demonstrates the potential benefits of heat pumps for households in terms of reduced and optimised energy demand, with potential to reduce consumers' energy bills, support the grid, and enhance the societal value of heat pumps (Bernard *et al.*, 2024). Eurofound (2024: 33) points to the value of integrating heat pumps with smart grid technologies and home energy management systems to increase efficiency and reliability and make heat pumps more appealing to consumers.

Not all consumers can tap into the potential of such demand-side flexibility, both because of their lack of capital and differences in lifestyles, including working patterns (such as the much greater rates of home/hybrid working among higher-income households).

Research on the distributional effects of time-varying electricity tariffs suggests that households' patterns of energy demand are affected by factors beyond income, including age, location, lifestyle, working hours and families; for example, children in the home can reduce the ability to access flexibility benefits (Yule-Bennett & Sutherland, 2024: 19).

Some highly variable pricing schemes (such as real-time pricing and variable peak pricing) can increase energy poverty (Chapman, 2024). One approach outlined by the Regulatory Assistance Programme is 'inclusive flexibility' – that is, valuing this flexibility and incentivising it through energy market price signals while ensuring a level playing field for demand-side resources (Yule-Bennett & Sutherland, 2022).

Action Point

In relation to smart technology, consideration of who benefits and who is disadvantaged by rapid technological change is important. Research exploring the potential of using smart flexible services for those in energy poverty to make cost and energy savings would be valuable.

5.2.4 Potential to Explore Energy Sufficiency for Households

Both energy efficiency and energy sufficiency[45] measures are needed to achieve the EU's energy and climate goals (Gynther, 2024). Sufficiency contrasts with efficiency as a goal to a means: while efficiency focuses on 'how', sufficiency focuses on 'to what end' (Bärnthaler & Gough, 2024).

There is no fixed approach to sufficiency, and it would be different from country to country. What constitutes enough is socially and economically situated (Bouillet & Grandclément, 2024). It is worth considering what living within planetary boundaries or a minimum standard of needs satisfaction or wellbeing might mean in Ireland (Best *et al.*, 2022; Gurdic, 2023). There is a rich debate on international and global aspects of fairness and sufficiency. Recent international survey research suggests support for policies on energy decarbonisation that would have a redistributive effect, even when such policies would cause wealthier survey respondents to lose out financially. Effectiveness (i.e. a clear impact on emissions) and equity are seen as the most decisive criteria (Fabre *et al.*, 2023).

Many dimensions of wellbeing and 'basic needs' are social, not individual, in character and involve social contexts (Creutzig *et al.*, 2022), providing a good subject that would benefit from further deliberation, through for example, an energy forum or citizens' assembly. Research suggests that sufficiency demand-side measures and advanced technologies combined could help reduce the global final energy consumption by 2050, despite population growth (Millward-Hopkins *et al.*, 2020).

45 Energy sufficiency is 'a state in which people's basic needs for energy services are met equitably and ecological limits are respected' (Gynther, 2024).

Breuker and Defard (2023) examined the role of sufficiency policies that have been implemented or are being discussed in France, Germany, Latvia, Italy and Denmark. They concluded that key enablers include a coherent policy mix with appropriate supporting measures, affordable and attractive alternatives and enabling infrastructure, appropriate financing, stakeholder engagement, successful piloting, education, and positive communication with a focus on co-benefits of measures. University of Galway research has explored how households can manage their energy use to meet their needs but also reduce overall usage. This can be also considered as part of building energy resilience whereby the principles of energy sufficiency can support national efforts to reduce energy demand temporarily or at particular times (Hasselqvist *et al.*, 2022). In France, an app (EcoWatt) lets households know when to reduce energy use if there is a risk of a power outage.

Any focus on household energy sufficiency must be one element of a wider society-wide, economy-wide emphasis on energy demand. The policy system is aware of the scale of the challenge, particularly in relation to large energy users such as data centres, where electricity demand is projected to rise to one-third of supply in the next few years (Parliamentary Research Office, 2025). Addressing this issue will involve striking the best possible balance between important, sometimes competing objectives.

5.3 Microgeneration Opportunities

The context of households using and generating renewable energy is expected to become an important part of the next phase of the energy transition.

Over 100,000 rooftop solar systems have added 400MW to the grid in Ireland. There was a 42.6 per cent rise in solar capacity in 2024 alone, reaching 1,185MW – enough to power 280,000 homes and cut emissions by 270,000 tonnes. Domestic rooftops contributed 373MW (ISEA, 2024). In 2024, ESB Networks had 112,000 microgeneration applications and expects 55,000 per year by 2027–2030, reaching 2 GW installed capacity by 2030 (up from 600 MW).

The Micro-generation Support Scheme (MSS) includes capital grants, and a Clean Export Premium (CEP) Feed-In Tariff paid to self-consuming customers with installations greater than 6.0kWe up to 50kW in size. Eligible renewables are micro-wind, micro-hydro, micro-renewable CHP (excluding fossil fuels) and solar photovoltaic (PV). This tariff is designed to work in tandem (but separately) with the Clean Export Guarantee (CEG) tariff, which is an export payment for residual renewable electricity exported to the grid by renewables self-consumers and renewable energy communities.[46]

Solar energy is used more across continental Europe where households are increasingly generating energy on rooftops and balconies, storing or selling excess energy back to the grid. This shifts households from being pure consumers to *prosumers*. The potential for prosumption, especially solar PV, is large but underused (European Commission, 2023g; Ryan *et al.*, 2023).

46 The scheme operates through a framework implemented by the Department of Climate, Energy and the Environment (DCEE), the Commission for Regulation of Utilities (CRU), and the Sustainable Energy Authority of Ireland (SEAI), with support from other industry stakeholders including ESB Networks (DECC, 2021).

Home-based solar PV prosumption is seen as environmentally, socially and financially beneficial. While costlier at small scale, it supports rapid renewable deployment, especially during energy price volatility (EEA, 2022). Battery storage is growing rapidly, with 1.7 million more European homes adopting solar batteries in 2023 (Longo, 2024). Battery innovation is ongoing, with a variety of technologies currently in use and under development to improve storage capacity, efficiency and cost-effectiveness (Solar Power Europe, 2024). Rooftop capacity rose 80 per cent in one year, from 208MW to 373MW.

Solar PV also creates a 'neighbourhood effect'. Australian research found that each installation encourages 15–20 more per postcode per year. When scaled up, this approximates to 18% of new solar installations coming from the neighbourhood effect (Khalilpour & Voinov, 2024). Seen as a gateway to deeper energy engagement, solar PV may inspire households to take energy efficiency actions. However, focusing solely on PV is less effective than integrating it within a broader plan that includes energy efficiency and renewable heat.

5.4 Potential of Energy Sharing

Peer-to-peer energy use or energy sharing is part of the *Clean Energy for all Europeans* package, adopted in 2019. This includes eight pieces of EU legislation, of which four are referred to as the Electricity Market Design (European Commission, 2025e). Energy sharing is not yet in place in Ireland; the EU date for its transposition by member states is June 2026.

The revised Electricity Market Directive is opening up energy sharing to all consumers, businesses and households (Ritter & Mühlenhoff, 2024). This will give consumers and energy communities the right to share self-generated energy. As households increasingly produce their own electricity and/or heat, energy sharing is a new tool that will allow citizens to consume renewable energy without owning generation capabilities.

Households could be part of an energy sharing scheme as both supplier and user of electricity from solar PV or just be a user/taker of the supply. Consumption would not be restricted by where the electricity is generated. This has the potential to be a social innovation that complements more traditional contracts with suppliers.

Customers that generate and consume that energy (self-consume) already have their energy bill reduced in Ireland. With energy sharing, customers will be able to more easily access renewable electricity generated or stored off-site by family, friends, neighbours or communities (European Commission, 2025e). In theory, energy communities, private or public entities will be able to provide energy sharing services, subject to tight regulation. This is already the case in countries such as Portugal, France and Norway where households share solar energy supply (usually) with others in the same apartment blocks or neighbourhood. This is virtual sharing, so it is possible to share more widely among Electricity Supply Organisations (ESOs) through collective investments, service agreements or purchase agreements.

There are energy sharing schemes in Europe but the reforms will increase the number of these rapidly, with a particular focus on vulnerable or energy-poor consumers. The Directive provides that energy sharing projects owned by public authorities will be required to make shared electricity accessible to vulnerable or energy-poor customers, with the expectation that this will amount to about 10 per cent on average of the energy shared. The Irish regulator, the CRU, will have a critical role in ensuring appropriate consumer protection, data sharing and the licensing of suppliers to provide data sharing.

As energy sharing and wider governance models are developed and new technologies become available, economic and social value will increase if enabled, but the impacts and benefits so far have not been explored yet.

Action Point

The Council recognises the potential of energy sharing and supports its introduction, while emphasising the need for appropriate regulation to ensure it is practical and effective for both households and energy communities.

5.5 Conclusion

While there are new possibilities for managing energy demand, households have not been fully enabled to access data on their energy use or incentivised to change when they use it. To some extent they are 'in the dark' on their energy use.

This chapter has outlined some of the ways this new capacity and management of energy will become increasingly important, and some of the considerations needed to ensure that vulnerable households are not left behind.

Energy demand management, microgeneration and energy sharing are big opportunities for households to be actively engaged in the energy transition.

Actions are needed to ensure that smart metering functionality is enabled to provide customers with real-time feedback through in-home displays and feedback messages, and that dynamic tariffs work to ensure all households can benefit from both energy and cost savings.

Chapter 6: Line of Action Four – Place-Based Energy Resilience and Local Production

6.1 Introduction

This chapter examines areas for strengthening local energy action and building energy resilience. A place-based approach to improving local energy resilience and decarbonising energy can serve as a focal point for increasing community engagement, offering tailored roadmaps for specific areas. It can enable the sharing of benefits and opportunities, strengthen local energy resilience, and support progress on energy efficiency, local generation and storage, and the transition to decarbonised heat.

