Department for the Economy
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An Roinn Geilleagair

MID-TERM REVIEW OF THE ENERGY STRATEGY

THE PATH TO NET ZERO ENERGY

DECEMBER 2025

CONTENTS

MINISTERIAL FOREWORD

Our energy transition is a shared journey - one shaped by the collaboration of government, industry, and communities working together for a future built on self-sufficiency in affordable and renewable energy.

Guided by our Energy Strategy, we have made real progress: renewable electricity now supplies nearly half of our region's total electricity consumption, and our green economy is thriving, generating over £1.4 billion in turnover annually.

Record investment in our energy infrastructure, including the largest ever refurbishment and upgrade of our electricity network, will deliver cheaper, cleaner energy for households and businesses. New support schemes and the Green Skills Action Plan will equip our people and businesses for the opportunities ahead.

This commitment reflects the resilience and ambition of our region and we must be clear about the current challenges - grid constraints, evolving skills needs, and the demand for new legislation and robust data. The Climate Change Act (NI) 2022 sets ambitious statutory targets, and meeting them requires even greater innovation, partnership, and determination.

This Mid-Term Review provides a transparent account of our progress, the barriers we must overcome, and the actions we are taking to strengthen governance and delivery. Above all, it reaffirms our commitment to a just transition - one that puts people at the heart of change and ensures everyone can benefit.

Thank you to all who have contributed to our progress - especially our partners in industry, academia, across all our government departments and the wider public sector. Your insights and commitment have been invaluable.

Together, we will continue to build a cleaner, fairer, and more prosperous future for all our citizens.

DR CAOIMHE ARCHIBALD, MLA
Minister for the Economy

1. INTRODUCTION

The Energy Strategy: The Path to Net Zero Energy was published by the Northern Ireland Executive in December 2021. Delivery over the past four years has involved strong collaboration across government and with partner organisations.

This Mid-Term Review describes the progress that is being made in the delivery of the Energy Strategy.

Its objectives are to:

1. **Highlight achievements and constraints:** Identify both the successes and the challenges encountered in delivering the Strategy, offering an assessment of what has been achieved and the barriers that remain.

2. **Report on progress:** Provide a clear account of progress made towards the Strategy's 2030 targets.

3. **Address the Northern Ireland Audit Office (NIAO)[1] report:** Set out the Department's plans for implementation of the NIAO recommendations in its report on the delivery of the Energy Strategy.

The 2026 Action Plan will be published in early 2026, slightly later than in previous years, to enable thorough consideration of the Audit recommendations and integration into Energy Strategy delivery.

Also, it is the Department's intention to set out, in 2026, an energy policy position statement, with milestones to 2030.

1 NI Audit Office Report - NI Energy Strategy.pdf

2. OUR JOURNEY TO 2030: FROM IMPORT DEPENDENCE TO LOCAL, AFFORDABLE, RENEWABLE ENERGY

The Energy Strategy was published in December 2021 followed by the Climate Change Act in 2022, which underpinned the Strategy's ambitions and obligations by providing a statutory framework of enforceable targets and milestones and fostering collaboration across sectors and society.

The three targets in the Northern Ireland Energy Strategy are crucial because they provide clear direction and measurable milestones on the path towards net zero energy.

Energy Savings: Deliver energy savings of 25% from buildings and industry by 2030.

Renewables: Meet at least 80% of electricity consumption from a diverse mix of renewable sources by 2030.

Green Economy: Double the size of our low carbon and renewable energy economy to a turnover of more than £2 billion by 2030.

These targets drive progress by focusing efforts on managing our energy use and increasing energy security through local renewable generation and less reliance on imports. By setting ambitious but achievable goals, the Strategy encourages innovation and investment in our local economy creating skilled jobs and enhancing the region's competitiveness through public confidence in the energy transition.

People are at the heart of the Energy Strategy and, in the longer term, as the energy system becomes cleaner and more flexible, and with education and advice from Northern Ireland's Consumer Council, people and communities across Northern Ireland will see the benefits - better air quality and a healthier environment, lower risk of fuel poverty as we use our energy more efficiently, more reliable energy costs as we shift to local renewable generation, and more people in good jobs driving increased money circulating within our local economy.

The last few years have clearly illustrated that imported fossil fuels bring imported price volatility. Our response is decisive: build an affordable, renewable energy system, that delivers stable energy prices for consumers.

The prize at the heart of our energy transition is self-sufficiency in affordable, renewable energy - a transformation that will protect households and communities from volatile costs and strengthen the competitiveness of our businesses.

By generating more of our own clean energy, we reduce our exposure to unpredictable global price shocks, helping to tackle fuel poverty and ensuring that more of our energy spending stays within the local economy. This transformation is also driving the creation of a stronger, greener regional economy, delivering better regional balance, good jobs, higher productivity, and increased exports.

What will it cost - and why it pays?

Switching to clean, local energy does require upfront investment - especially in upgrading our energy networks, making the energy system more flexible, and in improving energy efficiency. Nonetheless, the Climate Change Committee (CCC) estimates that by 2050, almost all of the money we put into clean energy will be paid back through savings on running costs.

For this investment, we can secure our energy future, significantly boost our economy and achieve about two-thirds of the total emissions reductions we need to tackle climate change (with the remaining emissions from areas other than energy).

Where we are now?

In the 12 month period October 2024 to September 2025, 44.2% of local total metered electricity consumption was generated from local metered renewable sources. Issues such as grid constraints are limiting current progress - but we are addressing that. NIE Network's RP7 programme, approved by the Utility Regulator, is the largest ever investment in our electricity network. We are bringing forward the Renewable Electricity Price Guarantee (support scheme), smart meters, and flexibility measures to unlock more local renewable generation and reduce existing constraints on bringing more renewable generation onto the electricity system.

Next Steps

As we move forward, 2026 will see the publication of an energy policy position statement, setting out the clear direction of travel in the delivery of our Energy Strategy through to 2030.

Alongside this, the annual Energy Strategy Action Plans will remain central to our approach - providing a mechanism for monitoring delivery and tracking progress on the three core Energy Strategy targets.

We will continue to work across central government to ensure that departmental strategies, including the energy chapter of the draft Climate Action Plan and sectoral plans, form a coherent and effective approach to reducing emissions and achieving net zero targets.

By working together towards common objectives, we can better address challenges such as price volatility, fuel poverty, growing green skills, good jobs, and investment in business and industry, ensuring that actions taken are cost-effective, sustainable, and deliver lasting benefits for everyone in our society.

With this approach and governed through the Energy Strategy Oversight Group, we will ensure that our region's energy future is secure, affordable, and sustainable.

3. RESPONDING TO THE NIAO REPORT: STRENGTHENING GOVERNANCE AND DELIVERY

Background

In October 2025, the Northern Ireland Audit Office published its review of the Northern Ireland Energy Strategy. The Audit Office report recognised the scale and ambition of the Strategy and made a series of recommendations aimed at further strengthening the planning, delivery, and oversight of the Strategy as we move towards 2030 and beyond.

A summary of the themes that the Audit Office highlighted were:

- The Department undertook a lengthy process and consulted widely in developing the Energy Strategy.
- There are significant flaws in the Energy Strategy Action Plans.
- There has been limited progress on a number of planned actions.
- Despite a complex governance structure, reporting on performance is lacking.
- The Energy Strategy Oversight Group only recently measured and published progress towards the key targets.
- The advice from the Committee on Climate Change is not considered by the Energy Strategy Oversight Group.

The Audit Office made the following five recommendations:

1 As part of the annual planning process, the Department should undertake a strategic assessment of the extent to which proposed actions will deliver progress against the three key targets set out in the Energy Strategy. Planned actions should detail expected outcomes and should contain specific, measurable deliverables as well as the estimated timeframe for completion.
2 Before the Department publishes its annual Energy Strategy Action Plan, a robust feasibility assessment of proposed actions should be undertaken, including the approach to public consultation. The public should be consulted in the most efficient and effective manner, to maximise the return from the consultation.
3 The Department should commission a review of the effectiveness of governance and performance reporting arrangements to ensure a sustained focus on delivery of planned actions, the achievement of key milestones and the pace of progress towards meeting the Energy Strategy key targets.
4 As the body responsible for strategic oversight of the Energy Strategy, the Energy Strategy Oversight Group should examine all energy-related advices from the Committee on Climate Change and ensure that the Group's views on implementation by the Department in Northern Ireland are given appropriate consideration. All accepted Climate Change Committee advice should be reflected in the annual Energy Strategy Action Plan.
5 The Department should carry out and publish a five-year strategic update review of the Energy Strategy in 2025 as set out in the current Energy Strategy document. Any implications arising from the introduction of the Northern Ireland Climate Change Act in 2022 should be included within the scope of this review.

Recommendation 5 above is this report. The other four recommendations are being considered by the Department as part of its required formal response to the Audit Office report.

Implementation

The Department intends to strengthen governance, planning, and oversight of the Energy Strategy. The Energy Strategy Oversight Group will continue to ensure that there is alignment with statutory targets.

Looking ahead, 2026 will see the publication of an Energy Policy Position Statement, setting out a clear direction for delivery through to 2030. Annual Energy Strategy Action Plans will remain central - providing mechanisms for monitoring progress and supporting delivery of the three core Energy Strategy targets.

4. TURNING STRATEGY INTO ACTION

This section outlines some of the progress made so far in the Energy Strategy delivery and related efforts. It highlights the collective commitment across sectors to advance the energy transition.

Achieving our 2030 and 2050 energy transition goals will require continued, collective action across the public sector, private sector, and wider society. It is also important to recognise that significant progress is already being made.

4.1 Supporting Consumers

Consumers are at the heart of the Energy Strategy, and their buy-in is essential for a successful energy transition. Working under the Energy Strategy, we are committed to a Just Transition, engaging with the Consumer Council to empower households through initiatives like the Save Energy, Save Money Campaign. By providing practical information and advice and promoting energy efficiency, consumers can participate in and benefit from energy transition.

Save Energy, Save Money Campaign

For three consecutive years, the Department for the Economy has provided £300k to the Consumer Council to deliver the 'Save Energy, Save Money' winter energy campaign. The campaign supports households to reduce their energy bills through clear, practical advice, while helping consumers understand the transition to net zero.

Resources include energy toolkits for electricity, natural gas, and home heating oil customers, 'Keeping your home warm' information guides, energy price comparison tools, an appliance cost checker tool, and energy efficiency advice videos.

The campaign is delivered through digital channels, the Consumer Council website (www.consumercouncil.org.uk), outdoor advertising, radio, press and extensive community outreach. Since 2022, the campaign has evolved year-on-year to reflect consumer need, channel performance and changes in the local energy landscape.

In 2025, the 'Save Energy, Save Money' campaign won Silver for Best Regional Campaign at the CIPR Pride Awards, commended for its strong use of audience insight, clear messaging, creative delivery and sustained regional impact.

Cumulative Impact (2022–2025)

Across three years, the 'Save Energy, Save Money' campaign has delivered in excess of 50 million impressions to consumers, ensuring widespread awareness and reach across the region:

- Digital and broadcast activity generated over 28 million impressions, with strong engagement through search, social media, YouTube, Spotify and TV Pause advertising.
- Radio advertising reached more than 17 million listeners across the three campaigns, including expanded rural coverage in the last two years.
- Outdoor advertising delivered over four million impressions using bus formats, billboards, bus shelters and large-format placements in high footfall locations.
- One million visits to the campaign page on the Consumer Council website, with the online energy price comparison tools and the appliance cost checker used over 400,000 times; and
- Community outreach, including the distribution of over 35,000 printed guides and 400 outreach events reaching more than 30,000 consumers directly in the community.

Overall reach and effectiveness increased year on year, with the 2024–2025 campaign alone delivering a 61% increase in the number of consumers connecting with the campaign, compared with the previous year.

4.2 Delivering Energy Savings

Public Sector Investment Under the Energy Strategy

Over £72 million has been invested in decarbonising the government estate, delivering more than £10 million of annual energy savings, supporting under pressure public budgets, for example in health and education, reducing public sector emissions, and providing leadership in the energy transition.

This has been part of delivering the Energy Management Strategy for Central Government, now embedded in the wider Energy Strategy delivery. As part of this, a new Energy & Carbon Data Repository has been established. This platform now receives electricity, natural gas, heating oil and LPG invoices directly from suppliers. There are now over 3,000 government sites on the system, with over 100,000 invoices. This gives up to date energy consumption and cost information to energy managers across the government estate, helping them to lower energy costs. It also enables government to deliver efficiently and effectively on its Public Body Reporting obligations under the Climate Change Act.

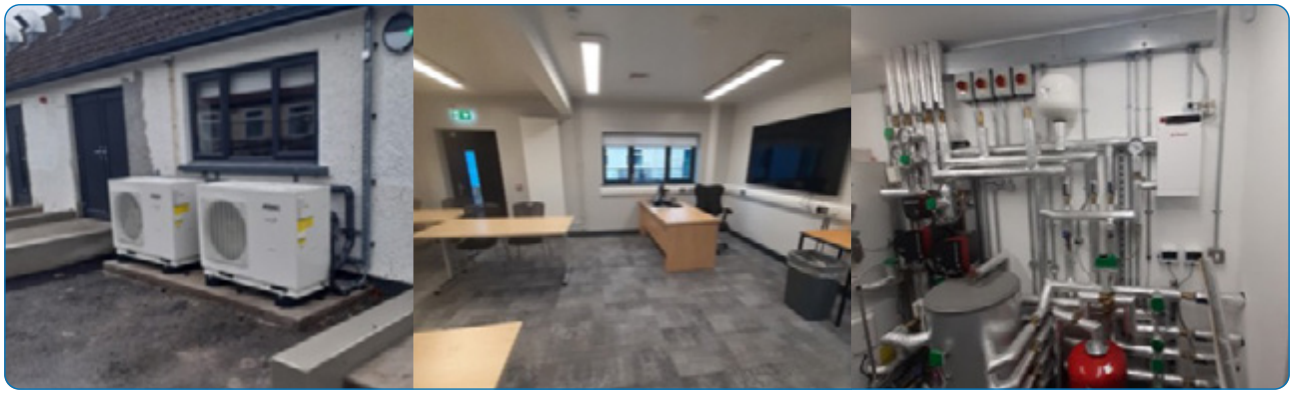
CASE STUDY: South-Eastern Regional College (SERC)

The SERC campus at Holywood in County Down was given a major retrofit investment through the above scheme.

The existing horticulture centre was retrofitted with the latest technology to deliver energy savings, bringing a core part of the curriculum for the students to life. The work included removal of existing fossil-based heating systems and replacement with two 10kW Air to Water Heat Pumps. The building had cavity wall insulation installed, 300mm of roof space insulation, 'Mechanical Ventilation Heat Recovery' fitted, windows upgraded to 1.24W/m^{2}K, internal wall insulation 0.21W/m^{2}K, battery storage capacity of 46kWh installed, 20 Solar PV (405W) panels and Solar Thermal hot water system installed and EV Charging points fitted in the car park.

The main rationale of the project was to ensure there was a seamless crossover for students to experience and learn from a live project which has been retrofitted, whilst bringing that knowledge into adapting their current curriculum provision to meet the demands on energy supply and carbon reduction targets. The Retrofit and additional bespoke modular units were constructed in Holywood, allowing a range of retrofit and net zero technology upskilling qualifications ranging from level 2 to level 5, enhancing current industry skills, and future-proofing apprenticeships in areas of low carbon heating design, air tightness and fabric first approach.

The project has allowed the college to lead by example, whilst developing qualifications in collaboration with industry and manufacturers, and to enable the retrofit project to be used to teach students how energy can be reduced in practical terms.



Improving Energy Efficiency through NISEP

NISEP has been a cornerstone of energy efficiency, delivering improvements to the homes that need them most. NISEP has operated with a budget of around £8 million annually, helping to provide insulation and heating upgrades, while reducing energy consumption and bills.

Strong partnerships between the Department for the Economy, Utility Regulator, and industry are supporting households in the transition to a low-carbon and more affordable future.

L-R: Announcing further DfE support for NISEP in 2024 - John French, Chief Executive, Utility Regulator; Former Economy Minister Conor Murphy and Kevin McGarry, Programme Manager, Energy Saving Trust

Between April 2021 and March 2024, NISEP invested over £20 million in energy efficiency improvements to 8,635 properties, including 4,571 loft insulation installations and 3,463 cavity wall insulation measures.

With the NISEP facing continued high demand due to rising energy costs, the Department took the decision to provide additional support in areas of the NISEP that could support policy development. Since October 2023, DfE has provided over £5.75 million in additional funding to NISEP, to help deliver above and beyond what would otherwise have been possible.

By April 2026, this funding from DfE will have supported 2,500 additional homes with the installation of energy efficiency measures (loft and cavity wall insulation). Collaboration with Utility Regulator and Energy Saving Trust, who oversee and administer NISEP, has provided invaluable insights for DfE, particularly regarding industry capacity and regional balance, as we develop a future replacement programme.

The Affordable Warmth Scheme

The Department for the Communities' Affordable Warmth Scheme provides support to low-income households through the installation of energy efficiency measures. Since September 2014, the scheme has invested around £141 million to support over 31,000 households in fuel poverty.

A New Fuel Poverty Strategy

Delivery of the Energy Strategy will help tackle fuel poverty through the delivery of energy efficiency and lower and more stable energy costs. The Department for Communities is currently developing a new Fuel Poverty Strategy which will focus on the specific needs and issues of those living in or at risk of fuel poverty.

Guiding the development of this Strategy is a focus on long-term sustainability, which emphasises improving the energy efficiency of homes. This aligns closely with Energy Strategy Principles 'Do More with Less' and 'Placing you at the Heart of our Energy Future'.

Significant consultation engagement and cross-government collaboration enabled its development and for it to be taken to the Executive imminently. The vision is a warm healthy home for everyone, with principles setting out that addressing fuel poverty should be needs-based, participative, collaborative and focused on long-term, sustainable solutions. Achieving this vision will contribute to the Energy Strategy commitments to 'ensure robust protection and redress measures are in place for energy consumers' and 'Implement a new support framework for energy affordability'.

The new Warm Healthy Homes Scheme

The Department for Communities' Warm Healthy Homes Scheme is currently under development and will replace the Affordable Warmth Scheme as the Department's flagship scheme for addressing fuel poverty. The new scheme will be more ambitious than its predecessor and will offer a range of energy efficiency measures including insulation, ventilation and heating solutions with a phased approach to low carbon heating and other renewable technologies.

Smart Metering

The Department for the Economy is finalising the Smart Meters Design Plan, which will enable consumers to access real-time energy insights and flexible tariffs, empowering them to reduce bills and manage consumption more effectively. It will also help the network operator lower the cost of delivery to consumers.

Street Lighting

The Department for Infrastructure has now retrofitted over 250,000 sodium street lights with energy efficient LED units, representing 85% of its total network. This programme along with other measures, such as dimming, reduced burning hours and de-illumination of traffic signs has resulted in a reduction in electricity consumption of approximately 48% as well as delivering savings in maintenance, due to the longer operating lives of LED units. This, in turn, helps under pressure government budgets. Since 2020, it has been a requirement that all of the electricity used to power the street lighting network must be derived from renewable sources.

4.3 Delivering a Decarbonised Power System

Grid Investment & Innovation

The largest ever investment in the electricity grid is underway through NIE Networks' RP7 Price Control, with over £2 billion of new investment planned between this year and 2031. This is stimulating the local green economy, supporting new connections, grid upgrades, and the integration of storage and smart technologies.

This investment is essential to maximising renewable generation and reducing its curtailment and is closely aligned with the strategic direction set by the Department for the Economy.

In 2025, the Department established the Grid Development Monitoring Group, which brings together key stakeholders to monitor progress, address barriers, and ensure delivery of network upgrades is supporting both our decarbonisation targets and a Just Transition.

In November 2025, the Economy Minister announced the move to a fairer grid connection policy which will be implemented by the Utility Regulator and NIE Networks in the first half of 2026. This move supports the growth of a decarbonised economy and improves regional balance.

In 2023, DfE worked with the Utility Regulator and the system operator, SONI, to close the coal-fired power station at Kilroot, dramatically improving local air quality and significantly reducing carbon emissions.

In 2024, SONI procured two synchronous condensers for delivery at Maydown and Coleraine in 2027. The contract is being delivered by Statkraft, owned by the Norwegian Government, and will help increase the proportion of renewable electricity on the system, contributing towards the 80% by 2030 target.

During 2025, the DfE completed formal research into both energy storage policy and interconnector policy and will progress appropriate policy development during 2026.

A Dual-Track to Power Decarbonisation: Supporting Onshore and Offshore Renewables

The region's journey to net zero power depends on harnessing both onshore and offshore renewable energy. Over the past decade, substantial progress in onshore electricity generation was achieved, largely due to the NIRO support scheme. This scheme was open for applications from 2005 to 2017 and played a pivotal role in accelerating growth and shaping our current renewable energy landscape.

A clear route to market for renewable developers is part of achieving progress towards the 80% renewable electricity target. To deliver this, DfE is introducing the Renewable Electricity Price Guarantee (REPG), a new support scheme based on the widely used Contracts for Difference model. This approach will incentivise investment, provide long-term price stability, and protect consumers from global price shocks.

The design of a scheme was consulted on in 2023, followed by the publication of the High-Level Design in 2024. The Final Scheme Design was published in September 2025, setting out eligibility criteria, the contract allocation process, and the proposed legal and governance framework for implementation. It also details the core funding mechanism that will underpin the scheme's delivery.

The scheme has now moved into operational delivery. A Primary Bill is required to give powers to the Department and its partners to operate the scheme. Importantly, these powers will enable us to run auctions at the right time, over the coming decades, securing the best technologies and capacity to meet our net zero target at a fair price for consumers. Full Terms and Conditions will also be consulted on in 2026. These will set out the contractual framework for generators who are awarded contracts following a competitive auction process.

Although the initial auction for the REPG will focus on onshore technologies, offshore renewable energy will also need a future route to market. The Offshore Renewable Energy Action Plan (OREAP), which was published in February 2025, is our blueprint for delivering at least 1GW of offshore capacity from 2030.

The OREAP is being delivered collaboratively with key partners, including other government departments, SONI, NIE Networks, The Crown Estate and industry representatives. Significant foundational work has been completed since the initial consultation on the plan, including signing a Statement of Intent with The Crown Estate, who manage our seabed, to outline how both organisations will work together to enable leasing for offshore wind in our marine area.

In 2025, DfE also consulted on the Strategic Environmental Assessment and Habitats Regulations Assessment. This was a pivotal moment as the potential areas for offshore development were mapped out. The Department will publish the outcome of this consultation in early 2026 with an updated OREAP. A Primary Bill to enable offshore development is planned for Assembly consideration later in 2026.

These efforts are strengthening investor confidence, positioning our region to attract major offshore projects and deliver skilled jobs and economic growth for coastal communities, just as onshore renewables have done inland.

4.4 Growing the Green Economy

The low-carbon and renewable energy economy in the region reached a turnover of £1.41 billion in 2023. This sector now supports thousands of jobs and is a key driver of regional economic growth.

The Green Skills Action Plan

In May 2025, the Department for the Economy published the Green Skills Action Plan, a strategic framework designed to support the region's transition to a low-carbon economy. Developed by the Green Skills Delivery Group under the guidance of the Northern Ireland Skills Council and endorsed by the department's minister, it sets out a clear direction for workforce development.

Key Features:

- Strategic Alignment: This initiative supports the delivery of the Energy Strategy; and
- Sector Focus: Early priorities include large-scale energy production, infrastructure, domestic low-carbon technologies and energy efficiency.

Actions and Priorities - the framework outlines 28 actions across four key areas:

1. Building a responsive skills ecosystem.
2. Strengthening partnerships between government, industry, and education.
3. Promoting awareness of green careers; and
4. Developing a skilled workforce for the green economy.

Economic Benefits:

The green economy is identified as a major growth sector, with around 105,000 jobs currently and up to 58,000 additional roles projected over the next decade. Investment in green skills is driving high-value employment, boosting productivity, and supporting more balanced regional growth. It also provides clarity for businesses, enabling long-term investment in training and infrastructure.