The chapter is structured as follows:

- Section 6.2: Place-based Approach to Energy
- Section 6.3: Place-Based Energy and Energy Resilience
- Section 6.4: Place-based Energy and Energy Communities
- Section 6.5: Conclusion

6.2 Place-Based Approach to Energy

The development of a place-based approach requires investment in local capabilities but also the capacity of community leadership for just transitions also needs to be developed (Moore-Cherry *et al.*, 2022: 14). Previous NESC work on just transition pointed to the need for approaches that are place-based, context-specific and cognisant of regional differences (Mercier, 2020). A placed-based approach supports local area energy and climate action planning, with a key role for local authorities. Energy generation and energy efficiency can provide real costs savings and income generation for households and communities.

Local communities and residents could be further engaged to consider local energy and climate issues through local authorities, energy communities or group schemes. Public Participation Networks and Local Community and Development Committees (LCDCs) provide potential mechanisms to deepen local energy engagement.

Local climate action has also been increased through programmes like the National Dialogue on Climate Action, and Climate Actions Work, focusing on community engagement. The Community Climate Action Programme helps scale up local climate projects, enabling people across Ireland to engage with climate-change efforts. Trusted information, intermediaries and local engagement will be valuable in building placed-based energy solutions. The Creative Ireland Climate Fund has supported engagement around local resilience; for example, the Youghal Blue and Green Community Network's 'Pathways: Building Community Resilience to Climate Change' project has used creativity and connections to the biodiversity crisis, coastal erosion and rising sea levels (Creative Ireland, 2023).

Households and communities will need clear guidance and information to safely and effectively adopt existing energy solutions as part of local area plans to reduce fossil-fuel use. Drawing on local renewable energy and heat sources will be important and will help increase energy resilience.

6.2.1 Increasing Local Energy Action

There is growing emphasis on local energy and climate action, particularly by local authorities. This includes:

- **Revised National Planning Framework:** This has been refocused to enable a transition to a competitive low-carbon, climate-resilient and sustainable economy by 2050, through renewable energy development and coordinated planning across local authority boundaries (Government of Ireland, 2025d). Recent policies have considered a spatial approach to align local plans with national renewable electricity goals (Houses of the Oireachtas, 2025d).
- **Climate Action and Low Carbon Development (Amendment) Act 2021:** This states that local authorities must prepare Climate Action Plans every five years and meet ambitious 2030 targets: a 50 per cent improvement in energy efficiency, 80 per cent heat from renewable sources, and a 51 per cent cut in CO_2 emissions. Renewable energy goals must be integrated into City and County Plans, with land identified for projects – most of which are private developer-led onshore wind and solar PV.
- **Aligning local, regional and national policy:** The Department of Climate, Energy and the Environment and the Department of Housing, Local Government and Heritage are working with SEAI on guidance to align policy for renewable electricity with the planning system. This is to ensure balanced and consistent planning and development, building a strong pipeline of renewable projects to enable the timely delivery of Ireland's national energy and climate objectives. The SEAI is undertaking a revision of the methodology for the Local Authority Renewable Energy Strategy (LARES) which aims to facilitate consistency of approach to spatial planning for renewable energy by local and regional planning authorities, guiding the preparation of renewable energy strategies, and assisting local authorities in developing robust, co-ordinated and sustainable strategies in accordance with national and European obligations.[47]
- **Energy suppliers, under the Energy Efficiency Obligation Scheme (EEOS):** These suppliers work with local authorities to meet targets, often focusing on upgrades for households in energy poverty (SEAI, 2023a).

The Office of the Planning Regulator supports aligning spatial planning with national energy policy and recognises the potential for designated Sustainable Energy Zones to help deliver on these plans. McGookin (2023) highlights local authorities' increasing responsibilities in renewable energy, but many require greater capacity. Newly established climate action units are supporting this. Local authorities are being supported by Climate Action Regional Offices (CAROs), established in 2018, and energy agencies like Codema and Tipperary Energy Agency. Decarbonising Zones (DZs), required under the Climate Action Plan 2023, are areas where local authorities test low-carbon solutions. Codema has supported Dublin's DZs with evidence and community engagement.

47 Correspondence from DCEE to the Secretariat.

6.2.2 Different Urban and Rural Approaches

For urban areas, local energy action by local authorities is likely to focus on zoning districts and how commercial, public and private buildings interact and collectively contribute to climate neutrality.

While policy is directed at individual building energy performance, the European vision is that these changes will bring impacts at scale in urban areas. According to the European Commission, zero-emission buildings will also support grid flexibility by providing decentralised renewable energy generation at household or community level, electric and thermal energy storage, better demand response and smart charging, which will reduce demand and contribute to the overall energy grid supply (European Commission, 2024c).

In the EU, Positive Energy Districts are seen as part of the future for cities and a stepstone towards climate neutrality for European cities. This brings a neighbourhood approach and process. These are areas which will be energy-efficient and energy-flexible, producing net zero greenhouse-gas emissions and actively managing an annual local or regional surplus production of renewable energy.

In urban planning debates, the importance of co-design, social support and community engagement for a socially inclusive transformation has been raised (Glicker *et al.*, 2022; Gondeck *et al.*, 2024). One research example is the EU-funded ENERGY4ALL project which is exploring the role of communities and the human dimension in designing and implementing Positive Energy Districts (PEDs) and Energy Communities (ECs) (Energy4All, 2025).

The focus in rural communities has been around renewable energy developments in onshore wind, solar PV and more recently offshore wind energy. Projects are required to have community benefit funds. Under the Renewable Electricity Support Scheme (RESS), projects must establish a Community Benefit Fund (CBF), set at €2 per MWh of electricity generated. For instance, a 10MW wind project generating 30,000 MWh annually would contribute around €60,000/year (DECC, 2024). The rules for the CBFs were revised in 2025, after a process of consultation. The new rulebook maintains the requirement that a minimum of 40 per cent of funds be allocated to local initiatives linked with any of the 17 United Nations Sustainable Development Goals (UN SDGs) (Government of Ireland, 2025f). EirGrid also provides community funding; for example, €2.4m from the Celtic Interconnector project is being distributed in phases to eligible groups (EirGrid, 2025).

For communities, community-led approaches to rural development will be important in strengthening energy resilience. For towns and villages, the Smart Towns and Villages concept is being considered to enable rural communities to explore how local services, such as health, education, social services, renewable energy, transport and retail can be enhanced and sustained through community-led actions and projects (Government of Ireland, 2021b).

The Smart Village concept, initially launched in 2017 by the EU Action for Smart Villages, is an important territorial tool to 'strengthen the socio-economic fabric of rural areas' and to 'modernise agriculture and rural areas by fostering and sharing of knowledge, innovation and digitalisation' (EC, 2025f).

Local energy action can be supported by larger-scale developments. Developer-led onshore wind and solar projects provide community benefits which will be substantial over the lifetime of the wind or solar farm and have the potential to open up economic opportunities, including for coastal communities and farmers. Distributed energy enables homeowners to be producers of energy, thus lowering energy bills. Ireland is planning significant scaling-up of offshore wind energy. In the UK, coastal areas such as Grimsby with large offshore wind developments have seen a growth of public, private and community energy projects in the locality (Grimsby Community Energy Co-op, 2025; Tipper, 2015).

Rural areas are integral to the development of renewable energy in Ireland, due to their natural resources and space for development, but also face challenges of more limited infrastructure and connectivity (Shi *et al.*, 2024). However, a place-based approach to energy has to be shaped by national policy objectives. The Land Use Review (forthcoming) will seek to identify the key demands on land (both public and private) to inform policies for land use across key government objectives, improving socioeconomic, climate, biodiversity, water and air quality outcomes (DECC, 2023).

6.3 Place-Based Energy and Energy Resilience

This report emphasises the environmental and economic case for producing energy more sustainably, for using less, and for developing cleaner sources of energy. However, as noted in the introduction, there is a concern among households about how resilient their energy source is in the face of extreme weather events.

Resilience is the capacity or ability to avoid, withstand and recover quickly from any unforeseen disruption or shock (Vallecha & Seng, 2024). Energy resilience includes a focus on alternative power and heat supplies during power outages but also on the capacities of households and communities to stay well and safe. The primary objective of building socio-ecological resilience is to support human wellbeing (Hasselqvist *et al.*, 2022).

There are several considerations to ensuring that the energy transition strengthens our capacity to keep well in our homes and communities and become more energy-resilient. Local energy resilience can draw on existing models of rural self-reliance, such as group water schemes and locally managed water supply systems. However more systemic solutions are needed as well as individual preparedness (Daly, 2025).

Trusted information and engagement will be important in building local energy resilience solutions, and specifically guidance and information for all rural communities on safely using existing options. While not focusing on energy, Monaghan County Council has issued a *Personal and Community Resilience Booklet* for every household that could provide a basis for other local authorities and include energy-related guidance (Monaghan County Council, 2025).

For households living in energy-efficient and fully electrified homes, with an electric heat pump and an EV, energy resilience should be stronger than for those with fossil-fuel heating and generators. Currently, however, this is not always the case. New clean energy technologies can improve resilience, if designed properly (Daly, 2025) but more information and guidance is

needed for people to safely use the available options and avoid using when unsafe, e.g. in the case of floods.

Effective communication strategies for households and communities will be essential to support greater energy resilience. Advanced planning and timely information can help counter misinformation and disinformation during the energy transition, especially as reliance on electricity increases The International Energy Agency (IEA) states:

> … an important dimension of people's experience of clean energy transitions is whether they are perceived to affect energy security and reliability. If, for example, electricity blackouts – which can have many varied causes – are mistakenly associated with clean energy policies, it can weaken public support for such policies. Communication relating to such issues merits careful management; unbiased assessments with reliable data can support this process (IEA, 2021: 8).

Sustainable energy projects managed by communities also help build autonomy, control over resources and community cohesion, thus making communities themselves more resilient (Vallecha & Seng, 2024). Local people and places need to be engaged, and capacity-building undertaken in order for policy aspirations to be fully realised through co-delivery and ownership (Moore-Cherry *et al.*, 2025: 4).