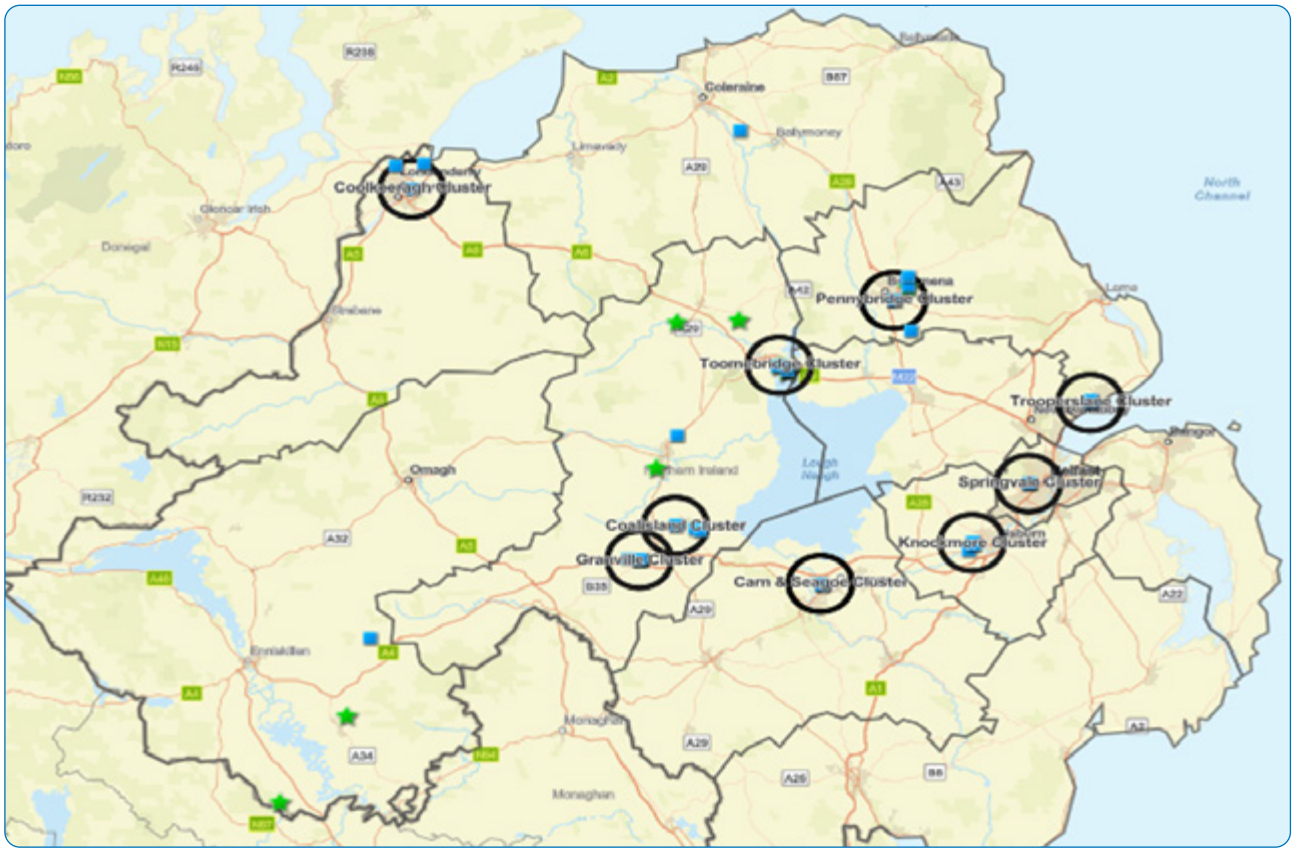
Industrial Decarbonisation

The Industrial Decarbonisation for Northern Ireland (IDNI) initiative, delivered by Invest NI's Green Economy Development Team during 2024, represented a pioneering approach to reducing industrial emissions, enhancing regional economic balance, and boosting productivity across the region.

The initiative is supported by Innovate UK and delivered in partnership with Manufacturing NI, Mineral Products Association NI and the Advanced Manufacturing Innovation Centre (AMIC - Queen's University & Ulster University). The project also engaged extensive stakeholder support from all local utilities, across government and local councils. IDNI engaged over 220 businesses and 500 participants through workshops in all 11 council regions.

IDNI's approach was built on three pillars:

- **Reducing Emissions:** Targeting Scope 1 & 2 emissions through tailored interventions at the organisation level.
- **Enhancing Regional Balance:** Establishing nine industrial clusters across various council regions, coupled with a sectoral cluster of dispersed businesses, in the Mineral Products sector, to foster collaborative decarbonisation and shared infrastructure.



- **Boosting Productivity:** A Productivity Emissions Tool was adopted by over 100 high energy-intensive businesses, enabling benchmarking against GB counterparts and identifying opportunities for operational improvement.

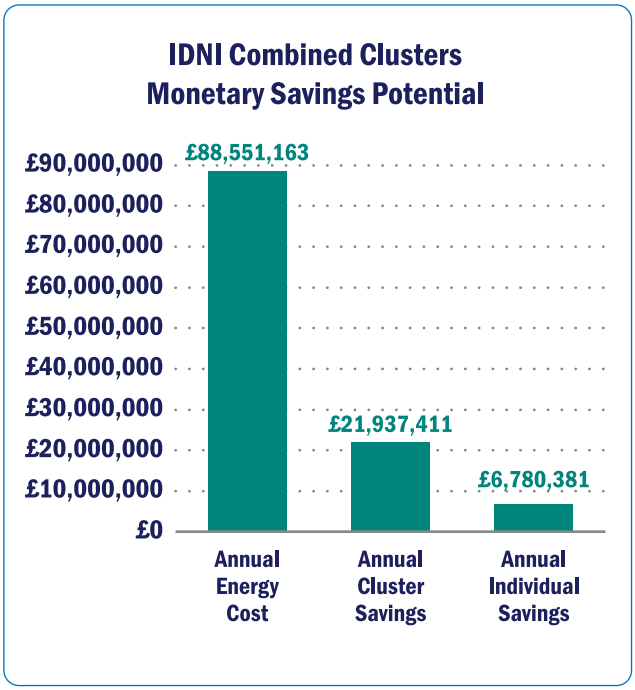
Cluster-Based Approach

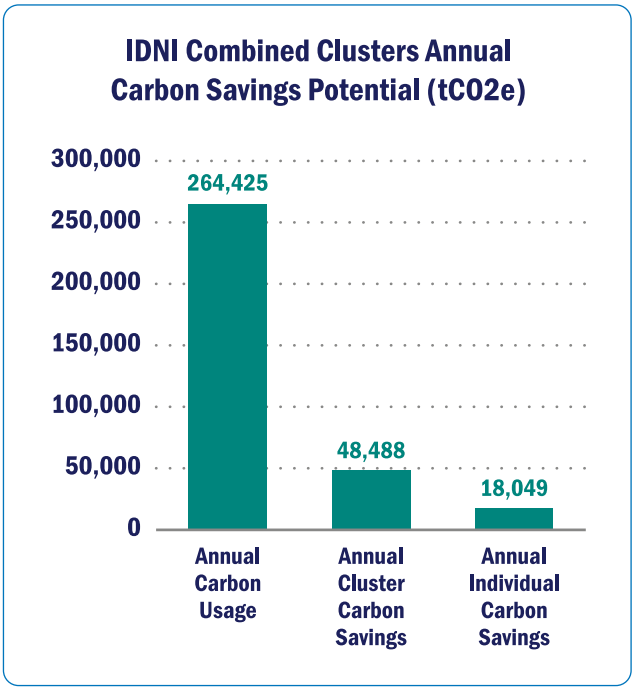
The core innovation of IDNI is its industrial cluster-based model. By grouping neighbouring companies, the initiative identified the potential for shared energy infrastructure and waste stream opportunities, with the potential for an average three-fold increase in energy and carbon savings compared to individual company actions.

In some cases, such as Mid-Ulster, benefits are projected at nine-fold increases through clustering.

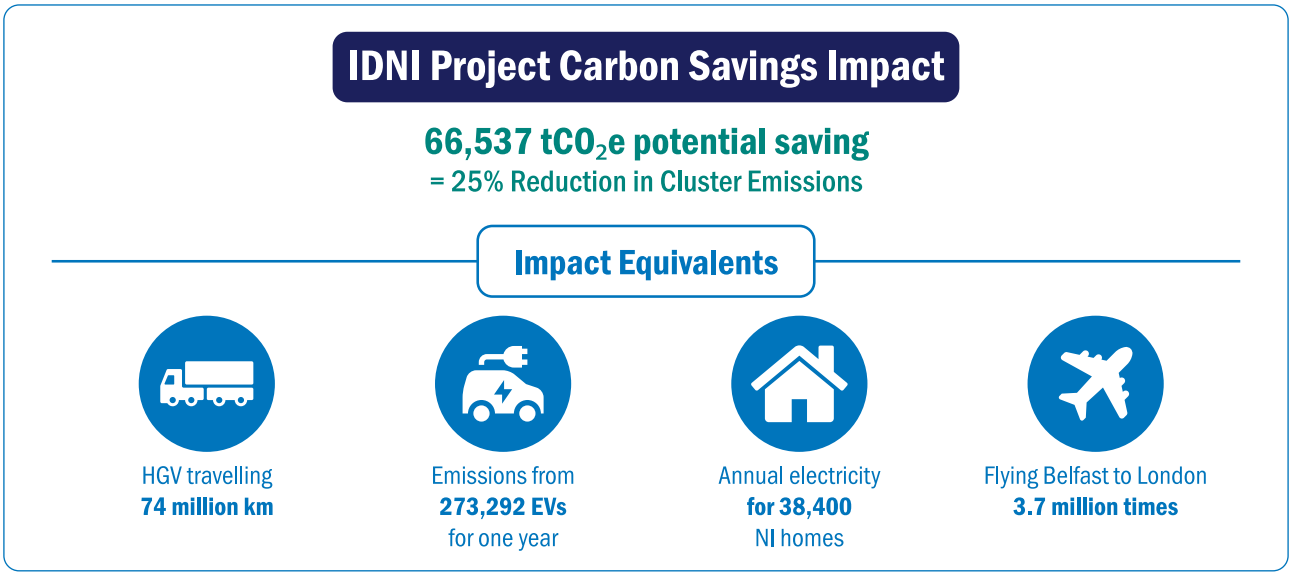
Business and Regional Impact

- **Energy Savings:** IDNI identified potential annual savings of close to £29 million, a 32% reduction in collective energy spend across all clusters that involved 54 of the region's major energy users. Extrapolating these results and replicating IDNI's approach across the region could save businesses approaching £450 million per year, based on the most recent available energy spend estimates.

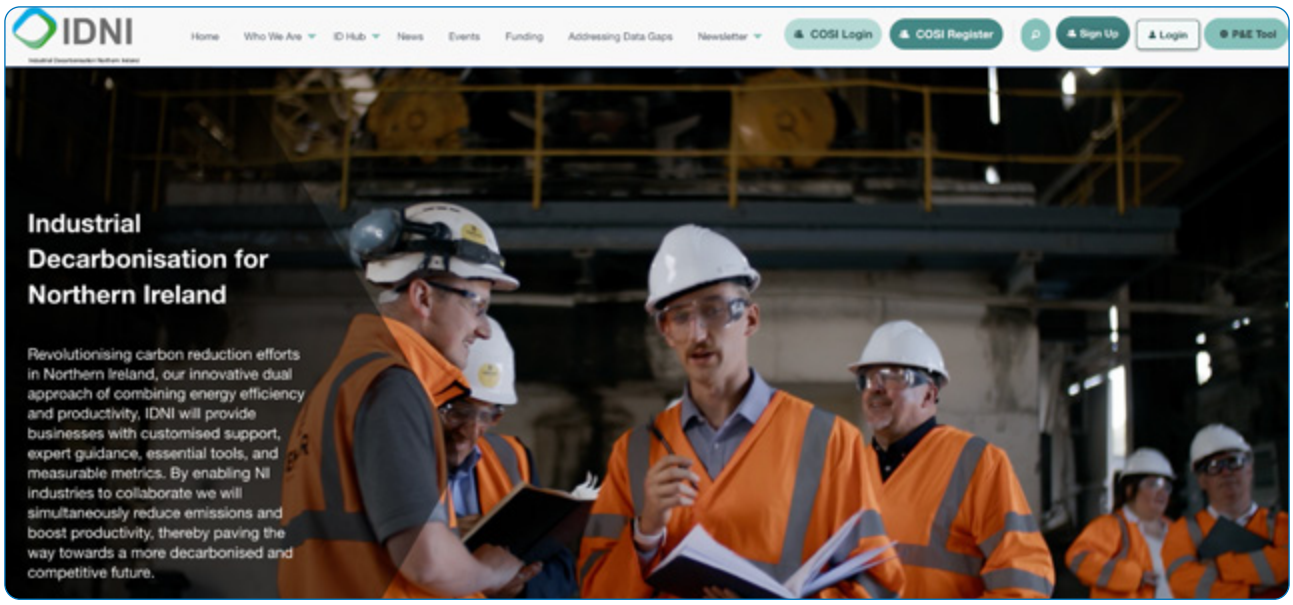




- **Carbon Reductions:** The IDNI cluster work suggests the potential for over 66,000tCO_2e in emission reductions, representing a 25% decrease in total industrial emissions among cluster businesses. If scaled, IDNI could reduce the region's total emissions by an additional 4%.



- **Operational Benefits:** Businesses were able to access tailored energy audits, a free to use Productivity Emissions Tool, and a Knowledge Sharing Platform https://idni.eco/, improving visibility of energy usage and productivity opportunities.



Collaboration and Knowledge Sharing

IDNI's success is rooted in collaboration, uniting councils, government departments, utilities, and academic partners. The Knowledge Sharing Platform brings together stakeholders, funding portals, and sustainability resources, supporting ongoing decarbonisation efforts and infrastructure planning.

Next Steps

To sustain momentum, the following actions are being pursued:

- Funding for company-level energy assessments and industrial cluster development.
- Expanded studies for pilot cluster projects to facilitate investment.
- The maintenance and update of the Knowledge Sharing Platform and Productivity Emissions Tool.
- Further develop industrial demand mapping to inform infrastructure planning and policy.

Energy Resource and Efficiency Programme for Business

In May 2024, the Department launched a new £40 million Energy Resource and Efficiency Programme (EREp) which is delivered through Invest NI. This strategic initiative aims to support businesses to improve their energy efficiency, reduce resource consumption, lower costs and minimise environmental impacts.

The primary objectives of the programme are to:

- Assist businesses in identifying opportunities for energy and resource efficiency improvements.
- Provide technical and financial support for implementing efficiency measures.
- Promote adoption of best practices in resource management and environmental sustainability; and
- Reduce greenhouse gas emissions in line with government targets.

Key Progress and Achievements:

- Invest NI has expanded outreach efforts to include non-Invest NI clients, resulting in a broader range of sectors participating, including manufacturing, food processing, and services industries.
- The programme has enhanced its suite of support services, offering tailored advice, energy audits, and resource efficiency assessments. These services have enabled businesses to identify practical steps for reducing energy consumption and waste.
- Invest NI has continued to provide support and financial assistance through grants and funding schemes. Additional funding rounds have enabled more companies to invest in new technologies, such as energy-efficient lighting, heating, and process equipment.

While significant progress is being made, challenges remain, such as the need for greater commitment for capital investment for delivery of the wider EREp, including the Energy Efficiency Capital Grant. This will enable greater investment in advanced technologies and overcoming barriers to change.

4.5 Pioneering Renewable Gas, Hydrogen and GeoEnergy

Biomethane

In November 2023, biomethane was injected into the region's gas grid for the first time. This marked a significant step toward diversifying our energy mix in heating and reducing reliance on imported fossil fuels. The potential development of a sustainable biomethane sector offers opportunities for rural communities and supports the transition to a cleaner, locally sourced energy system.

Hydrogen Innovation

The region is advancing hydrogen projects, including the NI Water hydrogen and oxygen demonstrator project at Belfast wastewater treatment works (funded by the Department for the Economy), Wrightbus's hydrogen-powered transport initiatives and a hydrogen refuelling study with the Department for Infrastructure (see Hydrogen Refuelling Project in next section). The region is also developing a Hydrogen Policy and Action Plan to support further growth in this sector.

GeoEnergy NI – Unlocking the Heat Beneath Your Feet

GeoEnergy NI (GeoEnergy NI - Unearthing The Heat Beneath Our Feet) is a flagship geothermal demonstrator initiative. Launched in 2023, with £3 million investment, the project aimed to explore geothermal energy as a secure, local, and low-carbon source of heat to support our decarbonisation journey. The project objectives were closely aligned with the Energy Strategy's commitment to transition away from fossil fuels. By investigating shallow and deep geothermal resources, the project provided evidence for future deployment and informed policy development.

Outputs and Deliverables

The project delivered several technical, policy, and engagement outcomes:

- **Technical Studies**: Feasibility assessments and drilling at Stormont Estate and CAFRE Greenmount Campus generated detailed data on geothermal potential and system design at both sites. Technical and economic evaluations assessed performance, carbon savings, costs, and regulatory requirements.

- **Policy Integration**: Findings informed the development of proposals for geothermal regulations.
- **Public Engagement**: Outreach campaigns and immersive technologies (Virtual Realty & Augmented Reality) raised awareness and built social acceptance of geothermal energy.
- **Key Publications**: The detailed feasibility reports have provided robust data and learning that has informed a strategic roadmap for geothermal development that is aligned with Energy Strategy and Climate Change Act (NI) objectives.
- **Future work**: The project produced data to support future geothermal development, including preparatory work for sites such as Antrim Area Hospital. Lessons learned and recommendations were documented to help accelerate sector growth and improve the design of regulatory frameworks.

4.6 Decarbonising Transport

Achieving net zero by 2050 requires shifting from petrol and diesel to zero-emission vehicles. Under the Climate Change Act, the Department for Infrastructure is responsible for the decarbonisation of transport and progress is being made in a number of areas.

Vehicle Emissions Trading Scheme

In January 2025, the region joined the Vehicle Emissions Trading Scheme (VETS). This scheme is designed to encourage the sale of zero-emission vehicles and aligns with the UK Government's commitment to end the sale of new petrol and diesel cars and vans by 2035. From that date, all new cars and vans must be zero-emission at the tailpipe. The VETS has provided a level of certainty that has encouraged investment by both car manufacturers and charge point operators.

EV Infrastructure

Latest available data has shown that charge point provision across the region has grown significantly since the Energy Strategy was published. We now have 738 publicly accessible commercial EV charging points here, operated by over 20 Charge Point Operators. The number of Rapid/Ultra Rapid charge points (50 kW+), which provide faster opportunity for EV charging, has grown almost five-fold in the past three years.

The provision of the charge point network is commercially led, with some public funding available to support the expansion of the network. In addition to a range of grants available through the Office of Zero Emission Vehicles, a total of 48 local sports clubs made successful applications to 'The Shared Island Fund' Sports Club EV Charging Scheme. This rollout is delivering up to four EV charging points at each location in the heart of our communities and is set to be completed in the coming months.

The Department for Infrastructure is also providing match funding for the 'On Street Residential Charge Point Scheme'. The scheme, moving to the installation phase in the coming weeks, will see up to 250 EV charging points installed across nine Local Council areas, in locations where residents do not have access to off-street parking.

Cross Pavement Charging

To support a just transport decarbonisation transition, the Department for Infrastructure has developed cross-pavement charging solutions to enable EV owners in the region without access to a driveway to charge their vehicles at home. These solutions help ensure that all households can participate in the shift to cleaner transport by enabling home charging and access to cheaper tariffs, in line with Just Transition and Social Inclusion principles

This is helping to address a significant challenge being experienced across the UK and Ireland. While potential solutions may appear straightforward, they carry inherent risks, as the safety and accessibility of footways must remain paramount. The Infrastructure Minister launched the availability of two types of solution for households without off-street parking in September 2025. The two options available, depending on an individual's preference, are an engineered channel and a temporary cable protector. Safety and accessibility will continue to guide implementation, with the temporary cable protector being introduced through a six-month rolling pilot to enable ongoing monitoring and evaluation. Information can be found at Kimmins launches electric vehicle cross pavement charging trial | Department for Infrastructure.

Fleet Decarbonisation

In 2025, the Department for Infrastructure, collaborating with other departments, developed a 'framework' for fleet decarbonisation to help meet the Executive's commitment for all departmentally owned or leased cars and vans being zero emission by 2035. Implementation of this framework will be monitored through a central government-wide fleet log. The 11 local Councils are also adopting a similar approach to help inform actions in individual Council areas through the Department for Infrastructure's Council Fleet Working Group.

Translink Fleet Transition

Since 2019, the Department for Infrastructure has both provided and committed funding of approximately £263 million for the purchase of Low and Zero Emission buses and associated infrastructure. The focus to date has been in Belfast and the Northwest where battery electric and hydrogen-fuelled vehicles have been deployed, improving air quality in those areas. In 2023, the entire Metro fleet in Derry became zero emission.

In the bus sector, Translink leads through its commitment to energy decarbonisation and is embracing low/zero emission technology in its fleet operations. Already, almost two-thirds Translink's bus fleet has been replaced with low or zero emission alternatives. To date, over seven million miles of emissions-free bus travel have been completed across Translink services.

Translink's fleet strategy is to continue the introduction of zero emission vehicles by replacing the current diesel vehicles as they reach the end of their operational life. Subject to funding, this strategy will enable Translink to deliver on its climate commitments and its aim to achieve a fully zero emission fleet by 2040.

Hydrogen Refuelling Project

Alongside the work to advance the uptake of EVs and increase the volume and variety of cost effective charging for the whole of the region, the Department for Infrastructure has been able to partner with Ireland's Department of Transport to move forward on Phase III of a hydrogen refuelling study under the Shared Island Fund.

In August 2025, DfI, in cooperation with the Department of Transport, awarded a contract to a consultant to undertake preparation of a pre-procurement market engagement report and two business cases for the deployment of two green hydrogen refuelling stations on the Dublin-Belfast corridor.

Along with the market engagement report and procurement strategy, the two business cases being developed will serve as a detailed appraisal of the best options for demonstrator hydrogen refuelling stations in Belfast and Dublin and are due to be completed in early 2026.

This project will give clear insight into the hydrogen transport needs across the island. Having an all-island hydrogen project shows the interconnected nature of the freight industry across Ireland. The Department for Infrastructure is also supporting two hydrogen pilots being run by Translink and NI Water.

Since the inception of the Energy Strategy, the Department for infrastructure has been working collaboratively with key stakeholders such as the EV trade association for the region (EVANI), the CBI and freight body, Logistics UK to support and drive the decarbonisation of the transport sector.

4.7 A Planning System to support Renewable Development

On 11 December 2025, the Infrastructure Minister, Liz Kimmins, following Executive approval, published a policy revision to the Strategic Planning Policy Statement (SPPS), marking the conclusion of a focused review of the former SPPS (2015) on Renewable and Low Carbon Energy. The provisions of the SPPS, Edition 2 take immediate effect and must be taken into account in the preparation of Local Development Plans and are also a material consideration to all decisions on individual planning applications and appeals.

This new SPPS can be found at The Strategic Planning Policy Statement, Edition 2 | Department for Infrastructure.

Review of the Permitted Development Regulations

The Planning (General Permitted Development) Order (Northern Ireland) 2015 (GPDO) sets out types of development which can be undertaken without requiring a planning application. These are referred to as permitted development rights and often relate to minor building works that have minimal impact to amenity and the environment. In most cases permitted development rights are subject to conditions and limitations specified in the GPDO.

As part of the Department for Infrastructure's continuing review of permitted development rights in considering its approach to better regulation, work has commenced on a number areas within the Schedule to the GDPO including:

- Domestic microgeneration heat pumps (Part 2)
- Electric vehicle charging infrastructure (Part 3)
- Non-domestic microgeneration (solar) (Part 37)
- Geothermal; and
- Reverse vending machines.

This is intended to provide a considered balance between lightening the regulatory burden on businesses and individuals (and reducing any associated costs) while protecting the environment, amenity, and public safety.

5. CHALLENGES TO DELIVERY

We made a realistic assessment of the challenges we are facing in the delivery of the Energy Strategy - particularly in the context of the Climate Change Act (NI) 2022 and the evolving economic, social, and political landscapes of the region.

Strategic and legislative alignment

The Energy Strategy was published in 2021, ahead of the Climate Change Act (NI) 2022. Following the Act's introduction, work was undertaken to review the Strategy delivery, to ensure full alignment with the Act.

Institutional capacity and resourcing

Currently energy legislation and regulation centres on electricity and natural gas, with much of heat and transport outside legislative scope. The Energy Strategy is transforming this landscape by bringing all aspects of energy - along with new renewable sources - into government responsibility. This broader remit is at the core of the Energy Strategy and also essential for achieving net zero, requiring significant adaptation in institutional roles and powers. Expanding responsibilities across heat, transport, and emerging low-carbon technologies is creating pressure on resources and capacity, demanding new skills, governance structures, and sustained collaboration across government, to deliver complex, cross-sector programmes effectively. Securing multi-year, cross-departmental funding will be critical to sustain priority programmes.

Legislative and regulatory timescales

Delivering the energy transition requires new legislation and regulatory frameworks for many areas including for example, in government support, offshore wind and heat networks. We are prioritising the development and passage of key legislation, to ensure that regulatory frameworks evolve in step with the opportunity to decarbonise energy.

Policy and governance fragmentation

There is strong commitment across government to collaborate on delivering the Energy Strategy. While each minister has distinct responsibilities, we have established effective mechanisms to coordinate priorities and maintain momentum. This shared ambition ensures that collaboration remains central to our approach, enabling joined-up delivery and collective progress towards energy decarbonisation.

Data, monitoring, and reporting

Monitoring progress against the Energy Strategy's three core targets relies on official statistics and management information from multiple sources, many of which lag someway behind real-time, sometimes up to two years. While this makes up to date assessment challenging, it ensures robust, evidence-based reporting.

We are developing a centralised dashboard and committing to regular statistical publications, as soon as data are available. These enhancements will improve timeliness, consistency, and transparency, supporting better decision-making and public accountability as we track the progress of the Energy Strategy delivery.

In partnership with other government departments, agencies such as NISRA and the ONS, ongoing work aims to improve data collection, reduce time lags, and enhance integration.