Energy resilience can be considered as only one aspect of broader capacity building as part of national adaptation to climate change as well as emergency preparedness.[48] The Climate Change Advisory Council (CCAC, 2024b) emphasises the urgent need for climate adaptation and increased resilience in Ireland.[49] The National Climate Change Risk Assessment by the EPA (EPA, 2024c) identifies extreme wind as a priority risk for Ireland due to the potential disruption and damage to both energy transmission and distribution and communication infrastructure. The EPA recommends additional action in the next five years to increase resilience.

The National Adaptation Framework outlines the value of a coordinated response from all sectors and the establishment of effective local planning to ensure Ireland is resilient to the current and future impacts of climate change. It emphasises the importance of aligning and coordinating adaptation and mitigation measures. Just resilience is outlined as a concept which helps to prioritise vulnerable and marginalised communities, ensuring that adaptation efforts are inclusive and support fair and equitable outcomes (Government of Ireland, 2024e: 42).[50] Socioeconomic vulnerability, community participation in decision-making and the concept of just adaptation or just resilience need to be better embedded in adaptation policy and actions (Murphy, C. *et al.*, 2023: 5).

As well as economic resilience, energy communities have the potential to bring social value and social capital, and to increase social cohesion. Social resilience capacity can underpin the energy transition while communities are also adapting to climate change and its impacts. Resilience can be developed through local energy action, strengthening economic and social infrastructure.

48 Ireland has a National Emergency Co-ordination Group as part of a Strategic Emergency Management Framework (Government of Ireland, 2020). Ireland, along with other countries, has established national policies and frameworks for emergency preparedness. For example, Norway has issued a white paper on total preparedness.

49 Climate adaptation refers to taking action to prepare for and adjust to both the current and future impacts of climate change.

50 Just resilience can help to guide equitable, persistent and transformative adaptation to climate change impacts, ensuring that systems are robust and can shift when previous equilibria become unsustainable (Ceolotto et al., 2024).

Action Point

Focusing on place-based action helps address people's specific concerns and local circumstances. Rural energy forums could provide communities with a valuable opportunity to discuss energy resilience with energy intermediaries and explore practical solutions.

Increased energy resilience at a local level can be further supported by enabling batteries in EVs and households, as well as supporting community responses. Some communities may need to go off-grid or apply energy 'islanding' at certain times to allow for some self-sufficiency. Across Europe, local generation is becoming economically viable and supporting greater resilience. In Feldheim, Germany, a self-sufficient community uses wind turbines, a biogas plant, solar and a wood-chip burner (WTS Energy, 2023). A study suggests that off-grid living by 2050 is possible in regions with low seasonality (e.g. Spain) and high electricity prices (e.g. Germany), although occasional grid use could increase costs and strain (Kleinebrahm *et al.*, 2023).

Microgrids – self-contained electricity networks capable of operating independently from the main grid – have potential to enhance energy resilience. They have been developed in countries like Finland and Sweden in response to severe weather events. In Sweden, it is expected that households will have the capacity to cope for 72 hours without external help.

Private wires could help reduce dependence on the central grid, although this would require policy changes (O'Sullivan, 2025). Aligning grid management with resilience goals will be crucial.

Action Point

The Council recognises that building local energy resilience is critically important for Ireland. Future work is needed to explore the potential for enhancing local energy resilience in rural areas, working with local communities. Areas to consider include enabling the use of EV and solar PV batteries, alternative energy sources, community energy hubs, and the potential for islanding and microgrids.

6.4 Place-Based Energy and Energy Communities

Energy communities in Ireland vary in scale, focus, ambition and capacity.[51] The NESC report on wind energy and community engagement, published over a decade ago, highlighted the critical role of communities in Ireland's energy transition and called for stronger support (NESC, 2014).

Across Europe, there are at least 9,000 energy communities involving around 1.5 million citizens—a number expected to grow significantly (Eneuron, 2025; Murphy, A. & Tucker, 2024).[52]

While in recent years EU policy has supported energy communities, the rights of energy citizens will be further strengthened through the European Green Deal and the Citizens Energy Package (von der Leyen, 2024). This new package, expected by end-2025, aims to increase public participation, boost the Energy Union's social dimension, and combat energy poverty (EESC, 2025). Placing citizens at the heart of energy policy supports active participation and democratic engagement in the transition.

This report considers energy communities that are place-based, active in their local communities in ways that support the energy transition (Box 6.1).

Box 6.1: Definition of an Energy Community

Different terms are used in Ireland to refer to energy communities, reflecting recent EU developments: Energy Communities, Sustainable Energy Communities and Renewable Energy Communities.

Energy Communities (ECs): The Commission for Regulation of Utilities (CRU) defines an energy community as 'a group of active consumers, who voluntarily commit to providing environmental, social, or economic welfare by engaging in: renewable energy generation, energy sharing or trading; storage, or supply, provided these activities are not for commercial purposes and do not constitute the primary profession of the members of the community' (CRU, 2025a).

Sustainable Energy Community (SECs): This is a group of people working together locally to use energy responsibly and sustainably for the benefit of that community, aiming to be as energy-efficient as possible; use renewable energy where feasible; and consider smart energy solutions (SEAI, 2025d). Sustainable Energy Communities (SECs) are registered with SEAI 's Sustainable Energy Communities Programme to receive supports.

Renewable Energy Community (REC): This is the EU regulatory term under the Renewable Energy Directive (RED II). RECs tend to be engaged in projects, including community projects, in renewable electricity generation through solar or wind projects. Key aspects of RECs are the voluntary nature of participation, the legal entity underpinning the group structure, and the focus on a wide range of community and wider benefits beyond financial gain. RECs can access a tariff for wind and solar energy generation through the Small-Scale Renewable Electricity Support Scheme (SRESS). In Ireland, RESS 2 and the SRESS terms and conditions have additional stipulations for REC qualification, beyond the EU definition, which was transposed in Ireland (Government of Ireland, 2025e).

51 This section cites examples and views from interviews with energy communities.

52 The EU recognises 'Citizen Energy Communities' (not necessarily place-based or renewable energy) which came out of the Internal Electricity Market Directive and 'Renewable Energy Communities' (place-based and renewables only), and revisions to the Renewable Energy Directive or 'RED II'. This requires every country to establish an enabling framework to promote and facilitate the development of renewable energy communities (European Union, 2023).

There are currently close to 1,000 Sustainable Energy Communities (SECs) registered with the SEAI, a comparatively high number in Europe (Brennan & van Rensburg, 2024); SEAI, 2025). These energy communities can be found around the country but are concentrated in rural areas. (Figure 6.1). Around three per cent are Renewable Energy Communities, engaged in renewable energy generation projects.[53]

SECs in Ireland are mainly focused on reducing energy costs, increasing energy efficiency for local community houses and community centres, tackling energy poverty and emissions, and generating energy for the local community.

Figure 6.1 maps the SECs across the island of Ireland.

Figure 6.1: Map of Sustainable Energy Communities in Ireland

Source: SEAI Map of SECs (2025).

Run by volunteers, energy communities focus on bringing energy and cost savings to their local communities. They are supported by SEAI, local authorities, energy cooperatives, energy agencies and government grants and some are developing energy generation under the state-supported Renewable Electricity Support Scheme and the Small-Scale Renewable Electricity Support Scheme (SRESS).

Energy communities have benefitted from SEAI's Sustainable Energy Communities programme, which offers grants, advice and administrative support. Support is provided across three broad stages in the SEAI Sustainable Energy Community (SEC) journey: 'Learn, Plan and Do' (SEAI, 2025d). As part of that programme, members have undertaken capacity-building and training, and energy communities have completed Energy Master Plans (150 to date), installed solar panels and completed retrofits.

For communities engaged in renewable energy generation (wind or solar PV), the SEAI Community Enabling Framework is designed to support a sub-set of SECs recognised as Renewable Energy Communities to develop grid-scale renewable energy projects. Compared to other EU countries, this is seen as a positive enabling model for energy communities (REScoop, 2023a). This framework includes a suite of resources to help address some of the unique challenges of community generation projects. These include a toolkit with nine information guides on key aspects of the development process (on the SEAI website), a panel of expert consultants (mentors) to support feasibility assessments on potential projects and enabling grants to support communities in key development activities such as environmental studies and consenting.[54]

6.4.1 Emerging Policy Context

Renewable Energy Communities can access a tariff for wind and solar energy generation through the Small-Scale Renewable Electricity Support Scheme (SRESS). A new enabling grant is being developed to support SRESS applications (DECC, 2025b). To qualify as community-led under CRU rules (CRU, 2023b), projects must be 100 per cent community-owned.[55] Launched in 2025, SRESS follows on from the broader Renewable Electricity Support Scheme (RESS 1 and 2), where energy communities could apply but were not exclusive participants. The regulatory approach has allowed some communities to compete in RESS auctions, though delivering projects remains complex due to grid access and resource requirements. Support for communities to develop renewable projects has now transitioned to the non-competitive SRESS. The SRESS export phase is designed for community, SME and farm projects above 50kW to 6MW, offering a simpler route to market, with fixed tariffs for solar and wind, aligning more closely to their experience and the capacity of these sectors.

The first Renewable Electricity Support Scheme Auction (RESS 1) granted support for seven community-led projects, including two solar parks run by Community Power[56] in Counties Mayo and Galway. In 2022, two more 100 per cent community-owned solar projects with Community Power went through the RESS2 process and are being developed in Counties Tipperary and

54 Correspondence from DCEE to the Secretariat.

55 CRU (2023b) has determined that proximity requirements for a REC are to be set by those in the community. It is therefore up to an energy community, defined as a Renewable Energy Community under the Clean Energy Package, to set their own requirements as to what area to include.

56 This is a partnership of community energy organisations around Ireland working to build Ireland's first community-based Virtual Power Plant.

Mayo. No fully community-owned projects are operational yet, though Claremorris Solar Park has planning permission.