Conclusion

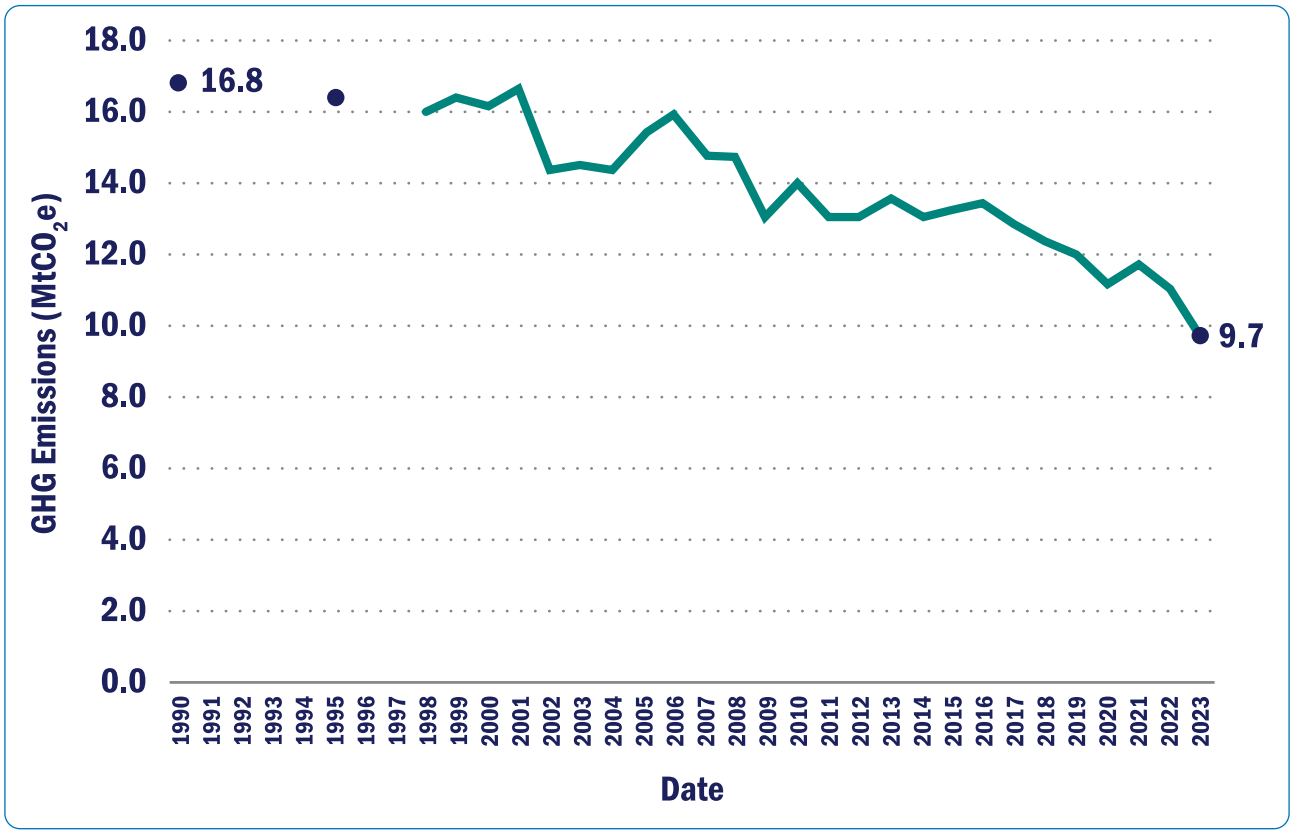
We recognise the challenges outlined above and are committed to addressing them as part of the energy transition. By taking a proactive, collaborative approach, we are overcoming these obstacles and ensuring steady progress towards a cleaner, fairer, and more resilient energy future and delivering significant economic opportunity.

6. PROGRESS ON DELIVERING ENERGY STRATEGY TARGETS

As described in Section 2, following the publication of the Energy Strategy in December 2021, the Climate Change Act came into law here in June 2022. This new legislation added significant context to the Energy Strategy and while the long-term requirement is net zero by 2050, there are important 2030 targets, especially relating to the Energy Strategy, which runs to 2030.

The Energy Strategy provides an ambition that energy-related emissions should reduce by 56% by 2030 relative to 1990 levels (in line with the Committee for Climate Change advice). The latest greenhouse gas emission picture is provided below running to 2023.

Greenhouse gas emissions ($MtCO_2e$) for energy-related sectors in Northern Ireland, 1990 (base year[2]) to 2023



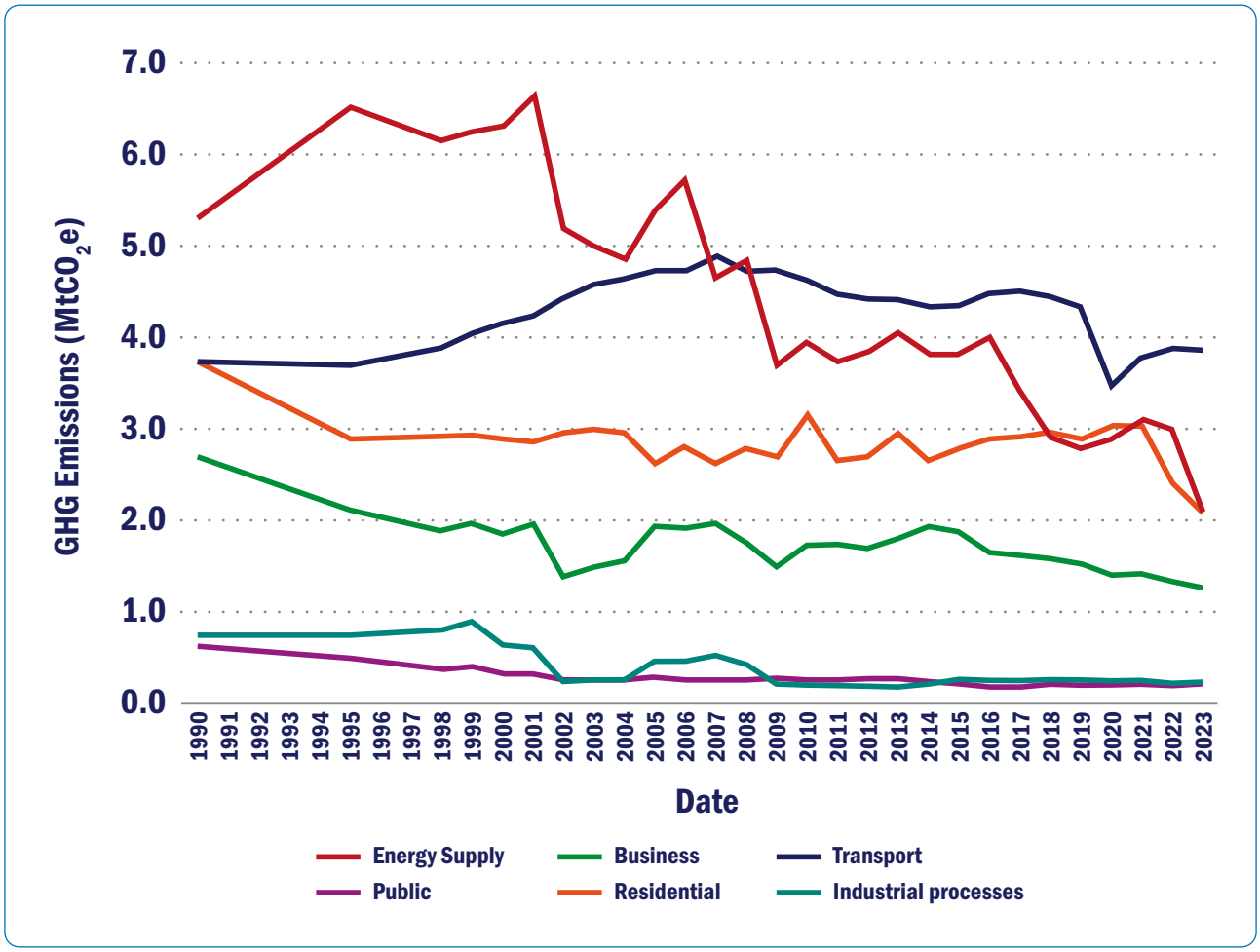
Source: Northern Ireland greenhouse gas inventory.

This shows that total energy emissions were 9.7$MtCO_2e$ (of the region's 18.2 $MtCO_2e$ total), down 42% since 1990 and year on year 12%. The significant change in 2023 was the closure of the coal-fired power plant at Kilroot, which not only significantly reduced emissions, but also improved local air quality. It is also important to note that, ironically, due to the region's overall power plant configuration, that although net emissions reduced significantly, it also led to some reduction in renewable wind on the system.

2 The Climate Change Act (Northern Ireland) 2022 specifies the baseline for GHG emissions in Section 7 (1). The base year for CO_2, CH_4, N_2O is 1990 and for fluorinated gases it is 1995. For reporting within this document, 1990 refers to base year data for all types of gas.

The following graph shows sectoral energy emissions that are the focus in reducing emissions by 56% by 2030. The transport sector emissions have grown (4% growth over the period 1990 to 2023) due to the growth in the number of vehicles here since 1990, however, it is worth noting that as described in Section 4.6 above, there is significant investment now happening to support the electrification of vehicles and the forecast is for this trend to reverse over the coming decade.

Greenhouse gas emissions ($MtCO_2e$) by energy-related sector in Northern Ireland, 1990 to 2023[3]



Source: Northern Ireland greenhouse gas inventory.

Note: Data relating to this chart are available at:
https://datavis.nisra.gov.uk/economy/Energy_Strategy_Metrics.html

3 Greenhouse gas emissions data are not available in Northern Ireland for the following years: 1991, 1992, 1993, 1994, 1996, and 1997. The National Atmospheric Emissions Inventory report provides further details on the series

Greenhouse gas emissions ($MtCO_2e$) by energy-related sector in Northern Ireland, 1990, 2022 and 2023

	GHG Emissions ($MtCO_2e$)			Change (%)	
Energy-Related Sector	**1990**	**2022**	**2023**	**1990 to 2023**	**2022 to 2023**
Energy Supply	5.3	3.0	2.1	-60%	-29%
Business	2.7	1.3	1.3	-53%	-6%
Transport	3.7	3.9	3.9	4%	<1%
Public	0.6	0.2	0.2	-70%	<1%
Residential	3.7	2.4	2.1	-45%	-14%
Industrial processes	0.7	0.2	0.2	-72%	-3%
Total	**16.8**	**11.0**	**9.7**	**-42%**	**-12%**

There are three core Energy Strategy targets:

1. **Energy Savings:** Deliver energy **savings** of **25%** from buildings and industry by 2030.

2. **Renewables:** Meet at least **80%**[4] of electricity consumption from a diverse mix of renewable sources by 2030.

3. **Green Economy: Double the size** of our low carbon and renewable energy economy to a turnover of more than **£2 billion** by 2030.

1. Energy Savings

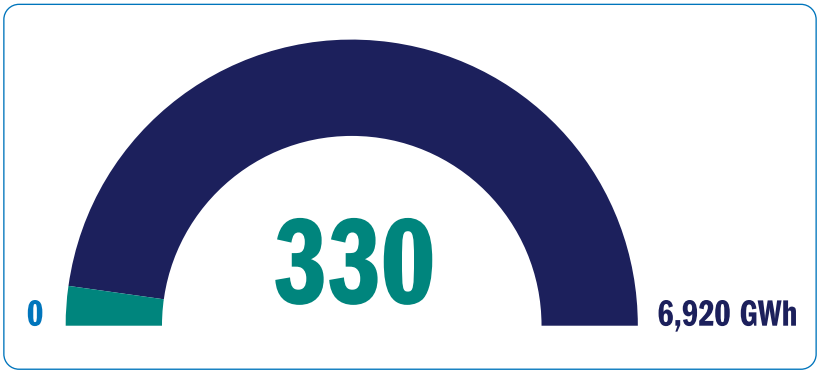
One of the challenging aspects of energy consumption is that the UK Government continually revises these figures retrospectively.

In 2021, at the time the Strategy was launched, the total final energy consumption for heat and power was 32,190 GWh, from which the derived savings target was estimated at 8,050 GWh. However, this has since been officially revised downwards, by the Department for Energy Security and Net Zero, to 27,680 GWh, changing the energy savings target to 6,920 GWh to be delivered by 2030. These figures have been rounded to the nearest ten.

4 The 2021 Energy Strategy target of 70% has been superseded by the Climate Change Act (Northern Ireland) 2022 which set a target of at least 80% of electricity consumption from renewable sources by 2030.

Energy savings can be formally estimated as 'deemed savings' delivered through policy interventions. Unfortunately, reporting on these interventions is carried out retrospectively, typically over 18 months in arrears. Therefore the 330 GWh (4.8% of the target) achieved so far will increase as more data becomes available.

Energy Savings
Estimated energy savings (GWh) resulting from policy interventions impacting heat and power use in the region.



The draft Climate Action Plan, developed as part of the requirements of the Climate Change Act, details several energy savings related interventions up to 2030. If the intended policy interventions impacting on heat and power use are delivered, subject to Executive budget considerations, then additional energy savings will be achieved towards the 6,920 GWh target.

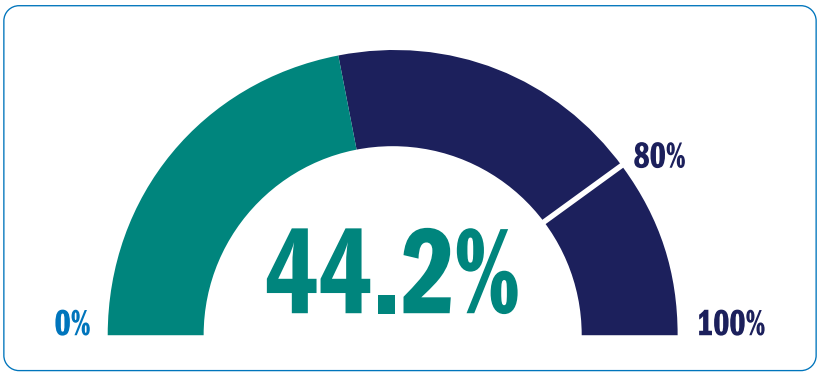
Examples of these energy savings related interventions are:

1. New Fuel Poverty Intervention
2. New Low Carbon Heat and Energy Effciency Scheme
3. Invest NI Energy and Resource Efficiency Programme for Businesses
4. Industrial Decarbonisation for Northern Ireland

2. Deliver 80% Renewable Electricity Consumption by 2030

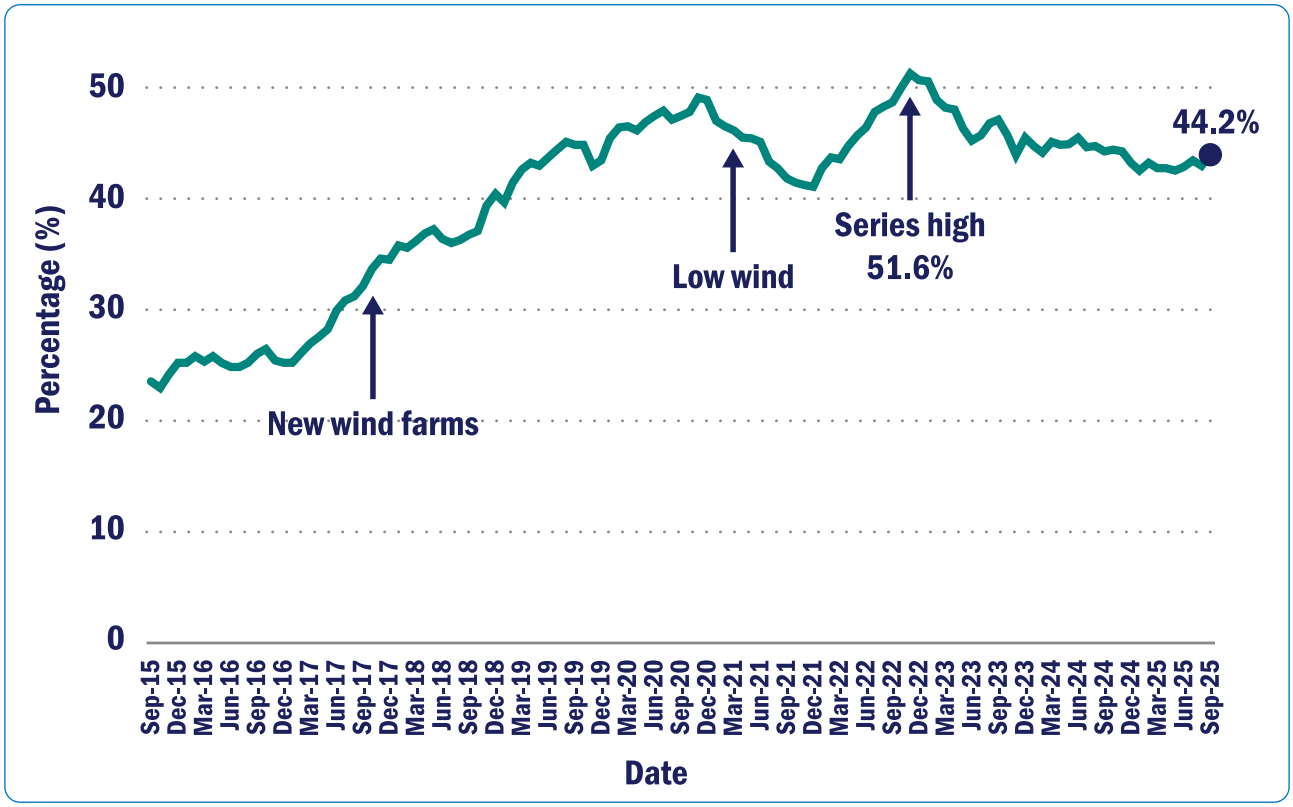
Renewables

Rolling 12-month local metered renewable electricity generation as a percentage of total metered electricity consumption, October 2024 to September 2025.



Renewable electricity consumption grew to achieve 40% by 2020, stimulated by the NIRO support scheme which closed to new entrants in 2017. As the figure below shows, a peak of close to 52% was reached three years ago and declined to the mid-40s over the past couple of years.

Indigenous renewable electricity generation as a percentage of electricity consumption in Northern Ireland, September 2015 to September 2025



Source: Energy Consumption and Renewable Generation in Northern Ireland.

Renewable electricity capacity has been stable over the past few years, however, there are a couple of structural reasons why the amount of it that has been used is lower:

1. After gas price rises in 2022, Single Electricity Market prices on the island of Ireland have tended to be higher than in GB, where there is a greater diversification of supply, with sources such as interconnection with Europe, nuclear and hydroelectric. This has increased the level of imports from Scotland through the Moyle Interconnector, lowering prices for consumers here, however, also displacing renewable electricity.
2. After the coal plant at Kilroot closed in 2023, higher levels of generation from the remaining thermal gas plants have been needed for system stability, displacing renewable electricity capacity.

There are several opportunities being developed which will turn this picture around and lead to rising levels of renewable electricity deployment over the coming years towards 2030, for example:

1. Synchronous condensers are due in 2027 which will displace gas plant and provide the conditions for increased amounts of existing renewable generation to be deployed.
2. Investment in the transmission and distribution grid.
3. Increased battery energy storage.
4. Increased electricity demand, particularly through heat pump and EV deployment.
5. The implementation of the Renewable Energy Price Guarantee support scheme will increase available renewable capacity.

3. Double the Size of the Low Carbon & Renewable Energy Economy to a turnover of more than £2 billion by 2030

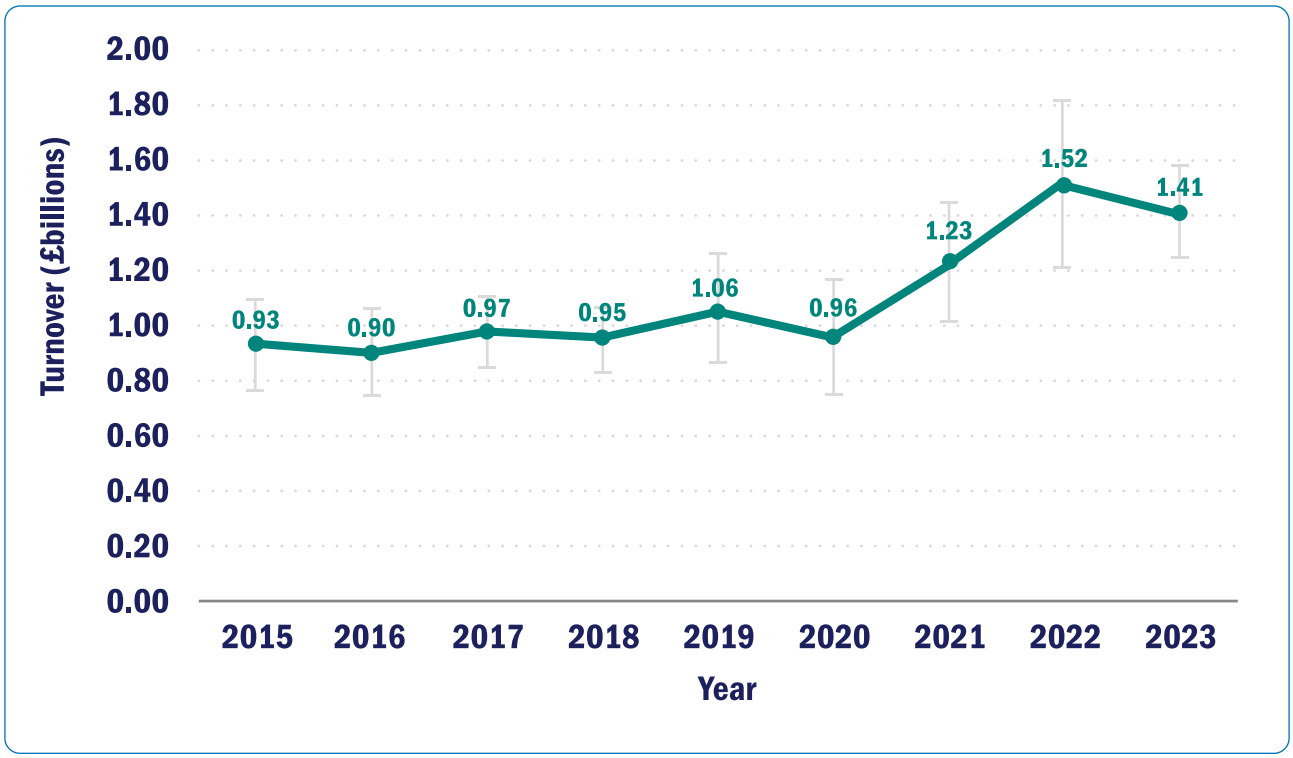
Green Economy
Low carbon and renewable energy economy (LCREE) turnover (current prices), 2023.

At the time the Strategy was launched in 2021, the latest low carbon and renewable energy economy (LCREE) turnover figure available was for 2019 (£1.06bn). The LCREE turnover (in current prices) was estimated to be £1.41 billion in 2023. LCREE turnover in 2023 was estimated to be 53% higher than the estimate in 2015 and 33% higher compared to 2019.

Due to the way that the formal statistical survey is carried out, the estimate is a midpoint of a range of potential values represented by the vertical bars on the chart below to aid interpretation of the accuracy of LCREE estimates.

Further information on how to interpret LCREE survey data is provided in Annex A.

Low carbon and renewable energy economy turnover (£billions, in current prices), 2015 to 2023.



Source: Low carbon and renewable energy economy, UK: 2023

Further details on the data related to the targets, as well as the status of the strategic metrics as of October 2025, can be found in Annex A: *Energy Strategy Targets and Metrics – A Statistical Report*.

Energy Evidence Programme Report

A commitment of the strategy was to produce a comprehensive energy evidence programme to inform policy decisions. This evidence programme will ensure we support the delivery of our vision with evidence-based policymaking.

In December 2021, alongside the Energy Strategy, the first Energy Evidence Programme report was published by the Department. This set out the research and evidence gathered to inform the Energy Strategy and outlined priority areas for research moving forward.

The second edition, available in Annex B of this report, https://www.economy-ni.gov.uk/articles/energy-evidence-programme and provides a summary of the work that has progressed since the Strategy launch and how we are continuing to build the evidence base in support the principles of the Energy Strategy, the objectives of the Minister's Economic Vision and to deliver against the targets established in the Climate Change Act (NI).

Department for the Economy
www.economy-ni.gov.uk

An Roinn Geilleagair

ANNEX A

ENERGY STRATEGY TARGETS AND METRICS

A STATISTICAL REPORT

DECEMBER 2025

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INTRODUCTION

This statistical report outlines the historical and current position for each Energy Strategy target and metric included in the Energy Strategy for Northern Ireland. It is accompanied by associated tables, an interactive dashboard and a methodology report. These are available on the Department's website.

The Energy Strategy for Northern Ireland set a long-term vision of net zero carbon and affordable energy for Northern Ireland. This requires the highest levels of energy efficiency, whilst making sure the energy comes from clean renewable sources. Two targets have been set to drive these changes:

1. **Energy Savings**: Deliver energy **savings** of **25%** from buildings and industry by 2030[1].
2. **Renewables**: Meet at least **80%**[2] of electricity consumption from a diverse mix of renewable sources by 2030.

The Energy Strategy is also about growing the Northern Ireland economy, attracting investment and positioning businesses to compete for the global investment in low carbon energy technologies. An economic target has therefore been set:

3. **Green Economy**: **Double the size** of our low carbon and renewable energy economy to a turnover of more than **£2 billion** by 2030.

The following metrics are presented:

- **Employment in the low carbon and renewable energy economy**
- **Greenhouse gas emissions from energy-related sectors**
- **Household energy expenditure relative to all expenditure**
- **Business energy purchases relative to turnover**
- **Fuel poverty in households**
- **Prices for electricity and gas**

When considering the data presented, local, national and international context in the years covered by these analyses should be borne in mind. This includes the impact of the COVID19 pandemic on the economy during 2020. Namely, the associated lockdown measures and prolonged periods of business closures. The latest data available for some metrics is 2021. This is due to the time involved in collection, analysis and publications of data.

1 The annual average [2016 - 2018] energy consumed across power and heat was calculated from the subnational total final energy consumption statistics published in July 2025. This equates to 27,681 GWh. A 25% energy saving of this figure is equivalent to 6,920 GWh. This is the value which the target is assessed against. See Annex C for further detail.

2 The 2021 Energy Strategy target of 70% has been superseded by the Climate Change Act (Northern Ireland) 2022 which set a target of at least 80% of electricity consumption from renewable sources by 2030.

OVERVIEW OF ENERGY STRATEGY TARGETS

Energy Savings

Target: Deliver energy savings of 25% from buildings and industry by 2030[3].

Figure 1: Estimated energy savings (GWh) resulting from policy interventions impacting heat and power use in Northern Ireland, October 2025

Notes:

- Estimated energy saved figure is based on data availability as at October 2025 and includes the following interventions: Affordable Warmth Scheme (AWS), Boiler Replacement Scheme (BRS), Thermal Improvement Programme, Gas Network Connections and General Determination (GD23), NI Sustainable Energy Programme (NISEP), Uplifts to Part F of the Building Regulations (NI) in 2022, The Energy Management Strategy and Action Plan to 2030 – Invest to Save Fund and Energy Savings Opportunity Scheme (ESOS).
- Data are available for interventions listed above for 2022, 2023 and 2024. However, for 2024, data are currently unavailable for NISEP [expected to be published in July 2026] and ESOS [expected to be published in June 2028].
- There are several interventions for which activity has occurred, but data are not published currently[4]. As a result, estimates of energy saved relating to these interventions are not available, however, there could be some energy saving impact in Northern Ireland.

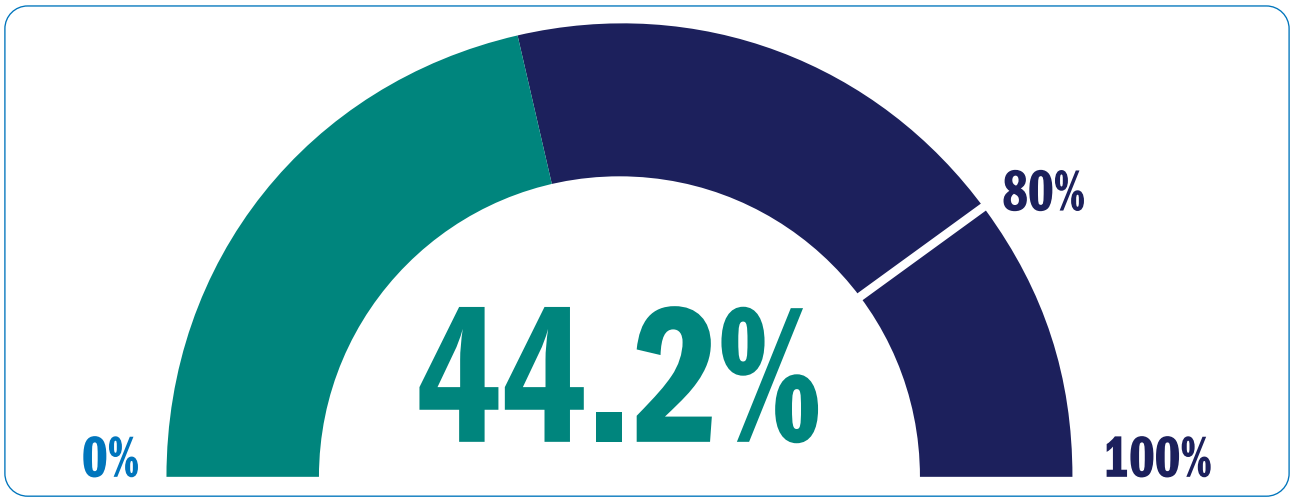
3 The annual average [2016 - 2018] energy consumed across power and heat (27,681 GWh) was calculated from the subnational total final energy consumption statistics published in July 2025. A 25% energy saving of this figure is equivalent to 6,920 GWh. This is the value which the target is assessed against. See **Annex A** for further detail.

4 This includes: The EU Eco-design Directive and the Energy Labelling Framework Regulation, Clean Heat Market Mechanism, Industrial Energy Transformation Fund (IETF) and Streamlined Energy and Carbon Reporting (SECR). As new data becomes available, the corresponding methodologies will be reviewed to establish if energy saved can be determined.

Renewables

Target: Meet at least 80% of electricity consumption from a diverse mix of renewable sources by 2030.

Figure 2: Indigenous renewable electricity generation as a percentage of electricity consumption in Northern Ireland[5], September 2025



Source: DfE (Electricity Consumption and Renewable Generation Statistics)

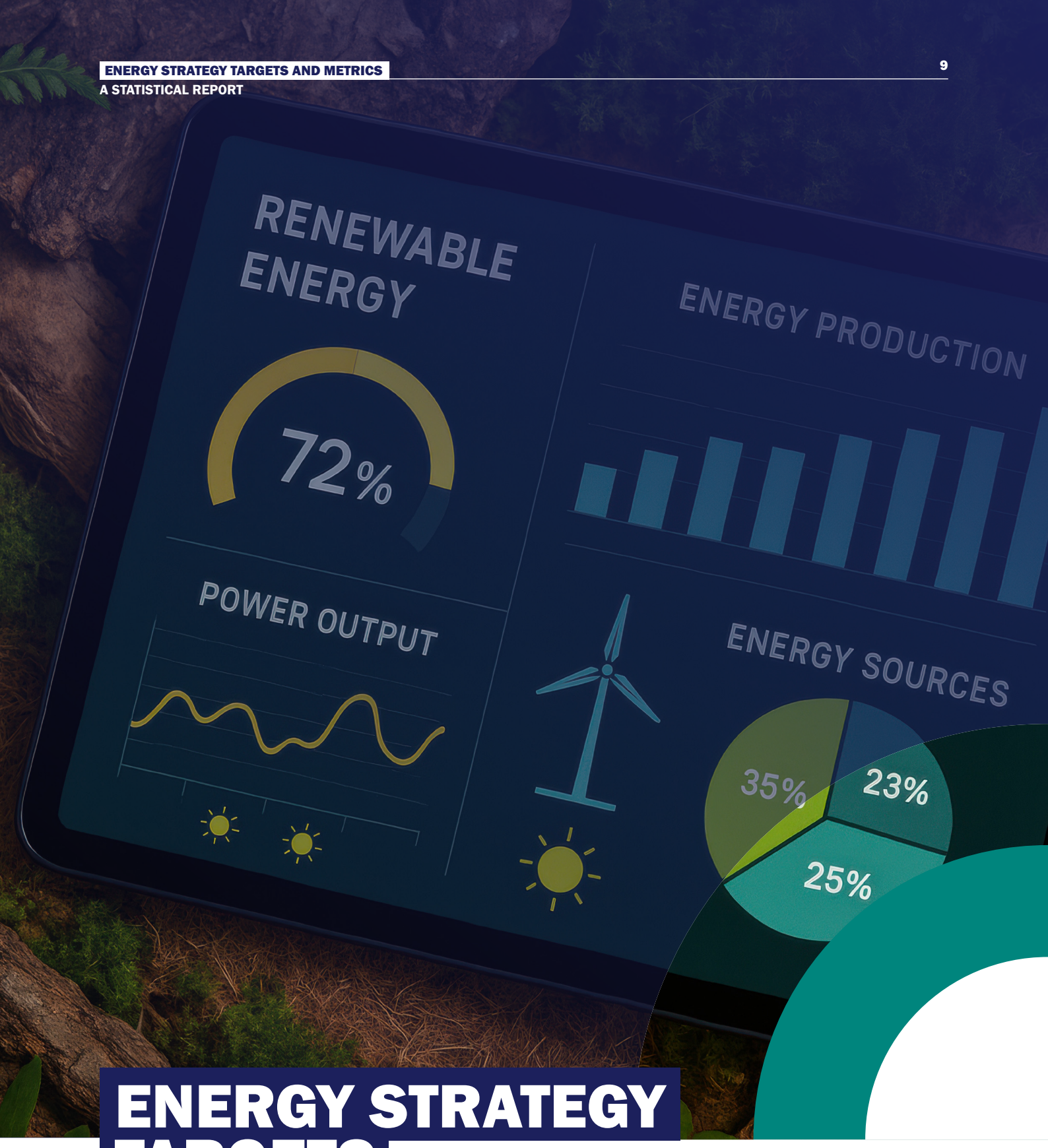
Green Economy

Target: Double the size of our low carbon and renewable energy economy to a turnover of more than £2 billion.

Figure 3: Low carbon and renewable energy economy (LCREE) turnover (current prices[6]) in Northern Ireland, 2023

Source: Office for National Statistics (ONS) (Low Carbon and Renewable Energy Economy, UK: 2023)

5 Based on a rolling 12-month average.
6 Current prices mean the figures are not adjusted for inflation.



ENERGY STRATEGY TARGETS

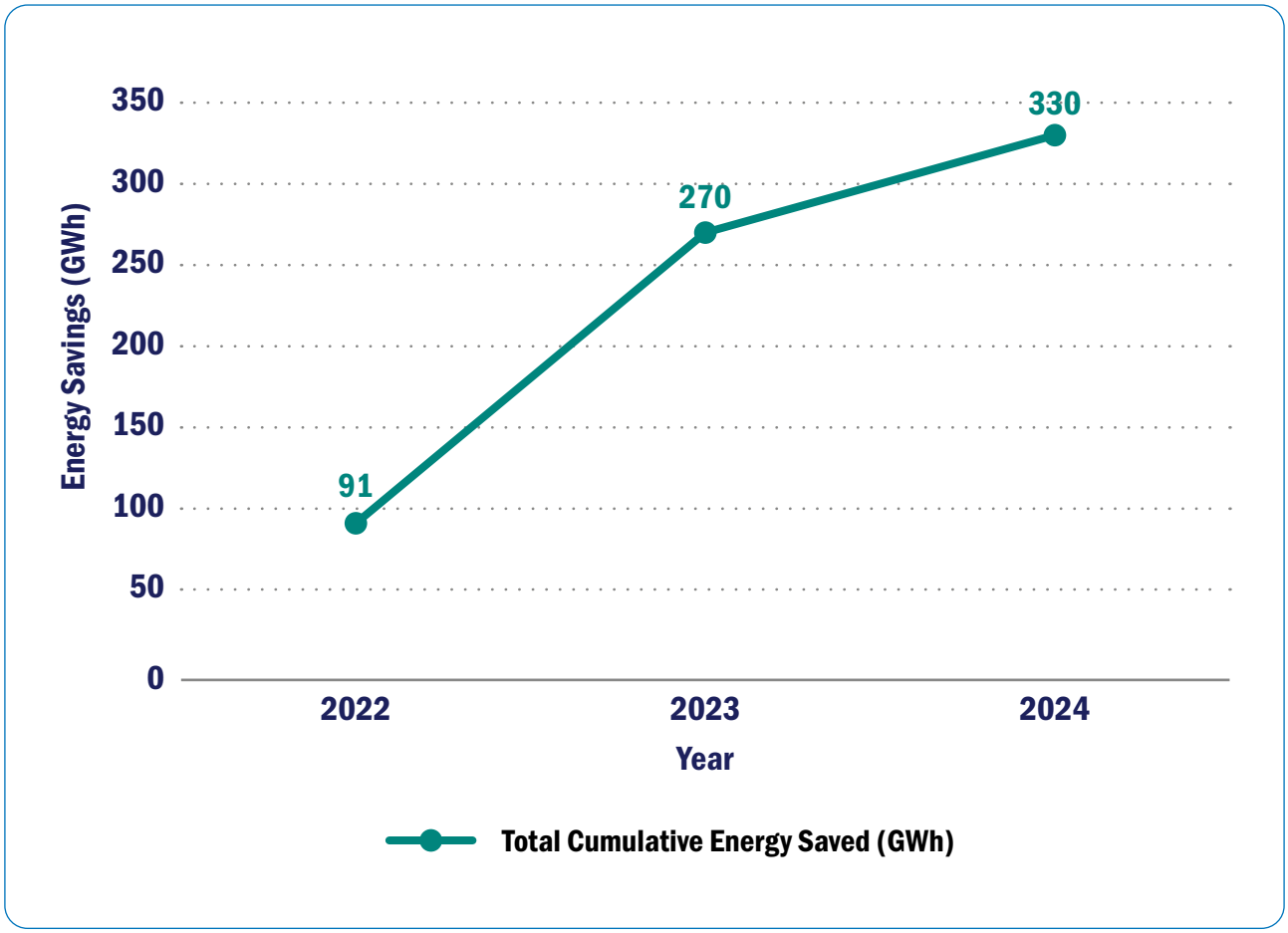
Energy Savings

Target: Deliver energy savings of 25% from buildings and industry by 2030[3].

Based on the available data as of October 2025, the estimated total energy saved since the introduction of the energy strategy was 329.7 GWh; 4.8% of the target.

The data indicates low progress against the target. However, data availability is limited, as data are either not published or disaggregated by region[4].

Figure 4: Estimate of total energy saved (GWh) due to policy interventions by year in Northern Ireland, 2022 to 2024



Source: DfE (These data are classified as management information, that is, information collected primarily for internal operational, or management purposed within departments, rather than for public statistical reporting. The data are collated for multiple interventions from multiple sources[7]. See footnote for full list.)

7 Data are compiled each year from the following interventions:
For 2022: Affordable Warmth Scheme (AWS), Boiler Replacement Scheme (BRS), Thermal Improvement Programme, Gas Network Connections General Determination (GD23), NISEP, Uplifts to Part F of the Building Regulations (NI) in 2022 and Invest to Save.
For 2023: AWS, BRS, Thermal Improvement Programme, GD23, NISEP, Uplifts to Part F of the Building Regulations (NI) in 2022, ESOS and Invest to Save.
For 2024: AWS, Thermal Improvement Programme, GD23, Uplifts to Part F of the Building Regulations (NI) in 2022 and Invest to Save.

Final energy consumption by Power, Heat and Transport

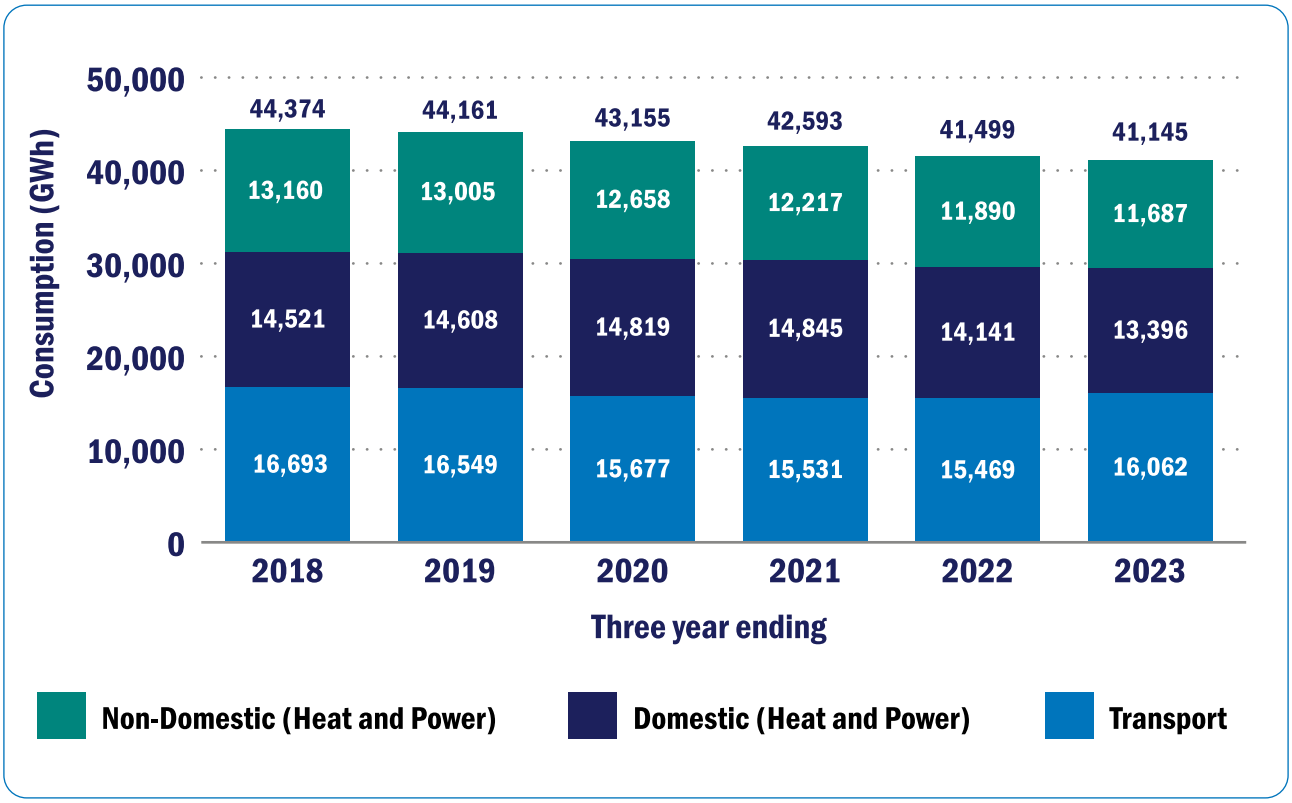
For additional context, Figure 5 illustrates the final energy consumption (annual average over three years) by Power, Heat (domestic and non-domestic), and Transport for each of the three-year periods ending 2018 through to 2023.

Total final energy consumption has declined steadily over the period with a decrease of 7% from the three-year annual average ending 2018 (44,374 GWh) to the equivalent ending 2023 (41,145 GWh).

The final energy consumption for Heat and Power, both domestic and non-domestic, has decreased by 9% from the three-year annual average ending 2018 (27,681 GWh) to the equivalent ending 2023 (25,083 GWh).

The final energy consumption for Transport saw a decrease of 7% from the three-year annual average ending 2018 (16,693 GWh) to the equivalent ending 2022 (15,469 GWh), followed by a 4% increase from 2022 to equivalent ending 2023. Final energy consumption for Transport has nearly returned to pre-pandemic levels.

Figure 5: Final energy consumption (GWh) by Domestic, Non-Domestic (Heat and Power) and Transport, in Northern Ireland, three-year periods ending 2018 to 2023[8]



Source: *Total final energy consumption at regional and local authority level: 2005 to 2023*

8 Figures are based on an annual average over a three-year period

Renewables

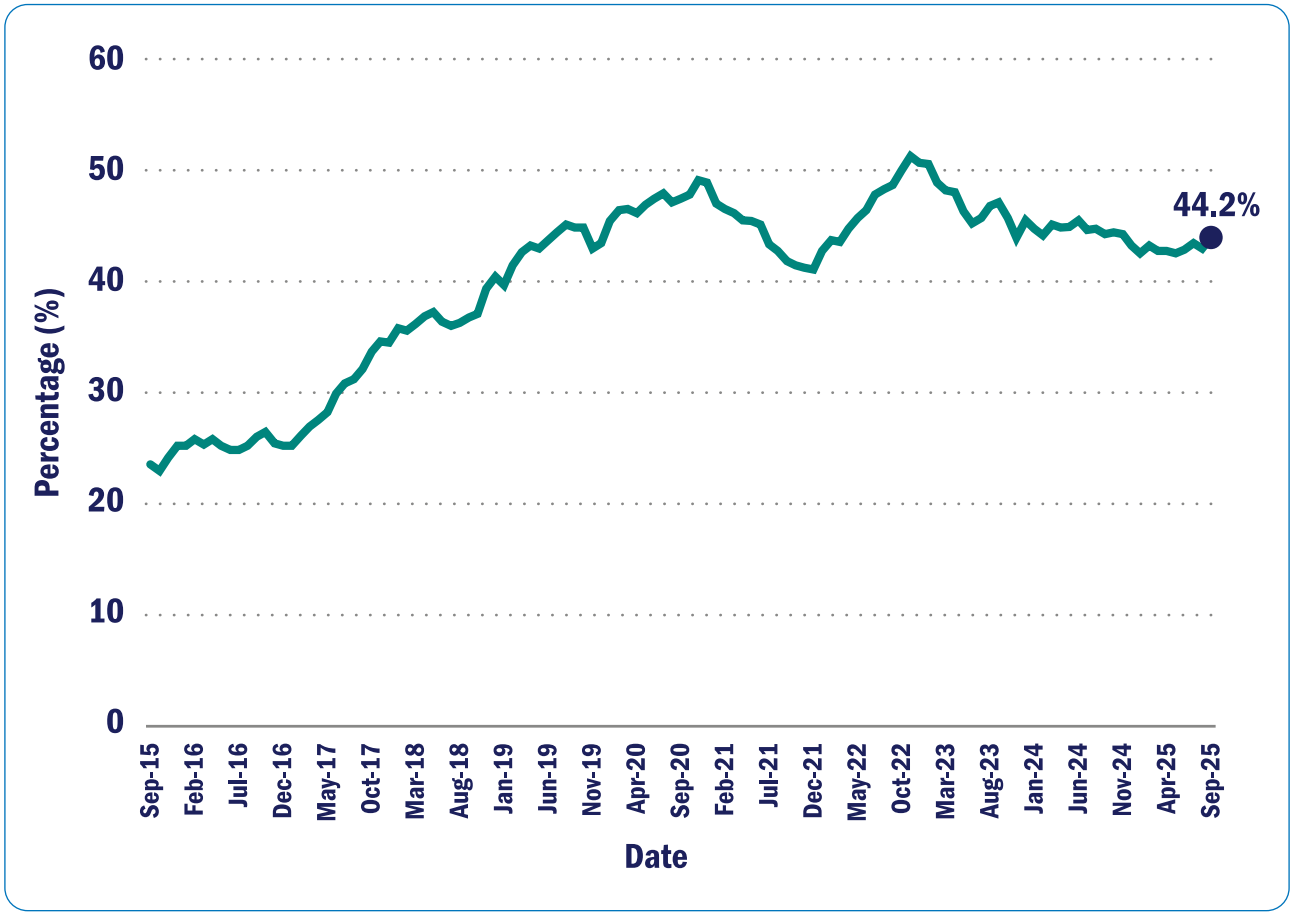
Target: Meet at least 80%[2] of electricity consumption from a diverse mix of renewable sources by 2030.

For the 12-month period October 2024 to September 2025, 44.2% of total metered electricity consumption in Northern Ireland was generated from metered renewable sources located in Northern Ireland. This represents a decrease of 0.3 percentage points on the previous 12-month period (October 2023 to September 2024). A peak of 51.6% was observed in the 12-month period November 2021 to November 2022.

In the 12-month period to September 2025, 7,279 GWh of electricity was consumed in NI. Over the same period, 3,219 GWh was generated from renewable sources located in Northern Ireland.

Wind generation accounted for 82% (2,645 GWh) of renewable electricity generation for year ending September 2025.