The Microgeneration Support Scheme (MSS) also enables homes, farms and businesses with solar panels to sell unused electricity to the grid (Government of Ireland, 2022b).

In Ireland, the Commission for Regulation of Utilities (CRU) is responsible for grid connection policy and has taken a step-by-step approach to developing an enabling framework to underpin energy communities as actors in the energy market. Grid connections are a limited and valuable resource; grid connection policies determine which projects can access the electricity market and when.

The new Electricity Generation and System Services Connection Policy (ECP GSS), published in September 2024, is coming into effect in 2025. It applies to onshore renewable and conventional generators, storage and other system services technology projects connecting to the electricity system. It will also facilitate connections for mini-generation, small-scale generation and renewable energy communities.[57]

Grid connections are managed by ESB Networks under CRU policy. Bi-annual batch processing is being introduced for the first time to support the increased connection of renewable projects, including community projects. For the first batch, the deadline under the new policy is 30 September 2025, with bi-annual batch processing from 2026 onwards. Community projects are charged lower fees, but grid connection approval has been slow and depends on technical and economic feasibility, which often limits viability early on. SEAI is conducting county-level grid studies to inform communities about access potential, with 11 counties assessed so far.

While Ireland has supportive policies, further progress is needed to match leading EU countries. According to REScoop (2023b), Ireland has made 'average' progress on implementing EU rules, while six countries, including Belgium, have made 'good' progress. Most aspects have been transposed into Irish law, but there are some areas where it is not clear if all aspects have been fully addressed/transposed or where implementation has not been completed.[58] Energy sharing for renewable energy communities requires action. This is being progressed by the regulator, CRU, and when in place will bring energy sharing regulations for all domestic and SME customers.

In June 2025, the Department of Climate, Energy and the Environment published an assessment of barriers to Renewable Energy Communities (RECs), the legal term as required under EU regulation, RED II. The assessment identified barriers where targeted support is required to unlock the full potential of RECs (Government of Ireland, 2025e).

The Government has pledged to increase SEC numbers, improve grid access for local projects, and promote the Small-Scale Renewable Electricity Support Scheme (SRESS) to simplify market entry for community-owned wind and solar (DECC, 2025b).

57 This policy is intended to expedite the connection of renewable projects and to align relevant grid-permitting timelines with the requirements specified in Article 16 of the Renewable Energy Directive (RED III) (direct DCEE communication to the Secretariat).

58 Member states had to transpose provisions on citizen energy communities (European Commission, 2019a) by 31 December 2020 and provisions on renewable energy communities (European Union, 2018) by 30 June 2021; however, the transposition of these varies greatly (Kerneïs, 2023).

Concepts such as jointly acting renewable self-consumers and energy sharing are not yet adopted in Irish law, though common in other member states (CEER, 2025). Elsewhere in Europe, solar PV, biomass and small hydro have expanded access, supported by ownership policies that are still lacking in Ireland.

6.4.2 Potential for Doing More

Energy efficiency is often the first area of focus for energy communities, as it represents a less technical entry point than energy generation. People value the opportunity to speak with a trusted source within their community for information and guidance. Energy communities help meet this need. For example, the Triple Sustainable Energy Community (SEC) – a collaboration between Connecting Cabra SEC, Phibsboro Village SEC and Cosybatter SEC – is piloting a project to retrofit three homes, with support from the European Commission. (European Commission, 2024a).

In Ireland, some energy communities employ people drawing on EU funding (e.g. the Aran Islands Energy Cooperative) or through operating as a social enterprise (e.g. Dunleer Energy Cooperative). And some energy communities are striving to be fossil-fuel-free.

Box 6.2: Aran Islands Energy Cooperative (Comharchumann Fuinnimh Oileáin Árann)

The Aran Islands Energy Co-operative, **Comharchumann Fuinnimh Oileáin Árann**, has operated for 13 years and has 100 household members aiming for energy self-sufficiency. Working closely with SEAI, GMIT, and Galway University (NUIG), it has developed an Energy Master Plan to drive the clean energy transition. The cooperative carries out retrofits and has installed solar panels. It employs two full-time and two part-time staff. It has repeatedly sought planning permission to install a 900-kW wind turbine on Inis Meáin, but was unsuccessful. An electricity cable upgrade is also needed to export surplus wind energy.

The Aran Islands were designated a Decarbonising Zone by Galway County Council for their climate readiness, strong community and defined geographic scope. Along with Bere Island, Sherkin, Cape Clear, Inishbofin, Arranmore and Tory Island, they are part of the European Commission's 30 Renewable Islands for 2030 initiative, receiving tailored support over three years (European Commission, 2023a).

Sources: NESC Research; Aran Island Energy Cooperative, 2025; Galway County Council, 2023.

Several SECs are RECs and have sought to generate electricity at a small scale, notably Templederry Wind Farm in Co. Tipperary. It gave rise to Community Power which states that it is Ireland's only community-owned energy supplier. It draws from wind and hydro electricity generators (and soon solar) and has grown out of a partnership between community energy groups.[59]

59 See https://communitypower.ie/ [accessed 16/06/25].

Tipperary Energy Agency is currently part of an EU LIFE project, POWER-E-COM, that aims to foster cooperation between regional/local authorities and citizens so that community energy projects can be realised in regions in six different countries (Austria, Bulgaria, Germany, Ireland, Slovenia and Spain) (European Commission, 2023d).

Social enterprises also operate from energy communities supporting low-income and energy-inefficient households and communities to transition to more energy-efficient homes as in Dunleer, Co. Louth. Energy Team, Dunleer is a sustainable energy community since 2015 and social enterprise. With 10 community members in the team, it supports homeowners to become more energy-efficient, providing local training and workshops. It has retrofitted 450 homes.

Other SECs have a sectoral focus, for example farmers collaborating to deliver energy savings and get involved in microgeneration in solar, wind and anaerobic digestion (AD), e.g. West Kerry Dairy Farmers SEC which grew out of Dingle Peninsula 2030, a multi-partner initiative. Dairy farmers have been able to install solar PV through bulk purchasing by the energy cooperative (ESB Networks, 2022; MaREI, 2023).

Community energy projects have also contributed to wider local energy action. As noted, all local authorities are required to develop a Decarbonising Zone (DZ). Maynooth is the DZ in Kildare. This followed an application process which was led by the local energy community, Maynooth SEC, which secured the collaboration and support of 24 local organisations.

Some communities have engaged in energy projects and then broadened focus to other sustainable development issues. From the experience in the Dingle Peninsula, MaREI researchers have described how their collaborative work with the community extended to other areas of sustainable development by the community – a diffusion of sustainability. They also noted the value of the 'scaling deep' approach (changing hearts and minds) in communities to deepen community engagement and connection. (Boyle *et al.*, 2024; MaREI, 2023). Box 4 summarises some of the positive contributions of energy communities.

According to Caramizaru and Uihlein (2020), by 2030 energy communities in Europe could own 17 per cent of wind and 21 per cent of solar capacity. Le Maitre (2024) notes that EU policy increasingly supports small-scale initiatives that prioritise social or environmental goals over price. More generally, there is increasing recognition of energy communities as a key piece of community development, just transition and sustainable development. As the UK's Early Learning Network outline states:

> The energy transition is not just about infrastructure and technology – it is about people, fairness, and building a future where everyone benefits. Community energy is one of the most effective ways to ensure that decarbonisation strengthens communities rather than leaving them behind (2025: 6).

Energy communities, particularly Renewable Energy Communities, have the potential to become significant players in the energy system. Lennon and Dunphy (2024) argue that energy communities are becoming a standard model in energy markets in the Netherlands, with over 500 local energy initiatives, and in Germany, in which over half of all newly installed

RES production capacity involves ownership on the part of citizens as opposed to commercial interests alone. Energy communities are entering a new phase globally that is characterised by digitalisation and the emergence of market-oriented business models. This highlights the importance of promoting energy community citizenship, rather than solely producers or consumers of energy (Petrovics *et al.*, 2022).

Box 6.3: The value of energy communities

Energy communities can generate local economic value, create jobs, reduce energy poverty, strengthen social networks, and support broader sustainability goals. The benefits they bring are not often measured or documented in a systematic way. However, a number of research and policy document provide some insights:

- Irish Renewable Energy Communities (RECs) were found to offer a wide range of benefits that benefit local areas and the population across Ireland. These advantages extend beyond financial gains to include environmental, economic and social improvements, as well as contributions to capacity building and energy security (Government of Ireland, 2025e).
- The NUIG RECODE project outlined how energy communities help to address energy poverty, contribute to national climate targets, increase public participation and bring educational benefits as well as involve communities in decision-making (Brennan & van Rensburg, 2024).
- Occitanie Regional Energy and Climate Agency (AREC Occitanie) found that, for each €1 of public subsidy invested, €50 of economic benefits are generated for the territory (Energy Community Platform, 2022; Fedarene, 2024).
- The EU's Energy Communities Repository measured the impact of a total of 107 energy communities across all EU countries and found they boosted Europe's total energy capacity, attracted millions in investment and contributed to GHG emissions savings in the EU (European Commission, 2023e).
- Locally controlled and financed renewable projects were found to deliver two to eight times more return to the local economy than projects built by external developers, according to a study in France and Germany (REScoop, 2023b).
- SEAI analysis of Sustainable Energy Communities concluded that the formation of an SEC influences the uptake of SEAI energy grants in its surrounding area for multiple years thereafter (SEAI, 2025e). This points to the value of energy communities as key intermediaries between households and energy efficiency schemes. Energy communities are increasingly the focus of just transition initiatives and research. In Scotland, local and community energy has been identified as having the potential to directly contribute to all eight of Scotland's National Just Transition Outcomes (ClimateXChange, 2024).
- A report by Development Trusts Northern Ireland (2025) outlines the potential of energy communities to improve local resilience, keep money in the local area, reduce dependence on external sources, tackle fuel poverty, increase energy efficiency, build community cohesion, and give rise to skilled, green jobs in renewable energy projects that are developed.

Some energy communities reported that the value of their contribution is not widely recognised, and they felt that they were not taken seriously at times. There may be a lack of awareness of what energy communities do and what they can offer at national and local levels. One study published by the European Commission (European Commission *et al.*, 2024) surveyed 44 municipalities to examine their perspectives on energy communities. Few (8%) of those surveyed had a sufficient to good understanding of the concepts underpinning the definitions of energy communities, with little understanding of energy democracy; 73 per cent considered lowering the energy bill as the most important economic benefit of an energy community (*ibid*).

Action Point

There is value in deepening the knowledge exchange and engagement between local authorities and energy communities across the country.

6.4.3 Barriers Exist to Delivering Projects

Energy communities face barriers to action and require supports. In particular, consultation with a wide range of energy communities suggested that key issues are centred in the 'Doing' part of the 'Learn-Plan-Do' SEAI Sustainable Energy Community journey, and for Renewable Energy Communities (RECs), in the Community Enabling Framework. RECs would like to be able to deliver projects but lack funding, resources and capacity, and face regulatory and grid challenges. It can be costly and frustrating for such communities to make progress. As well as the time and effort in progressing projects, if successful there can be a long waiting time and challenging steps along the way, while there are financial risks if unsuccessful.

The main barriers identified in NESC consultation included:

- **The 'Doing' is almost undoable:** Energy communities said that delivering projects often involved years of unpaid work, persistence and personal stress. While the SEAI model was valued for supporting learning and planning stages – with some positive policy supports and the SRESS tariff – it was seen as lacking in the crucial 'doing' phase. Ambitious projects struggled due to funding and grid issues and limited co-ownership options.
- **Grid access is problematic:** Lack of grid connection availability and high costs are major barriers. Communities felt unfairly treated, with connection costs comparable to those charged to commercial developers, making community projects financially unfeasible. Several changes to the previous grid connection policy have been included in the new connection policy (ECP GSS).[60]
- **Limited ownership options:** A key concern is the lack of pathways for community equity and ownership in energy generation projects.

60 These include biannual batch processing, removal of limits to the Maximum Export Capacity (MEC) for community-led renewable projects, no caps on the number of applications from community-led projects into a batch, and reduced fee and first-stage payment (DCEE correspondence to the Secretariat).

- **Insufficient resources:** Communities praised the SEC energy masterplan process but expressed disappointment at being unable to move to implementation due to lack of funding. Volunteers lacked the capacity to deliver solar or retrofit projects. Some secured philanthropic or charitable funds to hire staff, but often these roles were limited to fundraising. A recurring request was core funding for a project manager to lead delivery.
- **Volunteer burnout with complex projects:** Efforts on the ground were unsustainable without stronger state support. Volunteers felt unsupported and frustrated by slow, inflexible systems that failed to recognise their contributions.
- **Lack of ambition and vision:** There was concern about the State's perceived lack of ambition or urgency to empower communities as key players in the energy transition. Many felt they were given unrealistic tasks, without being taken seriously.
- **Undervalued role of energy communities:** Stakeholders noted a lack of recognition of the social and economic value of energy communities. Despite expectations, the policy system often failed to acknowledge their contributions or future potential.
- **Lack of trust:** Some felt that the energy communities were not trusted with funding, questioning why those with strong governance and a proven track record had not been given greater support.
- **Missed local economic value:** Renewable energy communities often could not access the economic benefits of energy generation. Long delays, complex steps and financial risks created social pressure and disappointment if projects failed after major efforts.

The recent review undertaken by DCEE found significant challenges and barriers that hinder development, similar to those found by NESC. These include high grid connection costs, financing challenges, volunteer reliance and limited ownership options. It noted that rural RECs face challenges due to grid capacity constraints and a higher level of planning objections (Government of Ireland, 2025e).

The RECODE project also identified many of these barriers, noting the upfront costs and lack of financing, volunteer burnout, limited access to expertise, regulatory uncertainty and challenges in maintaining momentum (Brennan & van Rensburg, 2024). Similar barriers for energy communities in the Midlands were identified by the European Commission, particularly in terms of grid access, access to finance and the limited types of ownership model availability (European Commission, 2025d).

In practice, grid limitations and resources, and complex paperwork with limited capacity have been barriers for RECs to deliver projects. These community-owned energy projects may operate as social enterprises, but also as cooperatives and other forms of legal entity. However, they all share many of the qualities of social enterprises – being entrepreneurial, capable of managing risk, investment and social objectives – yet they have faced difficulties in getting projects established, securing investment and avoiding delays. Supporting social enterprises to avail of renewable energy opportunities is an action under the National Social Enterprise Policy (Government of Ireland, 2024g).

6.4.4 Potential to Strengthen Action

This section looks at ways to strengthen the capacity of energy communities to support place-based energy transition. The European Commission has identified a range of measures and approaches used around Europe to address some of the barriers. For example, for increased access to the grid, cable pooling in the Netherlands allows new renewable energy projects to connect to existing grid connections, such as connecting new solar PV installations to existing wind installations (European Commission, 2025d: 26).

This section looks at four areas for further action.

Early-stage funding

Action Point

Further action is needed to ensure that Renewable Energy Communities can access development funding to deliver projects. As well as state support, work is needed to identify alternative funding sources such as crowdfunding/public share offers and private green bonds, and support RECs to access them.

Early investment in REC projects is one of the observed 'gaps'. While early-stage and mid-stage support funds are available from SEAI, to access them, potential projects have to meet strict viability criteria which hare proving challenging for them to meet.

The Scottish government's CARES (Community and Renewable Energy Scheme) programme, on which the Irish enabling framework of supports was based, included development funding for new community-owned schemes in the past.[61] More recently, new project funding comes from community share offers (Voar, 2024). Loans also have an important role, for example from credit unions and Clann Credo, a social enterprise that provides community loan finance.

Different finance models are used in other countries; for example, the Westmill solar project in Wiltshire, UK was financed by a large group of cooperatives (REScoop, 2024). The Netherlands has a development fund for energy community projects, providing loans for wind and solar energy projects, with a requirement that the energy cooperative becomes a majority owner in selected provinces.

New European initiatives are focused on increasing the capacity of energy citizens, including energy communities, through the Citizen Energy Advisory Hub and business planning supports. The European Energy Communities Facility, launched in March 2025, will support 140 energy community projects across Europe with lump-sum grants and business planning supports (European Commission, 2025d). While this fund will be welcome, it would not be sufficient or sufficiently available to address the current funding gaps.

61 CARES is managed by Local Energy Scotland. Its goal is for communities across Scotland to engage in and benefit from the energy transition to net zero (Energy Saving Trust, 2022).

62 Masters Thesis shared with NESC Secretariat.

From postgraduate research with Irish energy communities, O'Suilleabhain (2024)[62] concludes that a tailored and coordinated approach to supports and funding could support further development of community owned energy projects.

Expansion of possible ownership models

Action Point

The Council believes there is value in supporting both 100% community-owned models and co-ownership approaches. This would enable Renewable Energy Community projects that partner with developers or local authorities/public bodies to qualify for state supports through SRESS and other relevant schemes.

The 100 per cent ownership model already introduced in Ireland is only feasible to deliver if fully supported and if barriers are removed. For some energy communities, 100 per cent ownership is the preferred model. As one energy community commented 'We don't want a bag of sweets, but we want ownership' (EC1). While there are many reasons for this, the economic value is an obvious one to make it attractive, despite the difficulties and risks in developments.

Other countries have higher levels of community-owned projects, especially in Denmark where communities were reported to own 52 per cent of wind energy. In Germany, local authorities have helped deliver projects which have supported citizens to own roughly 50 per cent of onshore wind (Gorroño-Albizu *et al.*, 2019). Shetland experience points to the community ownership of small wind projects having more impact than community benefit payments from larger commercial projects (Voar, 2024). This difference between Ireland and other EU countries was noted by the European Commission in its guidance on energy communities in Ireland as part of the Just Transition Platform, with a focus on the Midlands. The report noted the lack of diverse ownership models and concluded that enabling different models of community RECs to develop and thrive through regulatory adjustments would bring economic and social benefits to the region (European Commission, 2025d: 32).

Consistency in policy supports are important to ensure community ownership can be sustained over the longer term where countries have changed their supports and earlier developments in energy communities have not progressed. For example, in Germany, an early feed-in tariff scheme supported a blossoming of energy communities, but this was replaced by an auction system which has not been as enabling. According to one analysis, although 'German policy makers are working on ways to facilitate energy communities in the future, their role in the overall system remains subordinate, making it difficult for them to develop their potential' (Gährs *et al.*, 2024: 5).

Other energy communities pointed to the potential widening of opportunities if different ownership models are supported in the SRESS beyond 100 per cent community-owned projects. Other countries have co-ownership and shared equity models that could expand what is possible. There is also a model that allows communities to buy a share of the revenues from

a project, without owning an actual shareholding, which means they can avoid many of the responsibilities and risks that come with co-owning a wind farm (Power *et al.*, 2023). In Scotland, a partnership with the ESB and Ripple Energy, a clean energy ownership platform, has helped develop the largest consumer-owned onshore wind project in the UK, Kirk Hill, with 5,600 owners raising a third of the capital.

In an Irish survey in 2021, over two-thirds of respondents said they would consider investing in a local wind farm if given the opportunity. Almost half of respondents said an opportunity to buy shares in a wind farm would increase their willingness to agree to a turbine being located within 1km of their home (Power *et al.*, 2023).

Research from the RECODE project, conducted by the National University of Galway and supported by SEAI, examined international examples of energy communities and found that partnerships with developers played a strong role in their success (Brennan & van Rensburg, 2024). For example, Fintry Renewable Enterprise in Scotland receives one turbine worth of income from a larger private-developed wind farm. In general, shared ownership projects can be complex to execute but can bear fruit for larger-scale projects. Key elements for successful co-development were: working with approachable and reliable developers; an intermediary to facilitate partnership and provide experience; control and governance for the community; strong engagement and trust-building; and creating a forum for community groups and co-ops to share experience.