Figure 6: Indigenous renewable electricity generation as a percentage of electricity consumption in Northern Ireland[9], September 2015 to September 2025



Source: DfE (Electricity Consumption and Renewable Generation Statistics)

9 Based on a rolling 12-month average

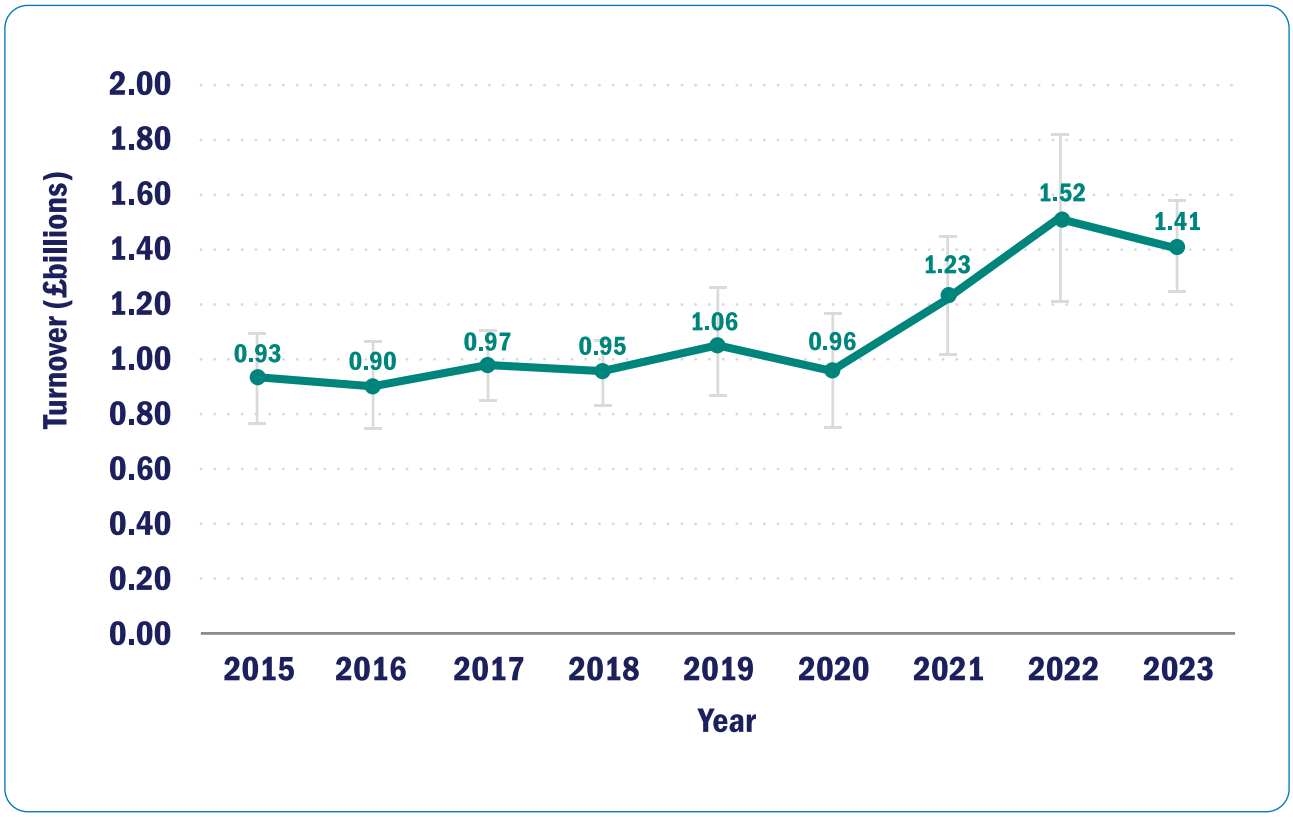
Green Economy

Target: Double the size of our low carbon and renewable energy economy to a turnover of more than £2 billion by 2030.

NI low carbon and renewable energy economy (LCREE) turnover (in current prices[6]) was estimated to be £1.41 billion in 2023, which was a decrease of 7% on the previous year. NI LCREE turnover in 2023 was estimated to be 53% higher than the estimate in 2015.

The estimate is a midpoint of a range of potential values represented by the vertical bars on the chart to aid interpretation of the accuracy of LCREE estimates (see Annex B: Background Notes for further information on LCREE survey data).

Figure 7: Low carbon and renewable energy economy turnover (£ billions, in current prices) in Northern Ireland, 2015 to 2023



Source: ONS (Low Carbon and Renewable Energy Economy, UK: 2023)

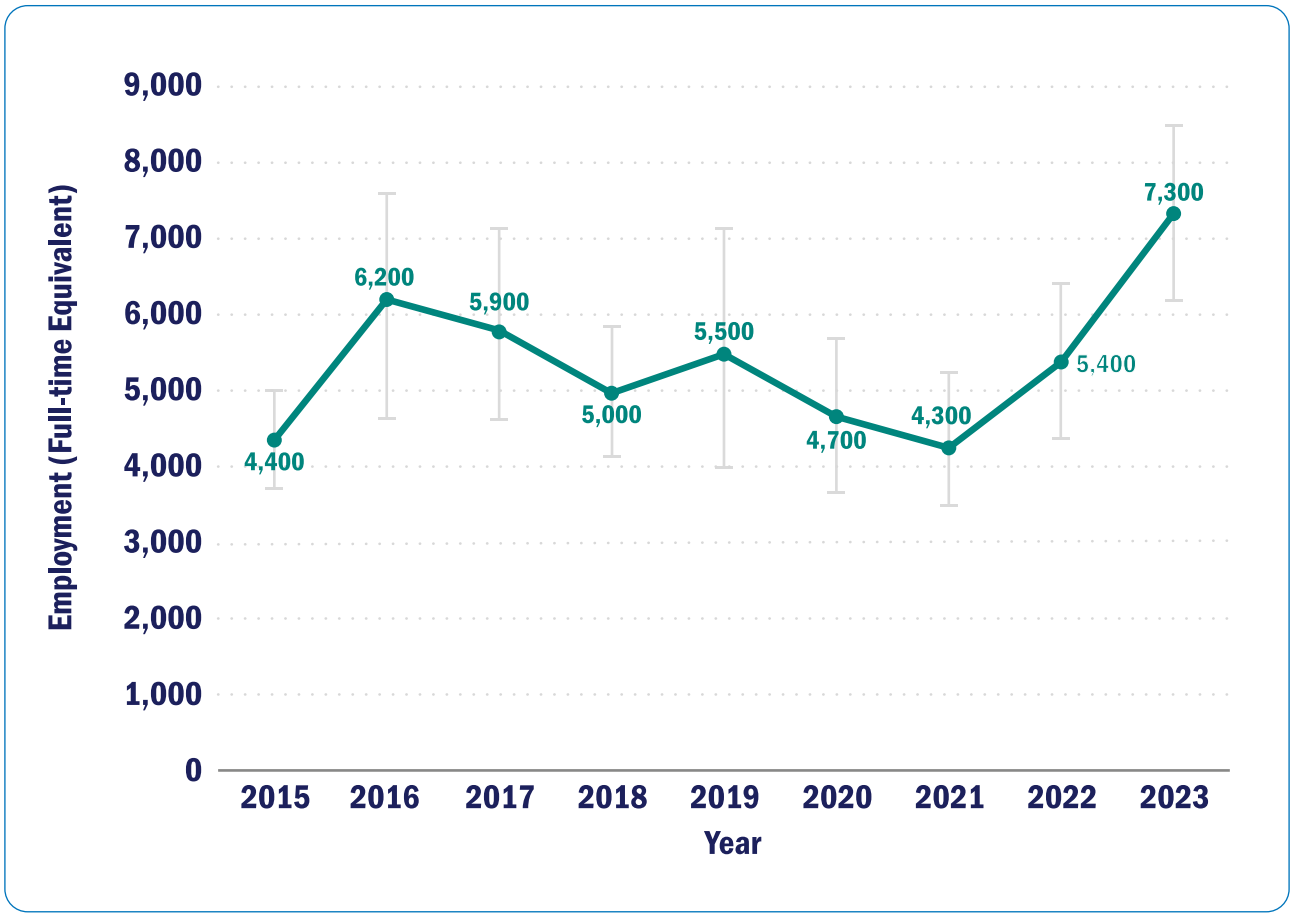
ENERGY STRATEGY METRICS

Low carbon and renewable energy economy (LCREE) employment

NI LCREE employment was estimated as 7,300 full-time equivalents (FTEs) in 2023. This is an increase of 35% on the 2022 estimate (5,400).

The NI LCREE FTE estimate in 2023 was 66% higher than the 2015 estimate.

Figure 8: Low carbon and renewable energy economy employment (full-time equivalent) in Northern Ireland, 2015 to 2023



Source: ONS (Low Carbon and Renewable Energy Economy, UK: 2023)

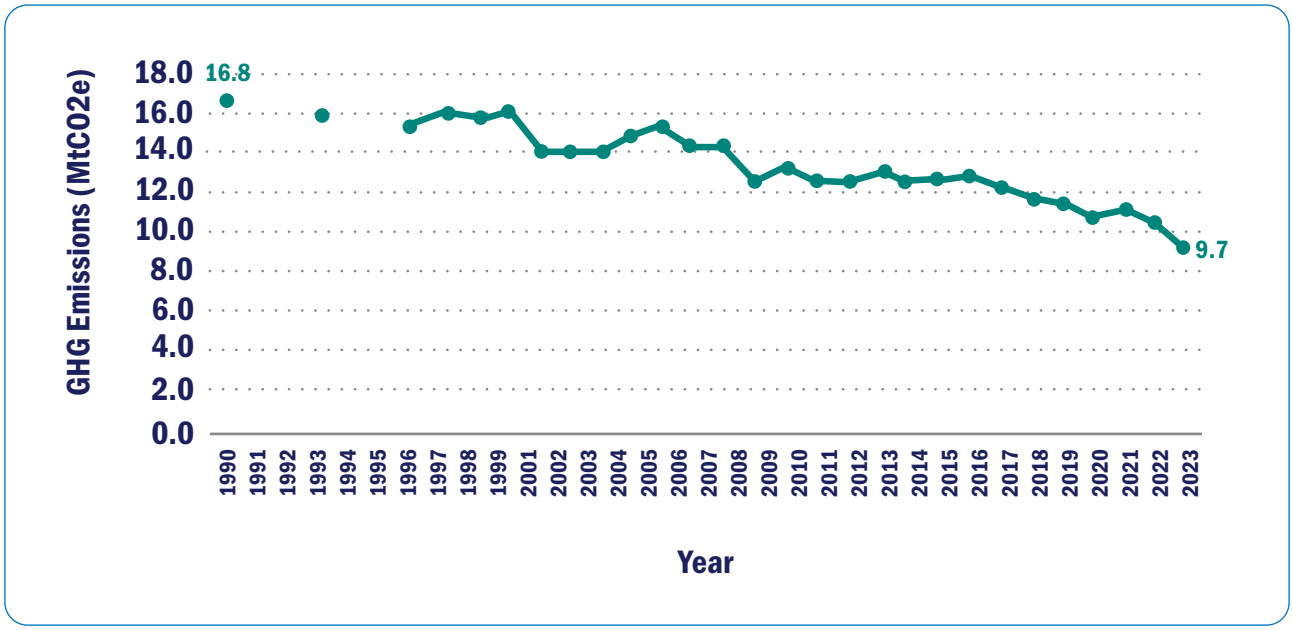
Greenhouse gas emissions from energy-related sectors

Metric: To reduce energy-related emissions by 56% by 2030 relative to 1990 levels.

The energy strategy addresses all greenhouse gas (GHG) emissions from energy-related sectors[10] in Northern Ireland.

For energy-related sectors, all GHG emissions decreased by 42% (7.1 $MtCO_2e$) from 1990 to 2023 and decreased by 12% (1.3 $MtCO_2e$) over the year to 2023.

Figure 9: Greenhouse gas emissions ($MtCO_2e$) for energy-related sectors in Northern Ireland, 1990 (base year[11]) to 2023



Source: Department of Agriculture, Environment and Rural Affairs (DAERA) (Northern Ireland Greenhouse Gas Inventory)

10 Energy-related sectors are specified in The Energy Strategy for Northern Ireland – The Path to Net Zero Energy and are the National Communication sectors: Business; Energy Supply; Industrial Processes; Public; Residential; and Transport.

11 The Climate Change Act (Northern Ireland) 2022 specifies the baseline for GHG emissions in Section 7 (1). The base year for CO2, CH4 and N2O is 1990 and for fluorinated gases it is 1995. For reporting within this document, 1990 refers to base year data for all types of gas.

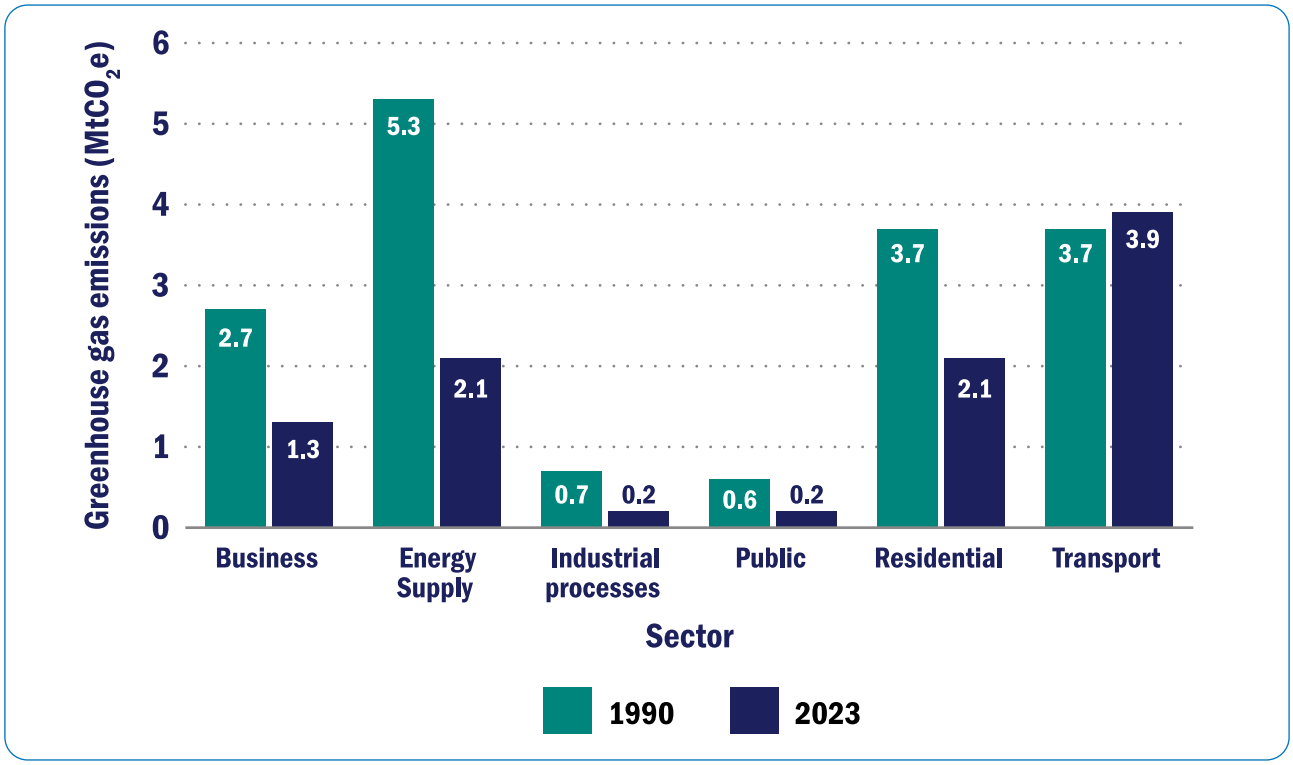
Changes in GHG emissions for energy-related sectors from baseline to 2023

The decrease in energy-related sector GHG emissions over the period from the base year to 2023 was driven by the Energy Supply and Residential sectors.

Energy Supply GHG emissions decreased by 60% (3.2 $MtCO_2e$) and Residential decreased by 45% (1.7 $MtCO_2e$) over the period.

Transport was the only sector to have seen an increase (0.1 $MtCO_2e$ or 4%) in emissions since the base year. Transport emissions reached a peak in 2007 (4.9 $MtCO_2e$), dipped sharply during the COVID-19 pandemic and have yet to rise to pre-pandemic levels.

Figure 10: Greenhouse gas emissions ($MtCO_2e$) from energy-related sectors by sector in Northern Ireland, 1990 (base year[11]) and 2023



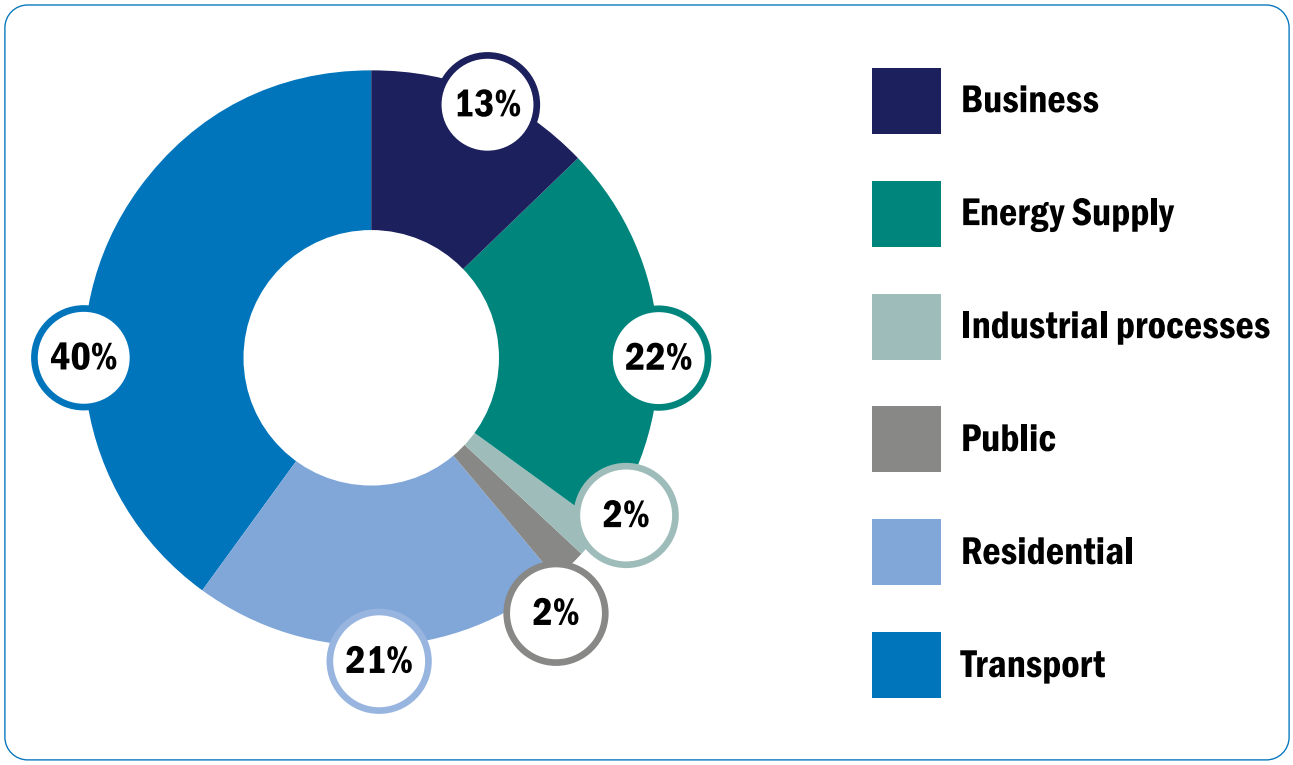
Source: Department of Agriculture, Environment and Rural Affairs (DAERA) (Northern Ireland Greenhouse Gas Inventory)

GHG emissions for energy-related sectors, 2023

Transport accounted for the highest proportion (40%) of energy-related sector GHG emissions in 2023.

GHG emissions fell by 29% in Energy Supply from 2022 to 2023. Residential emissions dropped by 14%, Business dropped by 6%, and Transport dropped by 0.3% over the same period.

Figure 11: Proportion of greenhouse gas emissions by energy-related sector in Northern Ireland, 2023



Source: Department of Agriculture, Environment and Rural Affairs (DAERA) (Northern Ireland Greenhouse Gas Inventory)

Affordability Metric: Household energy expenditure relative to all expenditure

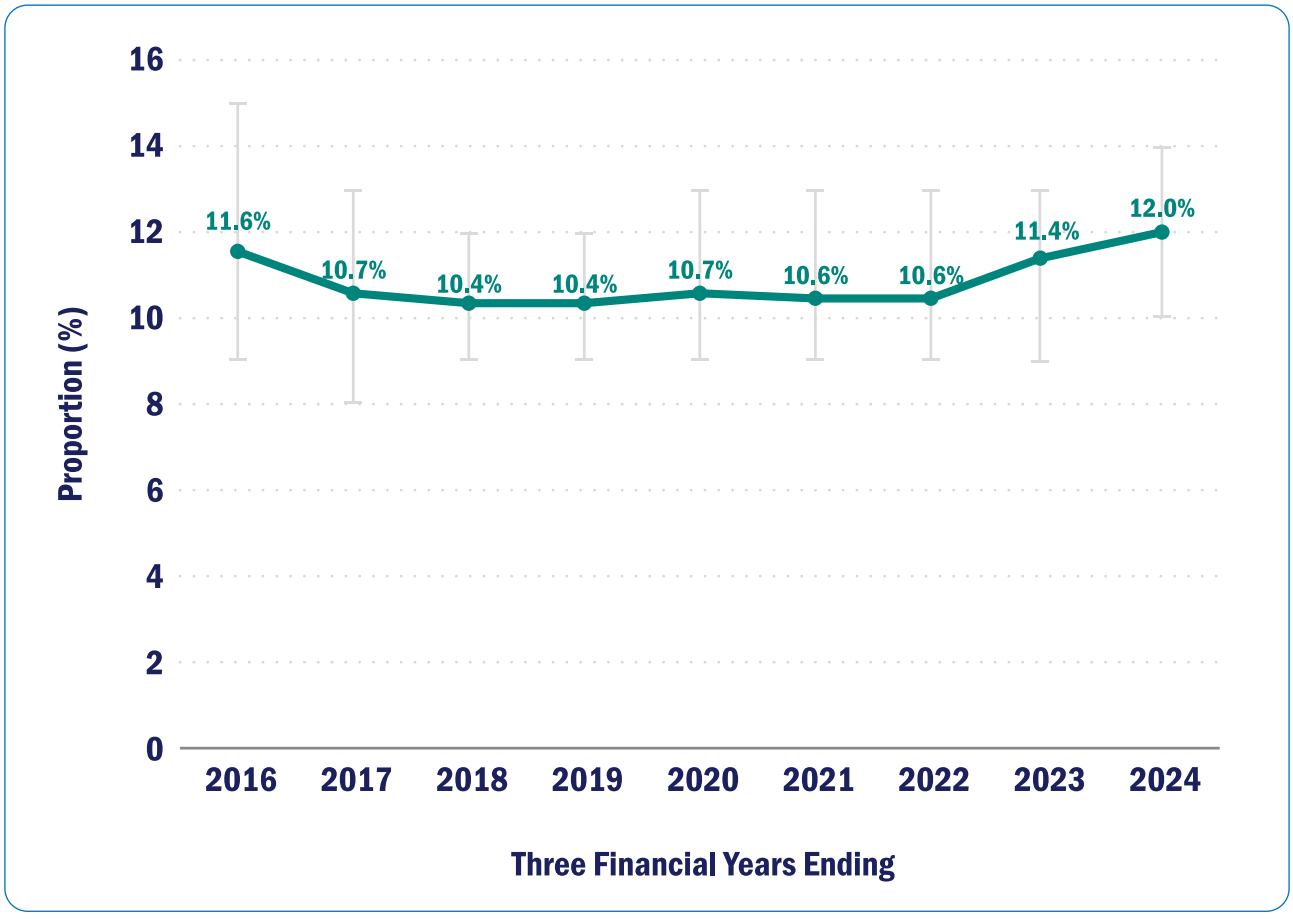
The proportion of household weekly income spent on energy, in Northern Ireland, was **12%** on average across the three financial years 2021/22 to 2023/24. **There has been no significant change in this figure since financial year ending 2016.**

Household expenditure on Electricity and Gas was 27% of the total household spend on energy in financial year ending 2016. This estimate has risen to 35% in financial year ending 2024.

The proportion of household energy expenditure spent on petrol, diesel and other motor fuels fell to 43% in the financial year ending 2024 from 52% in the financial year ending 2016.

Northern Ireland consistently spends a higher proportion of household weekly income on energy than any of the other three UK regions.