Options for a variety of ownership models beyond public and private could include local authorities, as in other countries. Friends of the Earth states that a large number of district heat networks in Denmark are operated and owned cooperatively – typically smaller district heat networks in rural areas (FoE, 2024a; Johansen & Werner, 2022). European established markets include different ownership models from private, state and municipality to community-owned. There are around 360 district energy companies in Denmark of which 310 are cooperative societies and 50 are municipally owned (Danish District Heating Association, 2022).

Supporting households and the wider community in an intermediary role

Action Point

The Council recognises the potential of energy communities to have a role in local renewable heat generation, such as by using biogas or through district heating. Further work is required to examine the specific challenges to be addressed for this to progress in Ireland.

Energy communities can be supported further as intermediaries in energy efficiency engagement with local households. There are many examples of energy cooperatives that provide support to other energy communities directly or through the development of projects which offer support.

- The Warm Home Hub is a drop-in and online retrofit guidance service located in the Westside community at the Westside Resource Centre in Galway and is part of the European NetZeroCities pilot project for the Westside area.
- A local energy champion was supported through the Sláintecare Healthy Community Programme to promote energy improvements in the local community of Southend, Wexford. This was part of the Wexford Homes project, a wider collaboration and research project on the impacts of retrofitting on wellbeing, between the Wexford Town Sustainable Energy Community, Southend Family Resource Centre, Wexford County Council, SEAI, the Department of Health's Sláintecare Healthy Communities Programme and the South East Technological University (SETU).
- REScoop MECISE (Mutual for Energy Communities Investing in a Sustainable Europe), a European cooperative society founded in 2018 by five energy cooperatives, provides trusted expertise and crucial support in managing risk (REScoop, 2020).
- Energy4All provide services for energy communities in the UK to navigate challenges, and 37 cooperatives pay it for its service. Energy4All has collaborated in Scotland with Falck Renewables to support share options in onshore wind projects through ScotWind so that thousands of people have shares in the wind farm (Energy4All, 2025).
- In Ireland, Energy Cooperatives Ireland (ECI) is a co-operative renewable energy consultancy promoting community access to the benefits of renewable energy and working with energy communities.
- Bath and West Community Energy in the UK has a core team of paid staff, with specialist expertise, who support the implementation of renewable energy and flexible-demand management projects. Similarly, Brighton Energy Cooperative has a core team of experts who specialise in solar and electric vehicle projects, with community and commercial clients. Many other community energy groups are run by volunteers, often including people with professional experience in the energy industry (Power to Change, 2023).

Local authorities can perform a central role in directly enabling communities to develop renewable energy co-operatives through providing supports and as collaborative partners (Wirth, 2014), or indirectly through the establishment and resourcing of intermediaries – actors that create 'new possibilities and dynamism within a system' (Doyle, 2021; Howells, 2006: 104).

The municipalities of Zagreb (Croatia), Plymouth (England) and Frankfurt (Germany) are working with local energy communities to install photovoltaic systems on municipal rooftops, providing local, cheap energy to their citizens (Lifeloop, 2023).

Energy communities also have the potential to be more involved in local energy areas planning and opportunities, including heat. With the future of district heating still unfolding and rural communities looking to be energy-secure and resilient, there are benefits, demonstrated in other countries, of bringing energy communities together and being part of active local networks and planning. SEAI (2025e) research points to the association of energy communities in rural areas; more supports to foster urban communities to take part may be required. Elsewhere in Europe, energy communities have a role in residential heat projects. In the Netherlands, the Thermo Bello cooperative supplies low-temperature hot water to 222 homes

and seven commercial properties via an underground distribution network located in the district. Thermo Bello is a district energy company owned by residents in the EVA-Lanxmeer district (Energy Cities, 2025).

In Belgium, the energy community Beauvent raised €1m from their members in 30 minutes, and as a result now supplies citizen-owned renewable heat to the municipality. Similar projects are succeeding in Greece, Italy, Denmark, France and the Netherlands (Vansintjan *et al.*, 2024).

Nordic Energy Research (2023) cites another example: around 100 communities, such as bioenergy villages (Bioenergiedörfer), operate their own electricity grids. In addition, approximately 150 communities manage local grids and distribute heat and electricity, even though they do not generate electricity themselves. A minority of the energy communities distribute electricity or heat without operating their own grid (Ahlemeyer *et al.*, 2022).

Energy-sharing potential for energy communities

Energy sharing can be another opportunity for energy communities to be market actors. EU policy if fully transposed in Ireland would expand the range of activities and increase the potential to generate local value from the energy transition. Local community-based generating, sharing and consuming of electricity can avoid these losses and enhance energy efficiency.

For example, in northern Perth in Australia, a battery resource shared by 119 households resulted in collective savings of over AUD 81,000 over a five-year period. The battery also helped ease the strain on the grid by enabling an 85 per cent reduction in consumption of electricity from the grid at peak times for participating households (IEA, 2023).

In a report for the European Commission, Koukoufikis *et al.* (2023) concluded that energy communities can play a crucial role in tackling energy poverty, but require concerted efforts from policymakers, energy providers and civil society to realise their full potential. In Portugal, the renewable energy cooperative Coopérnico rents rooftops of socially oriented institutions for its photovoltaic installations, providing them with additional income, allowing them to benefit from lower energy costs and giving them a free solar PV installation at the end of the leasing period (The Greens/EFA & European Parliament, 2022).

In the reform of the Electricity Market Design, the EU Commission acknowledges that local energy sharing, also by energy communities, can act as a key price stabilisation mechanism (European Commission, 2024b).

Energy-sharing schemes can be effective means to alleviate energy poverty. They may allow for cost savings within social tariff budgets as used in Belgium, Romania, Spain and Portugal (European Commission, 2023f). According to CEER, in most jurisdictions, energy sharing is less burdensome to engage in than setting up a formal energy community and 'energy sharing and forms of community energy can help the spread of a new "energy culture" and make people more aware of their role in the energy transition'. The idea is that they are not islands or isolated from the system but should be at the base of a well-functioning energy sector by providing new services and benefits (CEER, 2025: 75).

Demonstrating what's possible

Action Point

The Council sees value in developing a support programme for ambitious demonstrator projects led by energy communities. There may also be potential to explore the role of private funding sources, such as crowdfunding and green bonds, in supporting these initiatives.

Early supports, resourcing and developmental opportunities can help to underpin innovation in local energy action. There is a need for increased learning opportunities for energy communities, with potential for local further and higher-education institutions to develop courses and to continue to engage and support energy communities as they have done through research projects in Dingle, the Aran Islands and elsewhere.

Some energy communities have been interested in microgrids – in particular, island communities – but have not been able to get support. Small-scale localised systems, or microgrids, 'have a key role to play in the energy transition, supporting the integration of an increasing share of renewable energies and providing a route for consumers to become prosumers by engaging in the buying and selling of electricity'. The SEAI award-winning Tallaght Community Energy Living Lab (Tallaght Smart Grid Test Bed) is a local smart community grid that enables communities to produce and sell electricity generated from renewable sources such as wind, solar and hydro (SDCC, 2022: 382).

Energy communities with mentoring as well as SEAI and National Dialogue and Climate Action knowledge and experience could be supported to develop local energy forums, increasing energy engagement and participation. Bonfert (2024) concludes from a review of energy communities pilot projects in the Netherlands, Belgium, Sweden and the UK that, while not all citizens can be expected to participate in energy communities, having optional access to them would enhance the democratic legitimacy and social accessibility of the energy transition. SEAI (2025e) research points to the association of energy communities with middle-class areas. Increased focus on widening participation to ensure diversity and wider participation is important. Energy communities that prioritise inclusivity can facilitate equitable access to clean, affordable energy solutions, thus breaking down barriers to development and to social progress (Koukofikis *et al.*, 2023).

Some networks are showcasing positive examples and building connections. Climate Connected, part of a network supported by Pobal and the Department of Climate, Energy and the Environment through the Community Climate Action Programme, showcases case studies and brings together the collective expertise of communities in Ireland engaging in sustainability including energy communities, CAROs and local authorities.[63]

63 A consortium of organisations in the Climate Connected network invited NESC to present its early research findings (27/2/2025) (Climate Connected, 2025).

Other work by NESC under the Shared Island initiative has identified energy as a key area for enhancing North-South collaboration. A new initiative in Northern Ireland, Sustainable Energy Communities NI (SEC NI), aims to support energy communities, following the model established by SEAI, and will be supported by Atlantic Technological University (ATU), Drumlin Wind Energy Co-operative, NEA NI and NI Community Energy (Advice NI, 2024).

Action Point

The activities of energy communities, including their various local engagement methods – such as networks, online fora and community events – could be further expanded. Many energy communities would value the establishment of a dedicated forum where they can connect, share experiences, and learn from one another.

6.5 Conclusion

This chapter highlighted the increasing focus on energy action at a local level, with local authorities as key actors. It outlined some of the differences in approach between urban and rural areas, with a role for further local engagement in both as part of a place-based approach. It pointed to the key role that energy and community actors have in supporting households and communities to take energy action. The importance of building local energy resilience was outlined and the need to align energy transition action locally with building energy resilience.

Some energy communities believe that what they are doing is not adequately recognised. There is a lack of clarity around what an energy community is, what the EU envisages for them in the energy transition, and how they can help deliver key energy transition objectives – resilience, decarbonisation, increased social cohesion, regional and local development and a just transition. Communities lie at the heart of an effective energy transition; this chapter has outlined how some groups, already engaged in energy, can be enabled to do more. Given this interest and willingness to engage, Ireland is missing an opportunity to make more of this important network in supporting the energy transition. The existing barriers do not serve Ireland's interests in achieving its energy and climate objectives as a society, or in ensuring that all communities can participate and benefit.