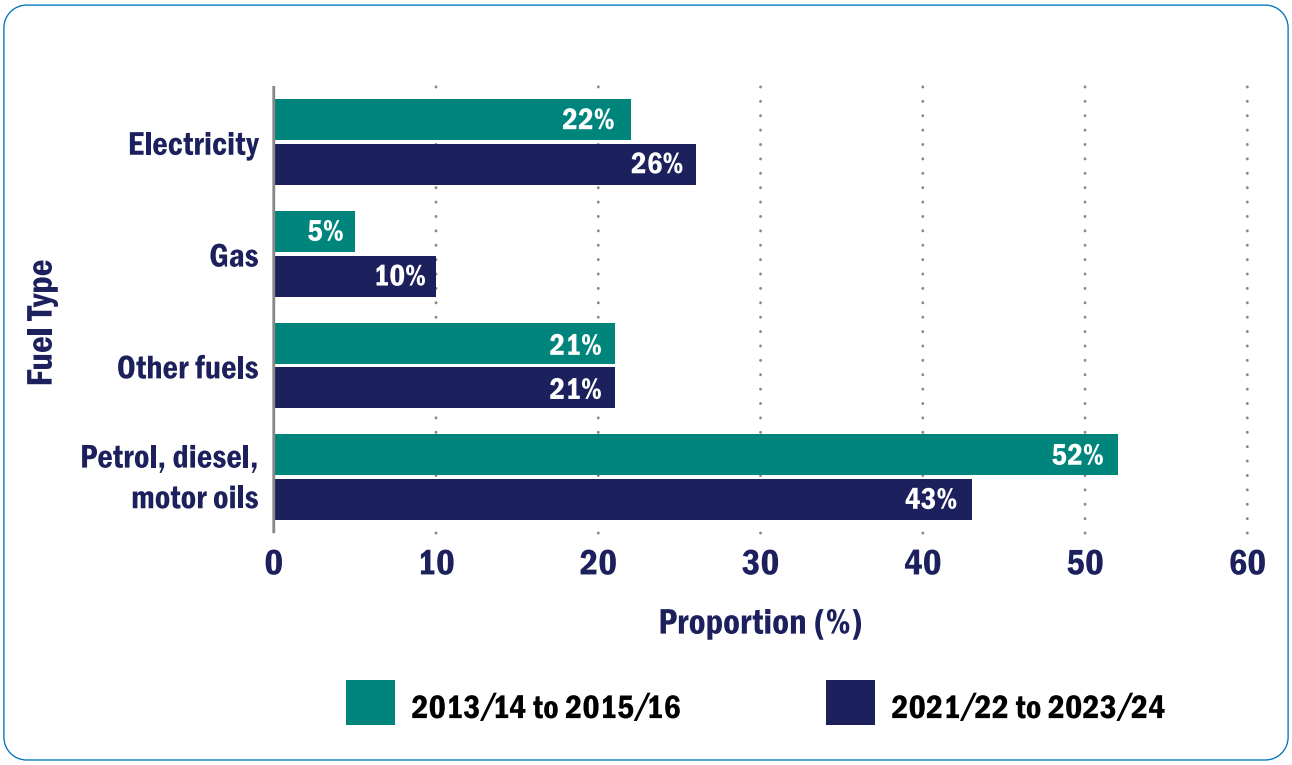
Figure 12: Average weekly household energy expenditure as a proportion of total household expenditure, savings and transfers in Northern Ireland[12], three financial years ending 2016 to 2024



Source: ONS, Living Costs and Food Survey 2024 (Family spending in the UK: April 2023 to March 2024)

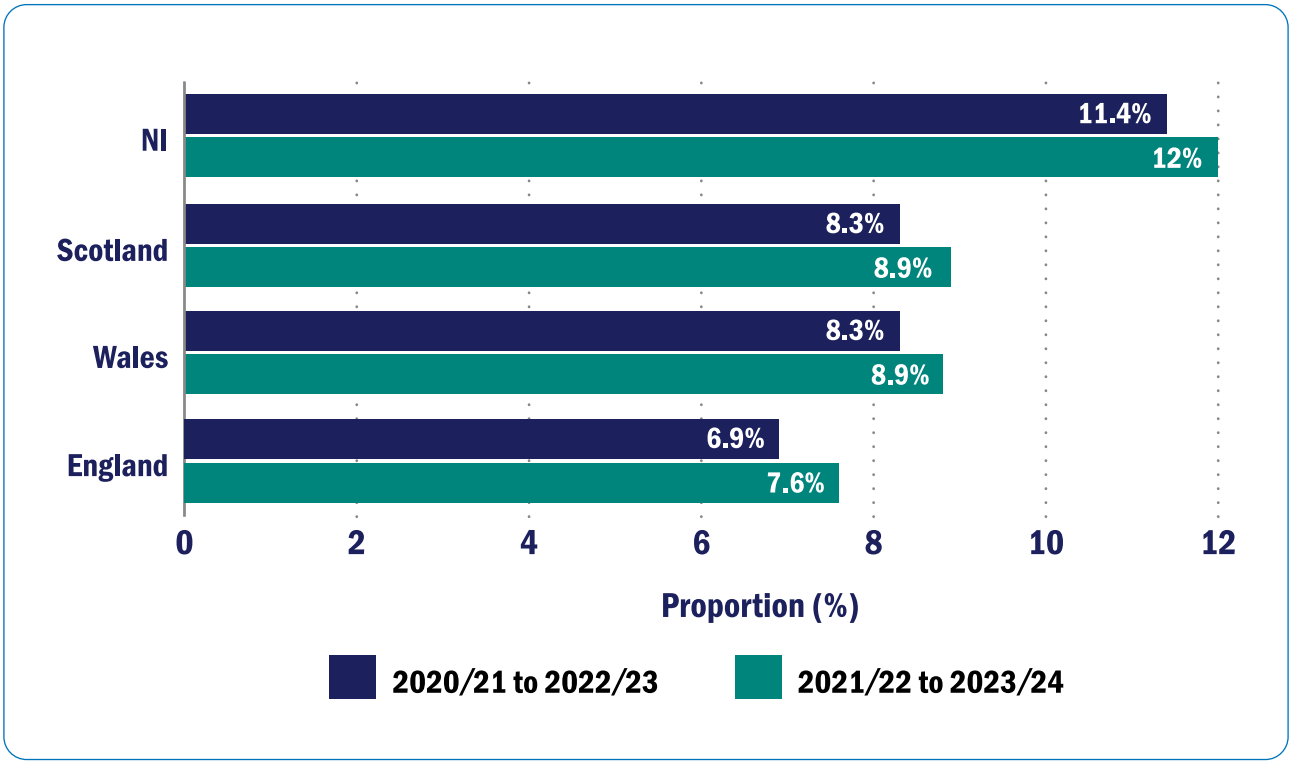
12 Figures are based on a three financial years' average.

Figure 13: Proportion of average weekly household energy expenditure by fuel type in Northern Ireland[12], three financial years ending 2016 and 2024



Source: ONS, Living Costs and Food Survey 2024 (Family spending in the UK: April 2023 to March 2024)

Figure 14: Average weekly household energy expenditure as a proportion of total household expenditure, savings and transfers by UK region[12], three financial years ending 2023 and 2024



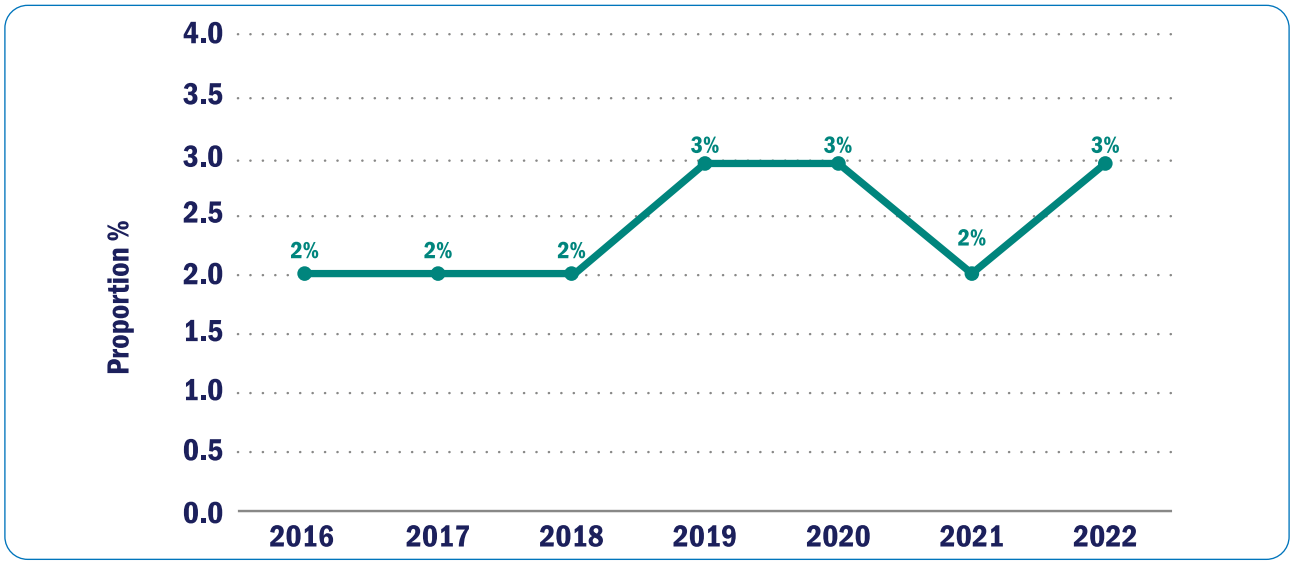
Source: ONS, Living Costs and Food Survey 2024 (Family spending in the UK: April 2023 to March 2024)

Affordability Metric: Business energy purchases relative to turnover

Businesses in Northern Ireland spent £2.2bn on energy in 2022. This accounted for 3% of total business turnover.

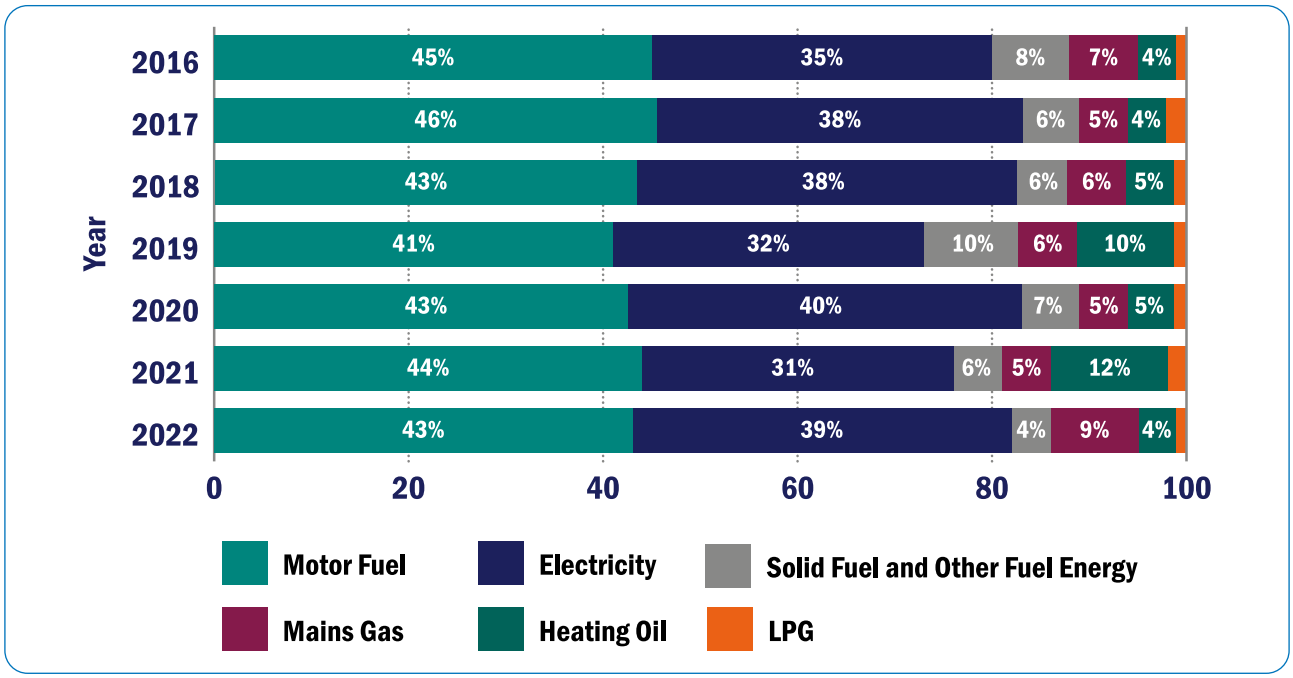
Of all energy purchased by businesses, Motor Fuel (43%) and Electricity (39%) account for the majority of the spend. The proportion of Solid Fuel and Other Fuel Energy has decreased by 4 percentage points since baseline in 2016 to 2022. The proportion spent by businesses on Mains Gas increased by 2 percentage points over the same period.

Figure 15: Business energy purchases as a proportion of turnover, 2016 to 2022



Source: Northern Ireland Statistics and Research Agency (NISRA), Annual Business Inquiry (Data obtained by DfE)

Figure 16: Proportion of business energy purchases by fuel type in Northern Ireland, 2016 to 2022



Source: Northern Ireland Statistics and Research Agency (NISRA), Annual Business Inquiry (Data obtained by DfE)

Affordability Metric: Households in fuel poverty

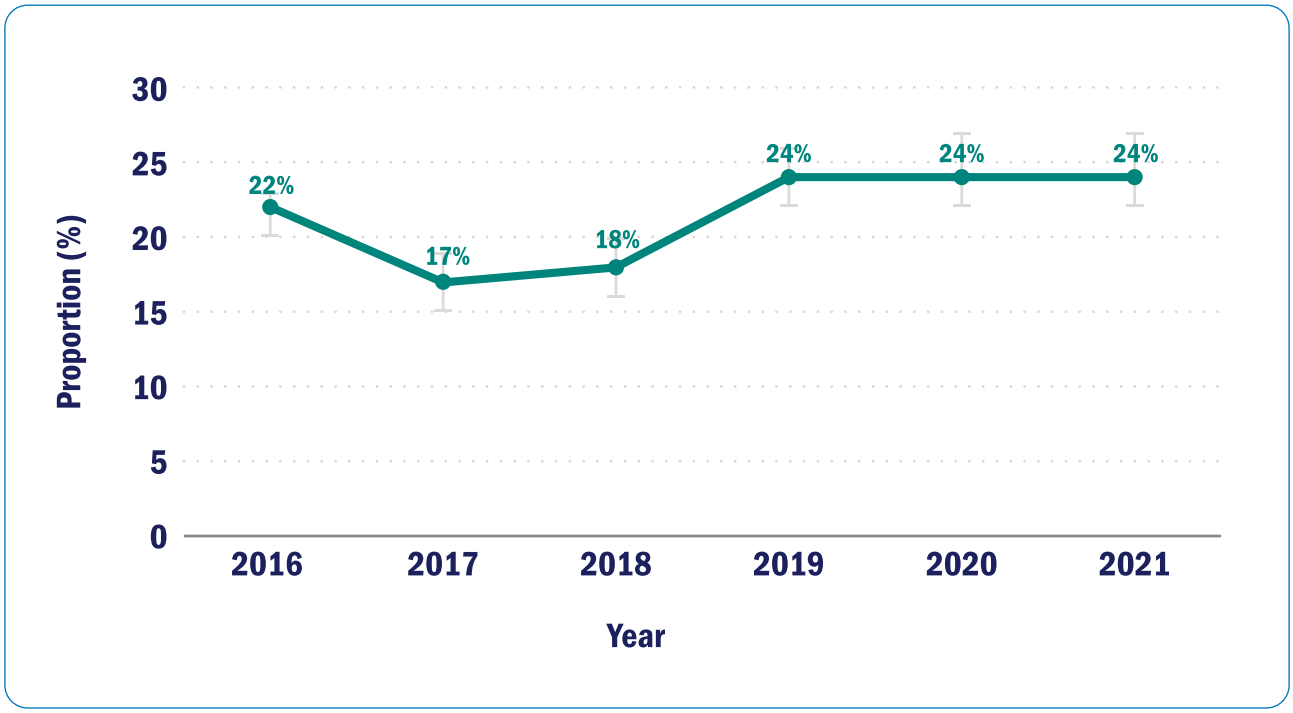
In Northern Ireland, fuel poverty is defined under the 10% fuel poverty methodology, where a household is considered in fuel poverty if, in order to maintain a satisfactory level of heating (21°C in the main living room and 18°C in other occupied rooms), it is required to spend more than 10% of its household income on all fuel use.

Fuel poverty under the 10% methodology is determined by three components: fuel prices, energy consumption (which combined with fuel prices, forms the household costs) and household income.

It is currently not possible to get a UK figure of fuel poverty. In England, fuel poverty strategy is focused on prioritising low-income households for energy efficiency support, while Scotland and Wales do not make this distinction. How fuel poverty is measured in the UK: March 2023 provides further details.

It was estimated that there were 179,000 households (24%) in Northern Ireland in fuel poverty in 2021[13]. This estimate was an increase on the 2016 figure of 160,000 households (22%). However, the increase was not statistically significant.

Figure 17: Proportion of households in fuel poverty in Northern Ireland, 2016 to 2021



Source: Northern Ireland Housing Executive (NIHE), Northern Ireland House Condition Survey, 2016. Subsequent years are modelled estimates (Estimates of fuel poverty in Northern Ireland in 2020 and 2021)

13 Fuel poverty estimates for 2016 were obtained from the Northern Ireland House Condition Survey, 2016. Subsequent estimates were modelled from the 2016 survey data with adjustments for fuel prices, household incomes and energy efficiency.

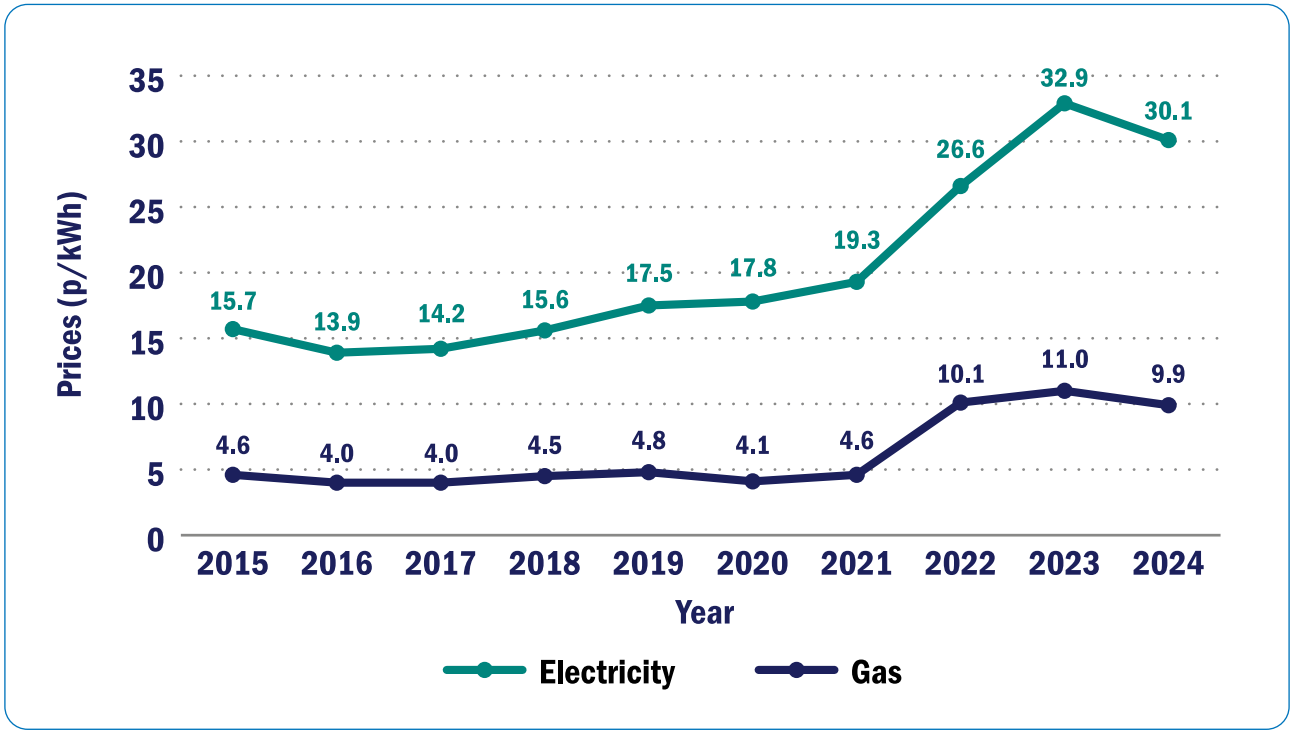
Affordability Metric: Electricity and gas prices

Domestic

The domestic electricity price[14] was 30.1 p/kWh in the second half of 2024. This is a decrease of 9% on the equivalent figure for the previous year (32.9 p/kWh) an increase of 92% on the 2015 figure (15.7 p/kWh).

The domestic gas price[15] was 9.9 p/kWh in the second half of 2024. This is a decrease of 10% on the equivalent figure for the previous year (11.0 p/kWh) and an increase of 115% on the 2015 figure (4.6 p/kwh).

Figure 18: Domestic electricity and gas prices in Northern Ireland, July to December 2015 to 2024



Source: Northern Ireland Authority for Utility Regulation (NIAUR) (2024 Annual Retail Energy Market Monitoring Report)

14 Domestic electricity prices are presented for medium sized domestic customers which have an annual consumption between 2,500 and 4,999 kWh.

15 Domestic gas prices are presented for medium sized domestic customers which have an annual consumption between 5,557 and 55,557 kWh. The Northern Ireland unit gas price is the average pence per kWh for medium customers for the Greater Belfast, Ten Towns and West network areas.

Industrial and Commercial

The price of electricity for industrial and commercial purposes varied from 28.5 p/kWh for very small consumers to 16.9 p/kWh for the large/very large consumer group. Electricity prices have more than doubled for all industrial and commercial groups since 2015. Although the large/very large group paid the lowest unit price, they experienced the largest percentage increase over the period.

Table 1: Price of electricity for the Industrial and Commercial sector by consumption size band in Northern Ireland, July to December 2015 and 2024

Electricity Price (p/kWh) Consumption Size Band	2015	2024	Percentage Change
Very Small	14.2	28.5	101%
Small	12.4	26.1	110%
Small/Medium	11.1	22.8	105%
Medium	9.4	19.6	109%
Large/Very Large	7.9	16.9	114%

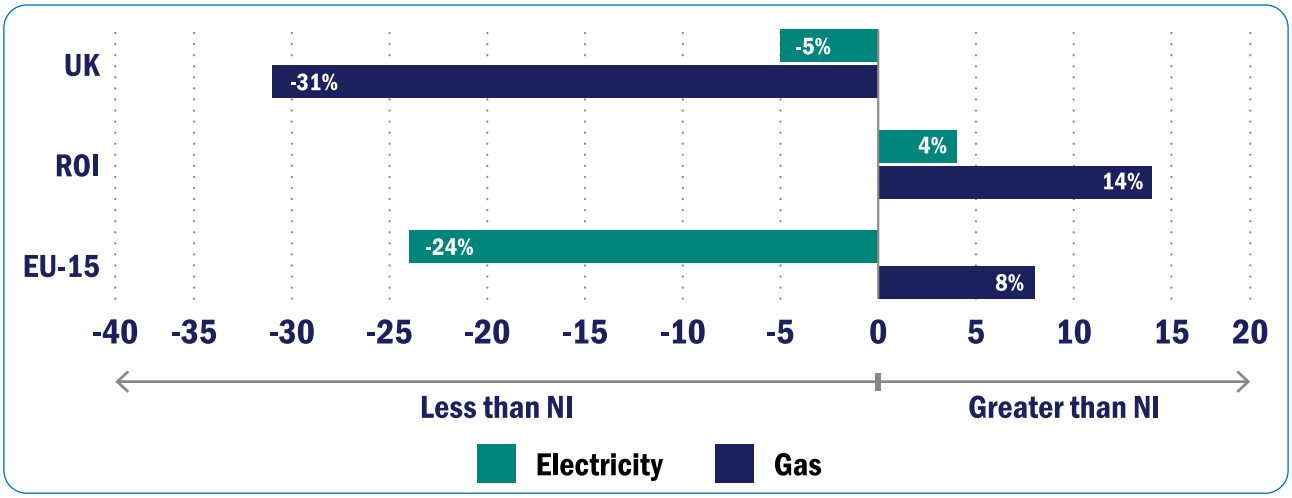
Source: Northern Ireland Authority for Utility Regulation (NIAUR) (2024 Annual Retail Energy Market Monitoring Report)

Region Comparison

Domestic electricity prices were lower in the United Kingdom (UK) and European Union (EU-15[16]) relative to Northern Ireland (NI) in the second half of 2024.

Domestic gas prices in the Republic of Ireland (ROI) and EU-15 were both higher than prices in NI for the second half of 2024. Domestic gas prices in the UK were lower than NI for the same period.

Figure 19: Domestic electricity prices for EU-15, ROI and UK relative to NI, July to December 2024



Source: Northern Ireland Authority for Utility Regulation (NIAUR) (2024 Annual Retail Energy Market Monitoring Report)

16 EU-15 refers to the group of 15 European Union member states that made up the EU before it's enlargement in 2004. The data presented in the chart is the **median** value for the 15 countries.

ANNEX A: BASELINE FOR ENERGY SAVING TARGET

The Energy Strategy for Northern Ireland sets out a target to 'Deliver energy savings of 25% from buildings and industry by 2030'.

To assess progress against this target, a baseline level of energy consumption across power and heat had to be established. At the time of the Energy Strategy release, the annual average energy consumption across power and heat in Northern Ireland, for the period 2016–2018[17], was calculated using the subnational total final energy consumption statistics[18] published by the Department for Energy Security and Net Zero (DESNZ) in 2020.

Each year, the subnational total final energy consumption statistics are revised back to 2005 to incorporate the latest data and methodological improvements. This mirrors the approach for updating the annual greenhouse gas inventory, where percentage change in greenhouse gases, used to monitor progress towards climate legislation targets, are calculated using revised baseline figures. In both cases, ongoing updates ensure baseline figures remain accurate over time. As a result, when progress is measured against energy saving the changes are calculated using the most up to date baseline data, providing a robust foundation for assessment in line with evolving methodologies.

Revisions are made in line with the DESNZ statistical revisions policy. Further information on the methodology and revision process is available in the following published documents:

- Subnational consumption statistics methodology
- Subnational road transport fuel consumption statistics methodology
- Subnational residual fuel consumption statistics methodology

In the most recent publication [July 2025], the annual average energy consumption across power and heat in Northern Ireland, for the period 2016–2018, was 27,681 GWh. A 25% energy saving of this figure is equivalent to 6,920 GWh. This is the value which the target is assessed against.

Table 2: Differences in the annual average energy consumption [2016–2018] across heat and power in Northern Ireland, with corresponding 25% target, by year of statistical release.

Year of Statistical Release	Total NI Energy Consumption (Heat and Power)	25% of the total NI Energy Consumption (Heat and Power)
2020*	32,188	8,047
2025	27,681	6,920

Notes: **Baseline at time of Energy Strategy Release*

17 The available data in 2020 pertained to the year 2018.Energy consumption across heat and power can vary from year to year. This variation can be due to factors such as weather. The use of a three-year average helps smooth this variability and minimises the impact of fluctuations in the data.

18 This publication is an Accredited Official Statistic (referred to as National Statistics in the Statistics and Registration Service Act 2007). Accredited Official Statistics comply with the standards of trustworthiness, quality and value in the Code of Practice for Statistics. Further information on Accredited Official Statistics can be found in section 1.1 of the Subnational Consumption Statistics Methodology.

ANNEX B: BACKGROUND NOTES

Rounding

Figures in this report may not sum/subtract exactly due to rounding. Rounding of estimates allows large figures to be more easily consumed. When estimates are used to calculate change over time the unrounded figures are used.

Uncertainty within survey data

The majority of data presented in this report are collated by survey. Surveys produce estimates as they gather information from a sample rather than the whole population. This means that they are subject to measurable sampling uncertainty, which has an effect on how changes in the estimates across periods should be interpreted.

If you want to know the exact value of, for example, the number of employees in Northern Ireland, you need to ask every employer to provide the number of employees within their business. This takes time and money. An alternative is to survey a sample of employers and use the data to produce an estimate of the exact value.

An estimate produced from a survey exists within a range of possible values. Statistical theory allows us to be 95% confident that the exact or true value exists within that range. This means that if we conducted the survey with 100 different samples then 95 of the 100 results would occur within that range.

An estimate is provided, usually as the midpoint of the range with upper and lower limits. This is called the central estimate.

The larger the returned sample the smaller the range of possible values.

An example:
The number of employees in Northern Ireland was estimated to be 750k (Lower limit: 745k Upper limit: 755k) from a survey carried out last year. The survey was repeated this year, and the value was 760k (Lower limit: 753k Upper limit: 767k).

The statistician would report this as:
The number of employees in NI was 760,000 ± 7,000. This is an increase on last years' estimate, but the change is not statistically significant.

The change is not statistically significant because the range of values for both years overlap. (There are cases when CIs overlap and the difference between the two estimates is statistically significant. Further reading.)

A change will be statistically significant if the range of values do not overlap.

LCREE Survey Data

The Low Carbon and Renewable Energy Economy (LCREE) data presented in this report are survey-based estimates. The central estimates are presented as well as the 95% confidence intervals to aid interpretation. However, for this survey data, further methodological developments are required by the Office for National Statistics (ONS), the producer of these data to determine if changes over time are real or due to sampling. The ONS provide further information on how to interpret these data in the LCREE Quality and Methodology report.

ANNEX C: SOURCES

[Total final energy consumption at regional and local authority level: 2005 to 2023]
The sub-national total final energy consumption data is an aggregation of the electricity, gas, road transport, and residual fuels datasets.
DESNZ: Annual

[Electricity Consumption and Renewable Generation in Northern Ireland]
This publication presents information on Renewable Electricity Generation for Northern Ireland. It details information on the percentage of metered electricity consumption in Northern Ireland generated from metered renewable sources as well as information on the type of renewable generation.
DfE: Quarterly

[Low carbon and renewable energy economy, UK]
Estimates of the size of the UK's low carbon and renewable energy economy, including turnover and employment.
ONS: Annual

[Northern Ireland Greenhouse Gas Inventory]
The statistical bulletin summarises the latest published estimates of greenhouse gas emission for Northern Ireland. The data is sourced from the National Atmospheric Emissions Inventory website.
DAERA: Annual

[Family spending in the UK: April 2023 to March 2024]
Family spending workbook 3: expenditure by region presents average weekly household expenditure on goods and services by UK region. Expenditure data by region are three-financial year averages. These data are sourced from the Living Costs and Food Survey.
ONS: Annual

[Estimates of fuel poverty in Northern Ireland in 2020 and 2021]
This publication presents fuel poverty estimates for Northern Ireland.
Fuel poverty estimates for 2016 were obtained from the Northern Ireland House Condition Survey, 2016. Subsequent estimates were modelled from the 2016 survey data with adjustments for fuel prices, household incomes and energy efficiency.
NIHE: Ad-hoc

[2024 Annual Retail Energy Market Monitoring Report]
The Quarterly Retail Energy Market Monitoring (QREMM) report provides a range of information about the retail energy market in Northern Ireland. Data are sourced from network companies, suppliers, DESNZ and Eurostat.
NIAUR: Quarterly and Annual

Department for the Economy
www.economy-ni.gov.uk

An Roinn Geilleagair

ANNEX B

ENERGY EVIDENCE PROGRAMME

INFORMING THE DELIVERY OF THE ENERGY STRATEGY

DECEMBER 2025

CONTENTS

1. INTRODUCTION

Energy Evidence Programme

Northern Ireland's Energy Strategy[1] sets out a vision of net zero carbon and affordable energy by 2050. One of the commitments within the strategy is:

We will produce a comprehensive energy evidence programme to inform policy decisions

This evidence programme will ensure we support the delivery of our vision with evidence- based policymaking. It outlines our plans to gather and utilise energy information for the purposes of policy development and delivery. The content of this evidence programme will focus on the information needed to inform the energy policies outlined in the strategy. Building on our approach to date, we envisage that there will be a number of aspects to this including energy modelling, research projects, data and statistics and real-life demonstrators and pilots.

Our research will align with at least one of the five principles identified in the Energy Strategy and given that we are taking a whole system approach, some of the research will contribute to more than one. The five principles are:

- Placing you at the heart of our energy future;
- Grow the green economy;
- Do more with less;
- Replace fossil fuels with indigenous renewables; and
- Create a flexible, resilient and integrated energy system.

Details of specific projects and research areas already completed, or planned, are outlined in the remainder of this document.

1 Northern Ireland Energy Strategy 'Path to Net Zero Energy'

Background

In December 2021, alongside the Energy Strategy for Northern Ireland, the first Energy Evidence Programme report was published by the Department for the Economy (DfE). This set out the research and evidence gathered to inform the Energy Strategy and outlined priority areas for research moving forward. This second edition of the report provides a summary of the work that has progressed since and how we are continuing to build the evidence base in support the principles of the Energy Strategy, the objectives of the Economic Vision for Northern Ireland[2] and to deliver against the targets established in the Climate Change Act (NI).

Department for the Economy Economic Vision

In addition to the Energy Strategy and its core principles, there are further supporting Northern Ireland (NI) Executive policies and legislation that highlight the priority research areas.

On 19 February 2024, the Minister for the DfE revealed a new Economic Vision for Northern Ireland. A clear mission has been set, with four key objectives:

1. Good Jobs
2. Regional Balance
3. Raising Productivity; and
4. Reducing Carbon Emissions / Decarbonisation.

These are reinforced within the DfE Research Programme for 2024-27[3] to produce high quality economic research that will form the evidence base for the Department for the Economy, aligned with the four priorities.

Climate Change Act

The Climate Change Act (NI) 2022 (the Act) sets a target of an at least 100% reduction in net greenhouse gas (GHG) emissions by 2050, and a target for DfE to deliver at least 80% of electricity consumption from a diverse mix of renewable sources by 2030. DfE is the lead Department for the Energy Production and Supply Business and Industrial Processes and Public Buildings Sectors within the draft Climate Action Plan[4] (CAP) – the plan to achieve the first carbon budget (2023-2027). The Department also has an important role within the residential buildings sector in developing and delivering policy for energy efficiency and heat decarbonisation in homes.

The Act places a clear obligation on Departments to ensure that all actions within the CAP are assessed for their wider economic, social, and financial impacts. DfE has a significant broader role in enabling a just transition to a net zero economy in areas such as skills, jobs, innovation and investment.

2 DfE Minister's Economic Vision
3 DfE Research Programme 2024-27
4 Draft Climate Action Plan 2023-27

Programme for Government

In February 2025, the NI Executive published its Programme for Government (PfG) 2024-2027 'Our Plan: Doing What Matters Most'.

The PfG has nine priorities, one of which is to "Grow a Globally Competitive and Sustainable Economy", which relates to the work of DfE. This priority is broken down into actions which are focused on the Minister's Economic Vision.

The PfG also has long-term Missions: People, Planet and Prosperity underpinned by a cross-cutting commitment to Peace. Within the Planet mission, several targets align with energy policy, these include:

- **Affordable Renewable Energy:**
  In 2025, we will review the Energy Strategy to ensure the remaining 5 years to 2030 uses up-to-date data and insights, bringing a renewed focus on affordable renewable energy.

- **Just Transition:**
  In the energy sector, we will take an all of Government approach to develop and deliver a plan to produce community benefit through a community energy innovation project.

- **Renewable Electricity Support Scheme:**
  This will help both in the delivery of self-sufficiency in affordable renewable energy and in achieving our carbon targets.

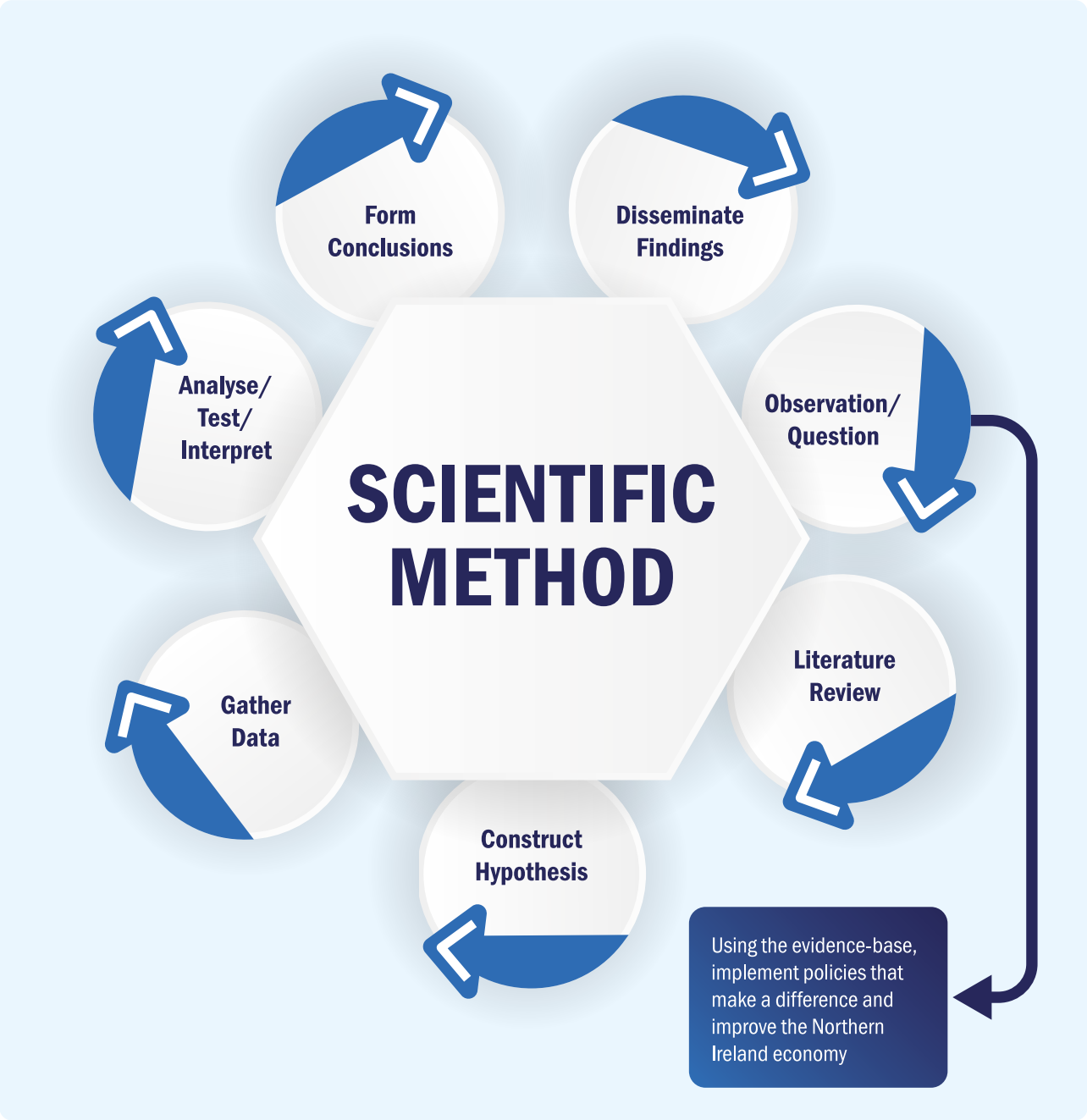
- **Facilitate Net Zero Infrastructure:**
  A change to Electricity Grid Connection Charging policy will be delivered, lowering a barrier to connection for renewables and other low-carbon technologies such as electric vehicle charging; and, through the development of a Net Zero Accelerator Fund, we will make the region more attractive for net zero investment and also help cut greenhouse gas emissions in line with the Climate Change Act 2022.

These actions will create solid foundations for our economy, inward investment, health and social wellbeing. This will be evident for the present and for future generations.

Importance of Evidence

Making a Difference: The NICS guide to making policy that works[5] states that good-quality policy making depends on high-quality information, derived from a variety of sources. This includes reviewing existing research, commissioning new research and consulting relevant experts.

Figure 1: The Research Cycle and Policy-Making



5 Making a Difference: The NICS guide to making policy that works

Evidence and intelligence are at the heart of energy policy development. The approach taken when developing the Energy Strategy focused on evidence, initially through the Call for Evidence and subsequently by gathering additional intelligence through five working groups and our Expert Panel, commissioning research projects and providing funding for independent academic research.

Since the launch of the strategy, a wide range of evidence gathering and analysis has continued to be progressed across a range of sectors. A summary of this, and areas of work to be progressed, are detailed in the following sections.

Our Approach

Delivering on research areas requires a Departmental-wide effort and can involve partners in several organisations, including Invest NI, Northern Ireland Statistics and Research Agency (NISRA), Utility Regulator (UR), Consumer Council Northern Ireland (CCNI), Ulster University (UU) and Queen's University Belfast (QUB).

For projects directly commissioned by DfE, the development and day-to-day delivery of projects are typically managed by Energy Group. The Energy Intelligence Team within Energy Group provide analytical support to policy teams and manage the research agenda in support of the strategy. Additional in-house support is available through Analytical Services Division (ASD). ASD is staffed by professional statisticians and economists with experience and expertise on various aspects of the research. Given the broad spectrum of research required to support the strategy, DfE staff engage with and work in coordination with relevant departments across the UK and their analyst teams.

Following the launch of its Energy Strategy, the Department has conducted a series of open calls, including two specifically for energy-related research. These calls have yielded a diverse range of innovative proposals from academics, consultancies, and private industry, contributing significantly to the key research themes and objectives of the new research programme and bolstering the evidence base for Energy Strategy policy.

Through developing partnerships, investments in local academic institutions and making the outputs widely available, the commitment of DfE resources to research also delivers benefits beyond evidence gathering for policy.

We believe that our low carbon energy research base can make a significant contribution to decarbonising energy, understanding the behaviours of energy consumers both domestic and non-domestic, bringing forward new technologies and growing the green economy. To maximise the contribution and impact of our research base, we work closely with relevant departments to ensure core needs are met, including:

- **Research mapping**: Building on our existing relationships with researchers, we work to identify key research areas that can further support the delivery of the Energy Strategy. Continuous engagement with the research community ensures the full range of capabilities and specialisms in Northern Ireland are known.
- **Research funding**: Where research, trials and demonstration projects are needed to help inform energy policy decisions, we work with local research centres with relevant specialisms and ensure that the outcomes and impacts of such projects can be assessed and analysed to support future interventions.
- **Business linkages**: We encourage local businesses that have either challenges or opportunities related to low carbon energy to work with our research base to ensure knowledge transfer, develop linkages and potentially partner for bids for innovation funding available within the UK and beyond.

2. BUILDING ON SUCCESS

Overview

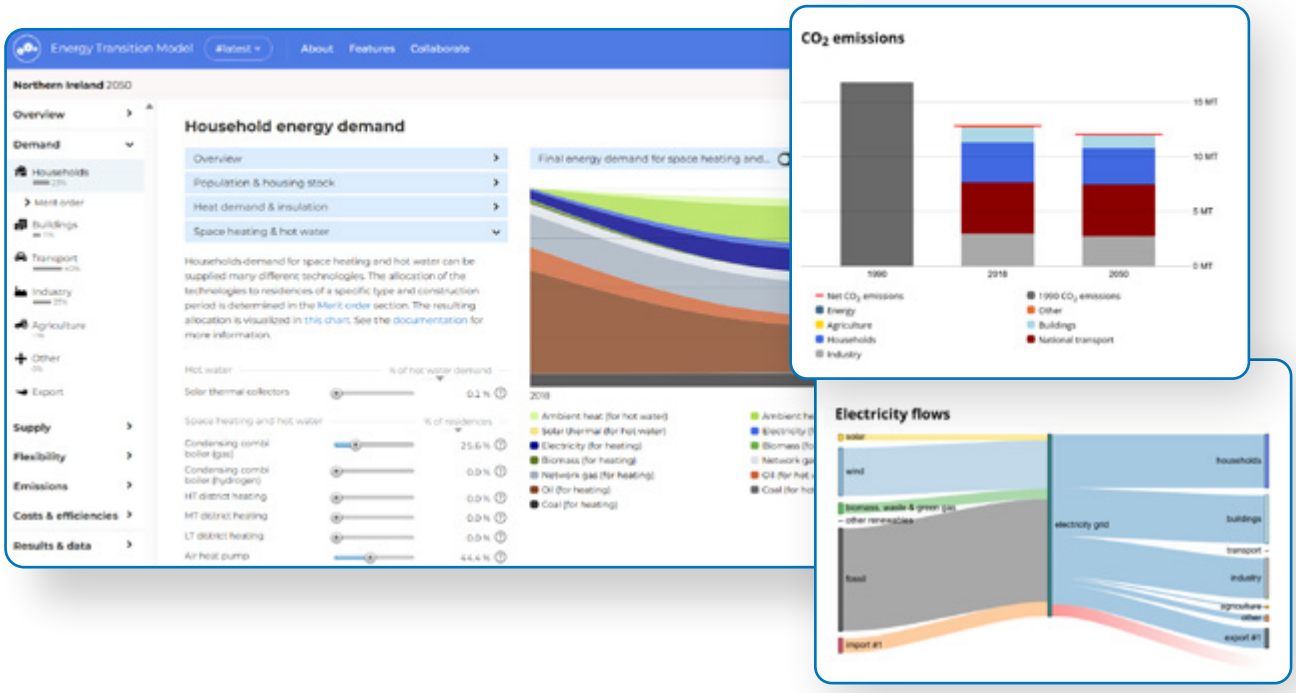
DfE along with its research partners, already has a strong track record of delivering research and evidence. This includes the development of a holistic energy systems model for Northern Ireland, comprehensive data and statistics, commissioned research and funding provided to expand our evidence base.

Energy Modelling

We have developed and maintained an Energy Transition Model[6] (ETM) for Northern Ireland. This is an open source, Northern Ireland specific energy model, which has supported our whole system approach to energy decarbonisation. It is available for public use and provided the platform for illustrative Future Energy Decarbonisation Scenarios[7] for both the Energy Strategy Options Consultation and the Energy Strategy.

The NI ETM has been used to illustrate the broad impacts of different sectors and sub-sectors on regional demand of energy and carbon emissions. The model visually reflects how changes in one sector can benefit from emissions reductions in other sectors. For example, electrification of transport and heat sectors will reach full decarbonisation only when full decarbonisation of the electricity sector is achieved. Such links can be easily observed and evaluated in the ETM, and as a result, the model has been widely utilised by DfE policy teams to explore a range of future scenarios.

Figure 2: Screenshots from Energy Transition Model and Future Energy Decarbonisation Scenarios



6 Energy Transition Model
7 Future Energy Decarbonisation Scenarios

We have continued to develop the ETM to improve the functionality in line with the Northern Ireland energy system. The product is open source so these developments will benefit any user of this model in creating future scenarios for Northern Ireland. We intend to build upon this success and explore other macro level energy models, as well as micro level models. This will enhance our ability to carry out sensitivity analysis on assumptions of the future and "stress-testing" various aspects of the energy system.

Data and Statistics

Research and analysis needs to be underpinned by robust statistics. Energy Intelligence Team and DfE's ASD produce a range of statistical publications to meet the needs of policy makers and external stakeholders, alongside engaging with other statistical providers of energy related information. Official statistics about energy in NI are available through several publications:

- Continuous Household Survey Heat and Insulation Results 2024/25 – provides insights into how households in Northern Ireland heat their homes and use insulation, helping to understand energy use, fuel poverty, and support environmental and housing policy; and
- Energy in Northern Ireland 2024 – provides a comprehensive and accessible overview of key statistics and information relating to energy in Northern Ireland and is currently updated every two years; and
- Electricity Consumption and Renewable Generation in Northern Ireland – details information on the percentage of electricity consumption in Northern Ireland that was generated from renewable sources as well as information on the type of renewable generation and is currently published quarterly.These reports are produced by NISRA statisticians within DfE. In addition to existing metrics, ASD have taken forward the development of metrics from existing data sources to support the Energy Strategy:
- Household energy expenditure relative to all expenditure – examines the Northern Ireland average weekly household energy expenditure as a proportion of all average weekly household expenditure, transfers and savings; and
- Business energy purchases relative to turnover – focuses on business energy purchases as a proportion of business turnover and the mix of different types of energy purchased by businesses.

Since the last Energy Evidence Programme report, and in the context of rising energy prices, household expenditure data was re-examined with further analyses on different levels of household income, potential impacts of rising energy expenditure and non-discretionary impacts.

- Northern Ireland household energy expenditure: income differences and non-discretionary impacts.

Data linkage between existing administrative data sources can also be utilised to gather additional insights where there are information gaps. The Energy Intelligence Team in DfE commissioned NISRA to link Census 2021 information with property Energy Performance Certificate (EPC) ratings to explore the characteristics of households and residents by their EPC band.

- Census 2021 Commissioned Outputs

A wide range of non-DfE statistics produced by NISRA and others is also vital to informing the research programme, and DfE research staff, will work with other departments where opportunities arise to ensure there are appropriate statistics and information available. This will be through participation in expert user groups, input into statistical development and more general engagement, where appropriate.

Energy Group Commissioned Research

The Energy Group within the DfE commissions research to further inform energy policy issues in support of the Energy Strategy principles and key research themes. This includes directly commissioning research in support of a policy need or through an open call process inviting research proposals for evaluation. The open call process allows for innovative and novel research ideas that will feed into key research themes and objectives to be brought to the Department. Furthermore, the Department can also highlight research topics for which there is a particular demand for additional information.

Other energy related research projects are carried out by Arms'-Length Bodies (ALB) across government, such as Invest NI, UR and CCNI. Projects published by the UR and CCNI helped to inform the Energy Strategy development and continue to be used to inform further policy development.

Published research projects taken forward in support of the Energy Strategy are detailed in Annex A.

As well as commissioning research, DfE also undertakes calls for evidence to gather information in support of policy development. Recent examples include the request for views on a range of issues related to the development of a sustainable biomethane sector in Northern Ireland[8] and to understand the opportunities, challenges and potential risks associated with using bio-fuels for heating[9].

8 Developing biomethane production in Northern Ireland - call for evidence
9 Using biofuels to transition away from fossil fuels for heating - call for evidence

Academic Research Funding

Academic institutions make significant contributions to energy evidence programme, carrying out commissioned research in specific areas of expertise. Where research projects have been published by the universities these are included in Annex A.

The Department currently provides funding for the equivalent of 780 PhD places across the NI Higher Education Institutes (HEIs) each academic year. These PhDs have a strong focus on research within economically relevant areas, some of which may include energy related research[10].

DfE currently provides funding for Northern Ireland universities to participate in the US-Ireland Research and Development (R&D) Partnership[11]. There are several thematic areas, including "Energy and Sustainability" which have been prioritised as important research challenges under the US-Ireland R&D Partnership for the health and prosperity of the citizens of the United States, Ireland and Northern Ireland.

In addition, the Centre for Advanced Sustainable Energy[12] (CASE), a partnership between Queen's University Belfast, University of Ulster and the Agri-Food and Biosciences Institute, is an industry-led sustainable energy research centre. They support collaborative Research & Development and policy development, bridging the gap between industry research needs and academic research. CASE has a central role in helping Northern Ireland meet its climate change objectives on the road to net zero while underpinning growth and regional prosperity in a sustainable, low-carbon economy.

Researchers and innovators can also apply for funding through the UK's association to Horizon Europe[13]. Association gives UK and Northern Ireland (NI) scientists, researchers and businesses access to funding under the programme on largely equivalent terms as organisations in EU member states. Companies and academic institutions have availed of this funding stream for a range of energy and climate related projects.

Demonstrators and pilots

An important part of our gathering evidence will come from real-life demonstrators and pilots. Previous examples include supporting NI Water to undertake an electrolyser demonstrator project at a wastewater treatment works.