Chapter 7: Line of Action Five – Strengthening Energy Connections

7.1 Introduction

The Council in this report has drawn attention to the societal challenge of the energy transition, particularly for households and energy communities. Considering the energy transition with a 'societal lens' brings into view the necessity of engaging and empowering citizens to be part of the energy transition – to share challenges and costs, as well as benefits and opportunities – and of strengthening energy connections. Sharing the benefits and opportunities so that they are accessible to all and recognised as just, fair and inclusive is a key requirement if Ireland is to make sufficient progress.

The report argues that strengthening the connection between people and the energy transition requires considerable and wide-ranging expertise, collaboration, resources and planning. For households and energy communities, policy efforts have sought to deliver concrete actions that will reduce emissions, support community involvement and reduce energy poverty. Acknowledging these positive measures, the Council considers that, given the growing risks and vulnerabilities, it is necessary and timely to reinforce and refocus Ireland's energy transition by placing citizens more strongly at the centre. This chapter outlines key areas of action that can strengthen such connections.

This chapter is structured as follows:

- Section 7.2: Just Transition, Vision and Next Steps
- Section7.3: Addressing the Cost Question
- Section 7.4: Shared Island Connections
- Section 7.5: Conclusions

7.2 Just Transition, Vision and Next Steps

The Council believes the energy transition must be a just transition. The costs and benefits associated with the transition must not fall disproportionally to advantage or disadvantage any particular group, set of individuals or community.

In this report the Council has considered the connection between people – households and energy communities – and the energy transition and has identified areas to be addressed across five lines of action. However, the energy transition will require a further process of reflection, development and review. There are just transition considerations in how to share the costs and benefits of the energy transition across society as the scale and extent of energy system and climate action developments come into view, with a role for the Just Transition Commission. The digital/AI developments will also need to be considered.

There are people-centred tools, approaches and principles included in this report but also others internationally, such as the IEA and G20 Principles for Just and Inclusive Energy Transitions

(G20 Research Group, 2024). There are also additional energy resilience considerations as local communities need to build capabilities and resources to cope with the energy impacts of extreme weather events. A wellbeing approach is important as it can integrate human needs and quality of life into the core planning and delivery of the energy transition and adaptation to climate change.

Strengthening and coordinating public governance is necessary to effectively plan and deliver such an inclusive societal transition. The OECD states that policy approaches for today's complex challenges require strengthening in Ireland (OECD, 2023b). The Government has developed a strategy for better public services that seeks to support people-centred delivery of services and using more agile, responsive and evidence-based policy development (Government of Ireland, 2025b).

The OECD has advised that governments should explicitly integrate missions and mission governance into climate mitigation efforts and leverage mission governance principles in the design, assessment and deployment of climate mitigation policies (OECD, 2025). Developing a galvanising mission for Ireland's energy and societal transition could be a driving force for action and focal point for increased engagement. The OECD states: 'Shifting the narrative around climate action can provide impetus for building stronger engagement and accelerating climate action' (OECD, 2025a: 73).

There is potential for an ambitious mission to be co-created that sparks collective action. Part of this is building trust, with proactive measures to bring stakeholders together around a common vision and shared objectives WEF (2024: 12). Climate change is a collective action problem, so that for any one individual, often there may be few (if any) immediate benefits from acting, but if everybody acts then there is a large gain for society as a whole (Martin et al., 2024: 12).

The Council recognises the need to build greater societal connection to the energy transition. Using a participative approach, a shared vision and public purpose can help to galvanise action. The Council has identified opportunities to ensure that households and energy communities are included and supported to be become part of the solution to decarbonising Ireland's energy system. The active participation of all stakeholders is key to the design and implementation of the transition and its acceptability. Acceptance, support and the participation of citizens are essential to manage ongoing energy transitions successfully (Urban *et al.*, 2025).[64]

It is important to find new ways to further engage energy and societal stakeholders to develop, embed and communicate people-centred vision and principles in national energy policy. As Thorne *et al.* (2023: 28) state, 'an integrated long-term vision can drive transformative change, providing clear pathways to low-emissions and resilient systems. Visions of desirable futures can be a powerful motivator for long-term planning and strategy.'

Examples of deliberative processes to support the energy transition include the Fair Energy Transition for All (FETA) project, which organised citizen assemblies that especially included marginalised groups in discussions on how to design more socially just and inclusive energy

64 For citizen participation in energy decision-making and envisioning Ireland's energy future, previous innovative examples could be followed such as the citizens' assemblies on climate change (2018) and biodiversity loss (2022–23), and a children's and young people's assembly on biodiversity loss (2022) (Moriarty *et al.*, 2023). More local participation and collaboration could follow on from the pioneering Dingle Peninsula 2030/Corca Dhuibhne 2030 initiative that brought together the local community, schools, businesses and farmers to explore, support and enable the broader societal changes related to the energy transition (*ibid*).

transition policies. Debates were held in nine European countries, involving over 900 citizens and 150 experts from all over Europe. The project found that people recognised the need to move away from fossil fuels and were willing to contribute to the transition, provided it was perceived as fair (FETA, 2022). Co-creation strategies have been increasingly adopted in Denmark to ensure that energy transitions are not solely technocratic but incorporate local knowledge and social needs. They can help foster collaboration between local government, industry and communities by involving all stakeholders in the design, implementation and evaluation phases of energy transitions (Radtke & Renn, 2024).

Experimentation and learning emphasise the role of involvement and leadership by all stakeholders (NESC, 2023: 98). The private sector, civil society and philanthropy alongside state actors, all working collaboratively, can support the delivery of a transformed energy system. An energy forum with wider societal actors could be a useful approach to build shared understanding.[65]

Action Point

An inclusive energy forum with a wide range of energy stakeholders and relevant civil society groups should be established. Young people, diverse households and energy communities should be represented.

The proposed energy forum could consider important questions, such as developing a shared societal vision for Ireland's energy transition, as well as exploring the concept of energy sufficiency. Lage *et al.* (2023) show that citizens' assemblies held in 10 European countries acknowledged the importance of considering sufficiency as part of effective climate and energy strategies. Such explorations for households and engaging the public on energy use would have to be taken in the context of an economy-wide energy demand approach, including large energy users.

The IEA (2024c: 19) states that 'nuanced policy and programme design can meet the needs of all different segments of society'. Such an approach can better design, plan, govern and deliver the transition with people in firm view, anticipate risks for households and communities, protect vulnerable groups against negative impacts and share the benefits and opportunities across the island, as well as build energy resilience to the impacts of climate change. The approach adopted by the IEA provides a useful framing to help navigate the societal risks and opportunities in the energy transition.

65 While a National Energy Forum had been proposed in 2015 to 'maximise consensus on the policy measures needed to decarbonise our country', the National Dialogue on Climate Action (NDCA), [accessed 27/06/25], followed which has a broader remit (DECNR, 2015: 9). Ireland hosted the European Energy Forum in 2023.

7.3 Addressing the Cost Question

Broad engagement on how to fund the energy transition is essential to prevent households from bearing unfair costs. A strong regulatory framework must promote fair pricing, consumer protection and incentives for energy efficiency. Ireland's energy code and CRU play key roles, with the CRU's mandate evolving to prioritise low costs for households and businesses (Government of Ireland, 2025c).

The financial implications of transitioning to a decarbonised energy system are considerable, affecting every aspect of the transition. It is estimated that more than €125bn in public and private investment will be needed on the island of Ireland this decade alone (Ibec & CBI NI, 2024).

Consumers are currently paying directly for transition costs through utility bills; in future, additional approaches may have a role. According to a working paper for the Irish Climate Change Advisory Council, many of the available financing options and opportunities for climate mitigation are not being used to their full potential (Byrne, 2024). They include carbon tax and electricity tariff reform (already discussed). Other potential funding approaches include:

- Irish Sovereign Green Bonds (ISGB) have been used to fund eligible green projects including built environment and energy efficiency, renewable energy and other areas in recent years and may have a role in relation to energy infrastructure costs. Potential new forms of green bonds, such as a Citizen Green Bond, could be used for climate, energy and nature-positive investments.
- As fossil-fuel subsidies are phased out, the resources currently allocated to them could instead be redirected to support local renewable energy generation.
- EU funds, including the Just Transition Fund, Leader Programme and Life Programme, could be leveraged. For example, Ireland is set to receive up to €84.5 million from the EU Just Transition Fund over the period to 2027. With matching Exchequer funding from the Government, the total funding available could reach €169 million.

As well, a significant new source of European funding will be the European Climate Social Fund.

Action Point

A clear long-term approach to how the costs of the energy transition will be shared, reflecting just transition principles, should be set out.

Box 7.1: European Social Climate Fund (SCF)

The new European Social Climate Fund (SCF) will provide dedicated funding to EU member states to support a fair transition towards climate neutrality, helping to alleviate the social and economic impacts of the new emissions trading scheme (ETS2). It is aimed to support the most affected vulnerable groups, such as households experiencing energy or transport poverty. In its assessment of Ireland's draft National Energy and Climate Plan, the European Commission stressed the importance of using the SCF effectively to support households, micro-enterprises and transport users who are most at risk of energy poverty. The fund can be used for green investments in energy efficiency, decarbonisation of heating and cooling, and low-emission transport measures as well as temporary direct income support measures, reductions in the number of vulnerable households, supporting services and technical assistance. Member states must submit their National Social Climate Plans by June 2025, with the plans to be operational by 2026, before the ETS2 comes into force (expected in 2027).

Sources: Devitt & Hough, 2025.

7.4 Connections Across the Island of Ireland

There is scope for further collaboration between Ireland and Northern Ireland regarding the energy transition and specifically a just transition that tackles energy poverty. With new climate change legislation in place, Northern Ireland is working to integrate principles of a just transition into its climate and energy policies, develop a new fuel poverty strategy and establish of a Just Transition Commission- an area where Ireland has also made recent progress.

A Shared Island approach offers potential. Both jurisdictions face similar challenges in achieving a just transition, operate within the Single Electricity Market (SEM), and share a focus on income, energy costs and energy efficiency as core energy poverty drivers. The province of Ulster has the highest energy poverty rates on the island of Ireland. EU funding for cross-border just transition projects, like the North West Regional Energy Strategy (Derry–Donegal), could be expanded. Northern Ireland's Fuel Poverty and Just Transition Project, due for completion this year, aims to establish a long-term framework to alleviate fuel poverty and support net zero goals through a just transition (Department for Communities (NI), 2024).