Between 2023 and 2025 DfE delivered the GeoEnergy NI[14] project. The GeoEnergy NI geothermal demonstrator project comprised of geothermal exploratory and feasibility studies at two locations, to promote and demonstrate this technology locally. This project will be used to help inform the development of a policy and regulatory framework that supports and promotes opportunities to unearth NI's geothermal potential.

10 In academic year 2025/26, the Department is funding 780 PhDs. PhD Research topics are searchable for awarding bodies for QUB and UU within the British Library.
11 Higher education international research
12 Centre for Advanced Sustainable Energy
13 Horizon Europe
14 GeoEnergy NI

Phase 1 of the project has now been completed with the drilling and exploration of boreholes at Stormont in Belfast and the successful application for a deep geothermal system at the College of Agriculture, Food and Rural Enterprise Greenmount Campus near Antrim. Extensive reporting and surveys were commissioned as part of the project with the first of these reports published in November 2025[15].

The completion of Phase 1 represents an important step in exploring the potential for geothermal energy in Northern Ireland. The drilling, surveys, and engagement activities have provided useful insights and data that will help inform future policy and investment decisions. While further work is needed to fully understand the scale and feasibility of geothermal deployment, the GeoEnergy NI project has contributed to building technical knowledge and awareness of this low-carbon heat source, supporting progress towards the Energy Strategy's objectives.

Other stakeholders within the energy sector will undertake their own trials and pilots. Through broad engagement and collaboration, we will ensure sharing of outcomes and results to inform and improve our decision-making.

15 Geothermal Demonstrator Project

3. MOVING FORWARD

Overview

The previous Energy Evidence Programme report set out ambitious plans to gather additional evidence to inform policy development following the publication of the Energy Strategy. The preceding section and Annex summarise the scale and progress of work undertaken over the past four years. This work has delivered a wide
range of activities, including energy modelling, data and statistics, and demonstrator projects, which will continue to evolve and build on achievements to date. Moving forward, DfE plans to continue delivery of supporting research and analysis in the coming months and years, guided by the evidence needs of the Energy Strategy and aligned with the department's Economic Vision and Research Programme.

Research Areas

In line with the aims of the DfE Research Programme, Energy Group will continue to deliver and support high quality research in support of the Energy Strategy.

In the short-term further research, commissioned by the Department, will be published on a range of topics. This includes looking at the economic impact of the decarbonisation of heat demand in Northern Ireland, the potential for urban wind generation and a sectoral decomposition of Northern Ireland's industry.

Moving beyond the mid-point of the Energy Strategy, research will continue to be guided by the long-term vision originally set out and to support the strategic priorities, and underpinning actions, set out in the annual action plans.

This research programme for energy will typically be delivered through a number of channels:

1. By the department commissioning external researchers where specialist knowledge and expertise is required, or by responding to relevant external research proposals.
2. By administering further Energy Research Open Calls.
3. From our existing funding arrangements with the local HEIs.
4. Through internal research carried out by Energy Intelligence Team within Energy Group and departmental statisticians and economists within ASD.

Working with Partners

DfE will work collaboratively with other research providers, government departments across the Northern Ireland Civil Service, ALBs, the two main HEIs and NISRA, on relevant projects.

Potential areas of interest include:

- **Invest NI** has research interests relating to the green economy including energy efficiency interventions for businesses;
- **Utility Regulator** will continue to gather research evidence on issues facing electricity, gas and water consumers through our consumer protection programme; and
- **Consumer Council** will continue to undertake research to better understand and communicate current and future consumer issues in Northern Ireland.

Future Reporting

The Department for the Economy remains committed to ensuring that research and evidence underpin all energy policy decisions. Through the Energy Evidence Programme, we continue to make data, analysis, and research outputs transparent and accessible, supporting the delivery of Northern Ireland's Energy Strategy and its vision of net zero carbon and affordable energy by 2050. By fostering collaboration with academic institutions, industry, and stakeholders, and aligning research with the Strategy's principles, we aim to provide a robust evidence base that informs policy development and demonstrates our dedication to openness and accountability.

ANNEX A

Table 1. List of DfE Published Energy Research

Title	Researcher	Organisation	Summary
Circular Economy Metrics / Research Bulletin on Indicators to Monitor Decarbonisation and the Circular Economy	Circular Economy, DfE	DfE	This Research Bulletin explores the role of the circular economy in supporting the net zero agenda, where making a fundamental shift in how products are made and consumed, with less reliance on raw materials, can make a large contribution to reducing greenhouse gas (GHG) emissions.
Continuous Household Survey Heat and Insulation Results 2023/24	Energy Intelligence Team, Energy Group, Department for the Economy	DfE	This report presents the results of the household heating and insulation questions from the 2023/24 Continuous Household Survey (CHS) with comparison to 2015/16 data, where applicable. Data were also collected in 2016/17, 2021/22 and 2022/23. This release is accompanied by a set of tables that include data from all years in the series. The CHS is a Northern Ireland-wide household survey administered by the Central Survey Unit (CSU) of the Northern Ireland Statistics and Research Agency (NISRA). It is based on a systematic random sample of addresses selected from the NISRA Address Register. The survey has been running since 1983 and is designed to provide a regular source of information on a wide range of social and economic issues relevant to Northern Ireland.
Continuous Household Survey Heat and Insulation Results 2024/25	Energy Intelligence Team, Energy Group, Department for the Economy	DfE	The Continuous Household Survey Heat and Insulation Results 2024/25 provides insights into how households in Northern Ireland heat their homes and use insulation, helping to understand energy use, fuel poverty, and support environmental and housing policy. It tracks changes in heating methods, insulation measures, and consumer behaviour. The 2024/25 results are the first in the series to be published as an official statistic.
Electricity Consumption and Renewable Generation Statistics	Statistics Information Analysis and Research Branch, Analytical Services Division, DfE	DfE	Statistics on Electricity Consumption and Renewable Generation in Northern Ireland are published by NISRA statisticians within DfE's Analytical Services Unit (ASU). The first publication, covering the financial year April 2013 to March 2014, was issued on 25 September 2014. Updated publications are currently released quarterly: in March, June, September and December. This publication aids reporting on performance against the commitments in the Northern Ireland Energy Strategy 'Path to Net Zero Energy' and the Climate Change Act target which is to "ensure that at least 80% of electricity consumption is from renewable sources by 2030."

Title	Researcher	Organisation	Summary
Energy in Northern Ireland 2024	Statistics Information Analysis and Research Branch, Analytical Services Division, DfE	DfE	Published biennially, the Energy in Northern Ireland report aims to provide a comprehensive and accessible overview of key statistics and information relating to energy in Northern Ireland. The report endeavours to present a disparate range of existing and emerging information and statistics into a single coherent source. The majority of statistics and data included are National Statistics or Official Statistics sourced from producers such as the Department for Energy Security and Net Zero (DESNZ), the Northern Ireland Statistics and Research Agency (NISRA) and the Office for National Statistics (ONS) among others.
Northern Ireland business energy purchases provisional estimates 2016 to 2018	Statistics Information Analysis and Research Branch, Analytical Services Division, DfE	DfE	This report examines energy purchases by businesses in Northern Ireland in terms of its share of business turnover and how that may differ between industrial sectors and business size. The report also considers the mix of different types of energy purchased by businesses.
Northern Ireland household domestic energy expenditure 2013-15 to 2018-20	Statistics Information Analysis and Research Branch, Analytical Services Division, DfE	DfE	This report examines expenditure by households on energy as a component part of all household expenditure, transfers and savings. The report compares household energy expenditure between Northern Ireland and England, Scotland and Wales.
Northern Ireland household energy expenditure: income differences and non-discretionary impacts	Statistics Information, Analysis and Research Branch, Analytical Services Division, DfE	DfE	In the context of recent rising energy prices reflecting considerable volatility in wholesale markets, the Living Costs and Food survey household expenditure data for Northern Ireland was re-examined to explore: the pattern of energy expenditure by households in Northern Ireland in relation to their different levels of household income; potential impacts of rising energy expenditure; and whether the potential impact of rising energy expenditure on discretionary and non-discretionary expenditure could be explored.

Table 2. List of DfE Commissioned Energy Research Projects

Title	Researcher	Organisation	Summary
A Green Carbon Fibre Opportunity in Northern Ireland	Ulster University / NIACE	DfE Commissioned	An assessment of the market demand for carbon fibre, alternatives to traditional carbon fibre, and to identify potential opportunities for a new carbon fibre offering in Northern Ireland.
A Natural Fibre Supply Chain for Northern Ireland	Ulster University / NIACE	DfE Commissioned	The report focuses on opportunities for utilising natural fibres in composites to create a more sustainable composite offering than is currently the case with traditional composites of carbon or glass fibre.
Accelerating Renewables in Northern Ireland - High Level Design of a Support Scheme	Aurora	DfE Commissioned	Aurora Energy Research was commissioned by the DfE to provide recommendations for the design of the renewable electricity support scheme based on techno-economic analysis, literature review, and stakeholder engagement.
An assessment of the potential for solar PV electricity generation from rooftops in Northern Ireland	Ulster University	DfE Commissioned	As part of the Department's Open Call for research in June 2023, a research proposal was received from Ulster University (UU). The Department for the Economy funded UU to undertake independent research into the solar PV potential of all properties within Northern Ireland. It also assessed the potential impact of battery storage, in combination with solar PV in domestic properties. The report summarises the research undertaken, including the methodology used by the researchers, limitations and results.
Development of Residential Energy Archetypes in Northern Ireland	Building Energy Informatics (BEI)	DfE Commissioned	Independent research by Building Energy Informatics has developed residential energy archetypes for Northern Ireland using Energy Performance Certificate data. The study identified typical housing types and their energy characteristics to better understand current performance which could inform future retrofit strategies. Two segmentation approaches were used to generate and quantify archetypes: (1) building type and age band, combined with main fuel type, resulting in 176 archetypes; and (2) building type and age band, combined with energy rating, resulting in 220 archetypes. These archetypes provide a detailed snapshot of heating fuel and energy performance across the housing stock, forming a baseline for future analysis and retrofit planning.
Economics of Hydrogen and Associated Synthetic Fuels for Northern Ireland	University of Galway	DfE Commissioned	This report reviews and analyses the role that green hydrogen and associated synthetic fuels can play in the decarbonisation of Northern Ireland's energy system.

Title	Researcher	Organisation	Summary
Heat Pump Sector in Northern Ireland – Research Study	KPMG	DfE Commissioned	The Department for the Economy (DfE) commissioned KPMG to conduct a market survey and desktop research to assess the current capacity of the heat pump sector in Northern Ireland and provide recommendations for future growth.
Investigating the Economic Impact from Offshore wind in Northern Ireland	Fraser of Allander Institute at the University of Strathclyde	DfE Commissioned	The Department for the Economy funded the Fraser of Allander Institute (FAI) at the University of Strathclyde to undertake independent research to investigate the economic impact from offshore wind in Northern Ireland. This followed the receipt of a research proposal from FAI in December 2022 as part of the department's 10X Economy Open Call for research proposals. This report summarises the work undertaken, including the methodology, detailed results and conclusions.
Investigating the potential economy wide impacts of energy efficiency improvements in Northern Ireland	Fraser of Allander Institute at the University of Strathclyde	DfE Commissioned	Independent research by the Fraser of Allander Institute investigated the potential economy wide impacts of energy efficiency improvements in Northern Ireland. Using economic modelling, the study assessed several scenarios including insulation retrofits, broader housing upgrades and heat pump adoption. Findings suggest that such investments could reduce household energy bills, stimulate construction sector jobs, and support progress toward net zero targets. The report highlights the potential for both environmental and economic gains from targeted energy efficiency programmes.
Investigating the Potential for an Offshore Wind Supply Chain in Northern Ireland	Fraser of Allander Institute at the University of Strathclyde	DfE Commissioned	The Department for the Economy funded the Fraser of Allander Institute (FAI) at the University of Strathclyde to undertake independent research to investigate the potential for an offshore wind supply chain in Northern Ireland.
Low Carbon Heat and Energy Efficiency Workforce Assessment	LCP Delta	DfE Commissioned	As part of the Department's Energy Research Open Call in July 2024, a research proposal was received from LCP Delta. The Department for the Economy funded LCP Delta to undertake independent research assessing the low carbon heat and energy efficiency workforce in Northern Ireland. The report summarises the research undertaken, including the methodologies used, limitations and results.
Potential of Solar Photovoltaic (PV) in Belfast Area – Phase 2	Gordon Ingram Associates	DfE Commissioned	As part of the Department's Open Call for research in December 2022, a research proposal was received from GIA Surveyors Ltd (GIA). The Department for the Economy funded GIA to undertake a second phase of independent research into the solar PV potential of properties with 25 Data Zones in the Belfast area.

Title	Researcher	Organisation	Summary
Potential of Solar Photovoltaic (PV) in the Belfast Area – Phase 1	Gordon Ingram Associates	DfE Commissioned	The Department for the Economy funded GIA to undertake independent research into the solar PV potential of over 50 properties (both domestic and non-domestic) in the Belfast area.
Potential Rooftop Generation of PV in Northern Ireland	Ulster University	DfE Commissioned	As part of the Department's Open Call for research in June 2023, a research proposal was received from Ulster University (UU). The Department for the Economy funded UU to undertake independent research into the solar PV potential of all properties within Northern Ireland. It also assessed the potential impact of battery storage, in combination with solar PV in domestic properties. The report summarises the research undertaken, including the methodology used by the researchers, limitations and results.
Renewable Electricity Support Scheme for Northern Ireland	Cornwall Insight	DfE Commissioned	Cornwall Insight was commissioned to produce a scoping exercise to feed into the early stages of development of a renewable electricity support scheme.
Research into the geothermal energy sector in Northern Ireland	ARUP & British Geological Survey (BGS)	DfE Commissioned	The Department for the Economy also commissioned Arup and the British Geological Survey (BGS) to produce a report evaluating the current geothermal energy sector in NI. The research report produced by Arup and the BGS, "Research into the geothermal energy sector in Northern Ireland", reviews a broad range of geothermal technologies, describing the characteristics of each. Further, a comparison of geothermal regulatory frameworks from other countries has been conducted.
Reviving Northern Ireland Textile Heritage	Ulster University / NIACE	DfE Commissioned	The overall research aim was to showcase that, subject to strategic planning and investment, Northern Ireland is best placed in terms of its access to the relevant knowledge, skills, technology, raw materials and established end user connections to address the market challenges and become a leader in the design and manufacture of advanced textiles and textile composites.
Spatial National Heat Study for District Heating Potential in Northern Ireland	Building Energy Informatics Ltd	DfE Commissioned	The Department for the Economy (DfE) commissioned Building Energy Informatics to conduct a Spatial National Heat Study for District Heating Potential in Northern. This explores the potential for district heating networks in NI to identify geographical areas with the highest potential for development. To ideally include spatially modelled analysis of heating demand to identify suitable candidate areas. This includes a computational model for estimating capital and operating costs (capex and opex) and assessing the economic viability of district heating throughout NI and comparing different

Title	Researcher	Organisation	Summary
Suitability of Buildings in Northern Ireland for Retrofitting Heat Pumps	AECOM	DfE Commissioned	The Department for the Economy (DfE) commissioned AECOM to research and assess the suitability of buildings in Northern Ireland for heat pump installation. The study comprised a review of literature and data sources and considers different aspects of heat pump retrofit installations, different heat pump types, heat sources, and building characteristics such age, type, fabric and insulation levels. The report's findings will help to inform heat policy to support the transition to net-zero by 2050.
The potential of geothermal energy utilisation from standing column well technologies in Northern Ireland	Causeway Energies	DfE Commissioned	The Department for the Economy (DfE) commissioned Causeway Energies to conduct a study into the potential of geothermal energy utilisation from standing column well technologies in Northern Ireland. Standing Column Wells are a Geothermal Energy application that has been applied to 500 m depth in North America, but negligibly in the UK and Ireland. Standing Column Wells are a hybrid between open loop and closed loop Geothermal Heat Exchangers (GHEs), where aquifer water is circulated around the open hole well and heat is drawn from the sink formed in the borehole by a heat pump.
Transitioning to a Greener Economy – a Skills Perspective	Energy and Utility Skills	DfE Commissioned	Research project led by Energy and Utility Skills investigating the skills required for a transition to an advanced zero emission, indigenous diverse energy secure and circular economy in Northern Ireland.
Transport Energy Research Project: Low Carbon Transition for HGVs	Cenex	DfE Commissioned	The Department for the Economy commissioned Cenex to investigate the potential uptake of zero emission Heavy Goods Vehicles (ZE HGVs) and the associated recharging/refuelling/infrastructure requirements to 2040.
Transport Energy Research Project: Transition to EVs	Cenex	DfE Commissioned	The Department for the Economy commissioned Cenex to investigate the potential uptake of EV cars and vans and associated recharging/ infrastructure requirements to 2040.
Understanding Northern Ireland's Food Supply Chain / Safety and AgriTech Capability	KPMG	DfE Commissioned	The Department for the Economy commissioned KPMG to prepare this research report. The report aims to facilitate a broader understanding of Northern Ireland's Food Supply Chain/ Safety (FSCS) and Agri-Tech capability, and future windows of opportunity.
Views of NI SMEs Towards Environmental & Social Impact	Queen's University Belfast / ERC	DfE Commissioned	Research covering views of Northern Ireland SMEs towards environmental and social impacts has been developed by Queen's University Belfast in conjunction with the Enterprise Research Centre (ERC).

Table 3. List of Consumer Council NI Published Energy Research Projects

Title	Researcher	Organisation	Summary
Attitudes to the Energy Transition 2023	Cognisense	Consumer Council NI	Research regarding consumer attitudes to energy transition issues, the purpose of which was to gather evidence of public opinion and sentiment in order to provide both ourselves and key stakeholders with insights into the level of consumer support, education and protection required to meet established net zero goals.
Attitudes to the Energy Transition 2024	Cognisense	Consumer Council NI	Research regarding consumer attitudes to energy transition issues, the purpose of which was to gather evidence of public opinion and sentiment in order to provide both ourselves and key stakeholders with insights into the level of consumer support, education and protection required to meet established net zero goals.
Attitudes to the Energy Transition 2025	Cognisense	Consumer Council NI	The third annual Attitudes to Energy Transition research report is intended to provide policy makers and industry experts with insights into consumer experience of various energy saving measures, as well as overall attitudes towards the energy transition. The report features three years of continuous data.
Consumer attitudes to protection during energy decarbonisation in Northern Ireland	Social Market Research	Consumer Council NI	This report has been conducted as part of the Northern Ireland Energy Strategy Action Plan. It is intended to assess the public's views on the need for the protection of energy consumers during our decarbonisation journey. The report also provides insights into the level of consumer support, type of regulation, and amount of education required to meet support net zero goals.
Debt, Disability and Energy	Social Market Research	Consumer Council NI	In 2022 the Consumer Council commissioned Social Market Research to explore how consumers, and particularly those with a disability, are coping financially during the cost-of-living crisis. The research presents the findings based on three complementary elements: depth interviews with stakeholder organisations active in the field of disability; a nationally representative survey of 1004 consumers; and depth interviews and case studies with consumers with a disability. The report highlighted a link between households with a disabled person and high energy usage and costs.
Protecting consumers during the energy transition to net zero Installer and stakeholder feedback 2024	Cognisense	Consumer Council NI	This report has been conducted as part of the Northern Ireland Energy Strategy Action Plan. It is supplementary to The Utility Regulator and Consumer Council Call for Evidence on Protecting Consumers during the Energy Transition to Net Zero undertaken in 2022.
Research on the impact of the energy crisis on affordability and the impact of energy transition on consumers	Social Market Research	Consumer Council NI	Research that explores the impact of the current energy crisis on affordability and consumer awareness and understanding of energy transition.

Table 4. List of Utility Regulator NI Published Energy Research Projects

Title	Researcher	Organisation	Summary
Call for Evidence on Protection for Consumers During Energy Decarbonisation	UREGNI/ Consumer Council	Utility Regulator	Call for Evidence and an associated series of questions for stakeholders to consider, regarding how energy consumers will be protected during the transition to a decarbonised energy system.
Call for Evidence on Protection for Consumers During Energy Decarbonisation: summary of stakeholder feedback	UREGNI/ Consumer Council	Utility Regulator	Call for Evidence on how energy consumers will need protected during the transition to a decarbonised energy system. The Purpose was to present a high-level summary of responses and to identify the key themes and areas for consideration, namely affordability, protection and trust.
Northern Ireland Domestic Consumer Insight Tracker Survey Report 2024	Perceptive Insight	Utility Regulator	Publication of findings from the fourth domestic consumer insight tracker survey. This survey is repeated annually to provide a statistically robust evidence base of electricity and gas consumer experiences of the energy market in Northern Ireland.
Energy Hardship: Consumer Lived Experiences 2024	Perceptive Insight	Utility Regulator	Qualitative research report which aimed to better understand the lived experiences of electricity and gas consumers who have struggled to pay for their energy. Participants had experience of either being in debt with their energy supplier, regularly running out of energy on their prepayment meter, or had significantly reduced their energy usage to levels below their daily living needs because of affordability. The report details the situations and circumstances of the participants; behavioural strategies that participants were adopting to cope with energy payment struggles; the impact of energy hardship on health and quality of life; and changes the participants wanted to see.
Energy Strategy Consumer Research	Social Market Research	Utility Regulator	A representative survey of 1,200 Northern Ireland consumers covering consumer understanding, attitudes and awareness of climate change and net zero. The questions were grouped into three key themes: awareness and understanding of climate change and net zero; consumer behaviour in relation to Low Carbon Technologies, energy efficiency measures and EVs; and consumer attitudes to transition related issues such as trusted sources of advice, support for different types of policy interventions and willingness to pay.
Non-Domestic Consumer Insight Tracker Survey 2023	Perceptive Insight	Utility Regulator	Publication of findings from the second survey of non-domestic energy customers in Northern Ireland. The research builds on previous data to measure consumer engagement, experience and attitudes in the non-domestic market in Northern Ireland. The research highlights issues that influence this consumer group to assess the extent to which non-domestic energy consumers understand the requirements in relation to the energy transition to a decarbonised whole energy system.

Title	Researcher	Organisation	Summary
Non-domestic Consumer Insight Tracker Survey 2024	Perceptive Insight	Utility Regulator	Publication of findings from the second survey of non-domestic energy customers in Northern Ireland. The research builds on previous data to measure consumer engagement, experience and attitudes in the non-domestic market in Northern Ireland. The research highlights issues that influence this consumer group to assess the extent to which non-domestic energy consumers understand the requirements in relation to the energy transition to a decarbonised whole energy system. Themes covered include: • Billing, contracts and financial issues • Understanding of the energy market • Switching • Communication and methods of contact • Complaint handling • Satisfaction with services provided • Energy efficiency, renewables and decarbonisation
Northern Ireland Domestic Consumer Insight Tracker 2021	Perceptive Insight	Utility Regulator	Publication of findings from the second domestic consumer insight tracker survey. This survey is repeated annually to provide a statistically robust evidence base of electricity and gas consumer experiences of the energy market in Northern Ireland.
Northern Ireland Domestic Consumer Insight Tracker 2022	Perceptive Insight	Utility Regulator	Publication of findings from the third domestic consumer insight tracker survey. This survey is repeated annually to provide a statistically robust evidence base of electricity and gas consumer experiences of the energy market in Northern Ireland.
Northern Ireland Domestic Consumer Insight Tracker 2023	Perceptive Insight	Utility Regulator	Publication of findings from the third domestic consumer insight tracker survey. This survey is repeated annually to provide a statistically robust evidence base of electricity and gas consumer experiences of the energy market in Northern Ireland. The survey covers awareness, attitudes and behaviours in relation to the following themes: • types of home heating used (including use of renewables and LCTs) • payments (including willingness to pay extra for projects to support the environment) • interactions with energy suppliers • complaints • switching • payment difficulties • consumer protection • support services • Just Transition to net zero

Title	Researcher	Organisation	Summary
Northern Ireland Sustainable Energy Programme Annual Report 2022/23	Energy Savings Trust	Utility Regulator	Annual report reviewing the performance of the 2022/23 Northern Ireland Sustainable Energy Programme (NISEP) schemes, outlining the measures installed, financial benefits to customers and the energy and carbon savings associated. The report breaks down the budget and spend; factors impacting the rate of installation; low uptake in the Non-Priority category; comparative summary with previous years; gross customer benefit; geographical spread, and the twenty-five approved schemes for 2022/23.
Smart Metering Consumer Impact Study	LCP Delta	Utility Regulator	Research into the lessons learned from Smart meter roll outs in Great Britain and the Republic of Ireland, with a focus on the experience of consumers. Involved interviews with key stakeholders and a series of key recommendations.
Stakeholder and consumer views on energy	Ipsos	Utility Regulator	Desk and qualitative research into consumer views on the energy transition. The purpose of this research was to develop an enhanced understanding of the barriers that consumers face on the issue of energy transition and decarbonisation, and the forms of support required to overcome them. Additionally, the research aimed to understand how UR can support consumers who experience further barriers that make it particularly difficult to engage in the energy transition. The report includes recommendations to inform future strategies and decisions to support consumers to engage in energy transition.