Many of the issues faced by energy-poor households are shared across the island and both jurisdictions are developing policies and have schemes in place to address energy poverty. This presents a real opportunity to learn from one another about effective interventions and best practices. Furthermore, both jurisdictions share concerns about the current definition and measurement of energy poverty.

Several funding mechanisms support cross-border collaboration. The Irish Government's Shared Island Fund provides Community Climate Action programme funding for cross-border and all-island projects. There is also potential for EU funding for border area programmes to support a just transition. Existing cross-jurisdictional energy strategies, like the North West Regional Energy Strategy between Derry and Donegal, demonstrate that such initiatives can be built upon in other areas.

7.5 Conclusion

The Council believes there is a need to strengthen the connection between people and the energy transition to ensure it is just and inclusive and supports wellbeing. In this moment of reflection on the energy transition in Ireland, it is important that households and energy communities are included and supported to become part of the solution to decarbonising Ireland's energy. This can be supported through the five lines of action where households and energy communities are already active in pursuing energy efficiency and energy generation, and they can be supported to do more.

There are technical and practical solutions for households and communities to increase energy efficiency and benefit from cleaner air and healthier, more comfortable homes. Further targeting, supports and engagement are required to unlock some of this potential and strengthen the energy connection. These opportunities must be available to all. Further monitoring and supports are required to ensure the transition is just, inclusive and fair. Ensuring that the energy transition brings benefits to households and vulnerable groups, and that those in energy poverty are protected requires focused actions.

The new energy system is not yet in view but there are tangible possibilities emerging and being shaped by current policy action. Future thinking points to the importance of making future possibilities concrete so that they can be more easily pursued (Waites *et al.*, 2021).

There needs to be more opportunities for people to have a stake in the energy transition through green bonds or other appropriate financial mechanisms.

Local place-based action can increase energy generation and build energy resilience. To unlock their full potential, barriers to energy community initiatives must be removed. This will enhance their capacity to deliver local energy generation and efficiency programmes and enable strategic collaborations with local authorities to combat energy poverty and assist vulnerable households.

Demonstration projects are a crucial mechanism for accelerating the energy transition at a local level. Showcasing technologies like heat pumps and energy-efficient buildings to both energy communities and households provides tangible proof of effective solutions.

To guarantee a just and equitable transition, it is essential to make existing climate opportunities, processes and resources accessible to all. These efforts will help Ireland cultivate a unified vision of the energy transition, highlighting the tangible benefits it brings to every person, household and community.

Advancing climate action requires acting collectively, developing a shared understanding and ensuring a fair and inclusive process. The energy transition will bring opportunities and challenges for households and energy communities that need to be recognised and addressed. Building local energy action and resilience can deliver both emissions reductions and adaptation and support individual and community wellbeing.

Appendix One: Lines of Action and Key Action Points

This report examines the energy transition with a societal lens, reflecting the fact that it requires a major transformation, with societal, economic and environmental implications. The analysis has identified five broad lines of action and specific points of action within each. This Appendix outlines all the action points.

Line of Action One: Energy Affordability, Energy Poverty, Monitoring and Targeting – Key Action Points

- A review of additional approaches to meeting energy transition costs beyond consumer utility bills would be of value to widen options for use over the longer term.
- Enhanced monitoring and data analytics (and spatial mapping) is required to inform a just energy transition, including energy use and energy costs, grants awarded, BER and income. A just transition requires better understanding of household energy use across societal groups and locations.
- Given the need to improve health outcomes for people with respiratory health conditions or vulnerable older people using solid fuel and living in energy-poor homes, and given the health benefits, consideration should be given to further supporting and promoting retrofitting for these groups.
- Develop pathways to achieve the end of energy poverty and explore the potential for its adoption as a key outcome of the energy transition.
- In terms of the energy transition, the Fuel Allowance is not intended as a climate measure as it does not consider fuel type. In transitioning to a carbon-neutral society, consideration needs to be given to how energy income supports can best support the transition from fossil fuels to renewable energies.
- Further measures are required to support groups at particular risk of energy poverty, including older people, people with disabilities and lone parents, to ensure they are included in energy efficiency actions.
- A review of the potential impact of alternative tariff mechanisms, taxation measures, an energy guarantee or energy credit should be undertaken to identify impacts and benefits for vulnerable groups and to assess the potential impact on energy efficiency action.
- Consideration should be given to expanding the current framework of measures to encourage landlords to upgrade their properties, in consultation with them, and introducing minimum BER standards for the rental sector, with protections in place for tenants against evictions following their introduction. Measures should also be considered that enable and support tenants to make energy and cost savings through increased energy efficiency.
- Examine the potential for wider adoption of the Energy Cloud model and any cost and regulatory barriers that need to be addressed.

Line of Action Two: Supporting Energy Efficiency and Scaling Heat – Key Action Points

- Further research is needed on the health and wellbeing benefits for households in Ireland using clean heat sources.
- There is a need to bring greater clarity to the phasing-out of fossil-fuel boilers for residential buildings.
- Decarbonising heat is not just a technical challenge. Participative research exploring the cultural role of the fireplace or hearth could inform more inclusive and effective energy transition policies.
- More data and analysis will be needed to assess the distribution of energy-related supports across income cohorts and regions. Further analysis examining energy price impacts, energy use and income would be valuable. Barriers experienced by households in taking energy efficiency action should be further informed using social and behavioural insights and appropriate measures developed to address them.
- Building greater interest and supporting households to apply for retrofitting schemes requires that services keep in step with demand where possible.
- Group delivery of energy efficiency actions, including retrofitting and Solar Meitheals, should be actively supported to make take-up easier for households.
- Local energy and community actors can play an increased role in supporting take-up of energy-efficient measures and new technologies, such as solar PV. Consideration should be given to supporting them in areas with high levels of energy poverty.
- Informed by the IEA energy efficiency toolkit, consideration should be given to reviewing the current suite of policy measures to ensure they can bring the increases in energy efficiency action required to meet current targets.
- Greater clarity is needed on the pathways to clean heat for residential buildings in cities, towns and rural areas.
- Consideration should be given to increased public engagement around heat pumps and demonstrating them in action. More demonstration homes would be valuable for expert-led tours and information sessions for the public.
- Research would be of value on the potential role of the heating as a service (HaaS) model for those living in energy poverty.
- Heat pumps and district heating require more urgent and coordinated efforts to identify and address regulatory, technical and impediments to scaling them up. To avoid low-income households being left behind with polluting fossil fuel at home, clean-heat deployment should be accelerated.

Line of Action Three: Helping Households to Reap Electricity Benefits – Key Action Points

- Households could make energy and cost savings using dynamic tariffs and these should be introduced as soon as possible. All households should be enabled to easily access a range of flexible tariffs, with support for those who need it to manage their energy demand.
- The work of the Smart Energy Services Working Group is of value and action is needed to identify and implement measures which would empower and encourage citizens to make more use of smart meters. Consideration should be given to engaging households in this work to ensure that solutions meet the needs of different household types and involve them in energy demand management.
- In relation to smart technology, consideration of who benefits and who is disadvantaged by rapid technological change is important. Research exploring the potential of using smart flexible services for those in energy poverty to make cost and energy savings would be valuable.
- The Council recognises the potential of energy sharing and supports its introduction, while emphasising the need for appropriate regulation to ensure it is practical and effective for both households and energy communities.

Line of Action Four: Place-Based Energy Resilience and Local Production – Key Action Points

- Focusing on place-based action helps address people's specific concerns and local circumstances. Rural energy forums could provide communities with a valuable opportunity to discuss energy resilience with energy intermediaries and explore practical solutions.
- The Council recognises that building local energy resilience is critically important for Ireland. Future work is needed to explore the potential for enhancing local energy resilience in rural areas, working with local communities. Areas to consider include enabling the use of EV and solar PV batteries, alternative energy sources, community energy hubs, and the potential for islanding and microgrids.
- There is value in deepening the knowledge exchange and engagement between local authorities and energy communities across the country.
- Further action is needed to ensure that Renewable Energy Communities can access development funding to deliver projects. As well as state support, work is needed to identify alternative funding sources such as crowdfunding/public share offers and private green bonds, and support RECs to access them.
- The Council believes there is value in supporting both 100% community-owned models and co-ownership approaches. This would enable Renewable Energy Community projects that partner with developers or local authorities/public bodies to qualify for state supports through SRESS and other relevant schemes.
- The Council recognises the potential of energy communities to have a role in local renewable heat generation, such as by using biogas or through district heating. Further work is required to examine the specific challenges to be addressed for this to progress in Ireland.

- The Council sees value in developing a support programme for ambitious demonstrator projects led by energy communities. There may also be potential to explore the role of private funding sources, such as crowdfunding and green bonds, in supporting these initiatives.
- The activities of energy communities, including their various local engagement methods – such as networks, online fora and community events – could be further expanded. Many energy communities would value the establishment of a dedicated forum where they can connect, share experiences, and learn from one another.

Line of Action Five: Strengthening Energy Connections – Key Action Points

- An inclusive energy forum with a wide range of energy stakeholders and relevant civil society groups should be established. Young people, diverse households and energy communities should be represented.
- A clear long-term approach to how the costs of the energy transition will be shared, reflecting just transition principles, should be set out.

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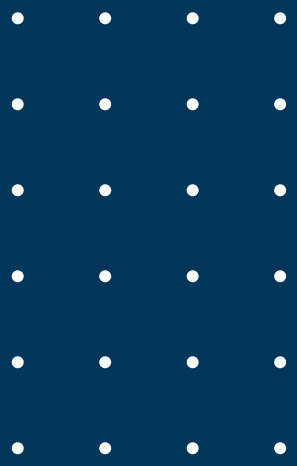

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