Belfast CLIMATE ACTION

Our Planet Board Annual Review

August 2024

Contents

Introduction

Resilience Strategy Ambitions

The Belfast Resilience Strategy was developed after 2 years of research in December 2020. Part of the success of the Strategy was the contribution of residents and communities across the city and their commitments to projects that ultimately aim to deliver the goal:

To transition to an inclusive, Net Zero-emissions, climate-resilient economy by 2050

To achieve this urgent goal, city partners came together to collaboratively future-proof our city by delivering a list of ambitions. This list of ambitions has expanded over the past four years and has already demonstrated the transition. The Belfast Agenda has become the catalyst for all of these projects and is outlined on page 4.

Climate Change Act

To add to this, a climate emergency was declared by the N. Ireland Assembly in February 2020. In June 2022, the Climate Change Act 2022 received Royal Assent. This Act sets out N. Ireland's framework for tackling climate change and reducing emissions, by setting challenging targets to deliver Net Zero emissions in the region by the year 2050. This makes our Strategy not only necessary for the city of Belfast but also highlights its global contribution to the targets outlined in the UN Paris Agreement.

UN Sustainable Development Goals

The strategy also linked each of the ambitions to the UN Sustainable Development Goals, therefore allowing us to track our progress towards them whilst also highlighting any gaps. The addition of further projects has extended this progress and demonstrates the success of the process. Additionally, this document takes a closer look at the targets within the goals and highlights those which our projects contribute to (see page 42 for more detail).

Working together

Only by working together across the city - communities, schools, businesses and agencies - can we really be ready to face complex challenges, from pandemics to economic shocks and climate change. The establishment of the city's **Our Planet Board**, Climate and City Resilience Committee and Climate Commission demonstrates the commitment to the goal and leadership needed to deliver these ambitions.

Belfast Agenda

The Belfast Agenda is the main driver for all action in the city. Five key themes have been highlighted and within these themes' priority areas were identified:

- **Our people and communities**
- **Our economy**
- **Our place**
- **Our planet**
- **Compassionate city**

Our planet illustrates the areas of focus for the Board and covers the three areas listed below.

1 Re-naturing the city and improving the food system

Under this theme within the Belfast Agenda, Belfast has committed to:

- Increase the number of trees across the city, while building knowledge and stewardship for urban greening that will reduce climate risk such as flooding and the urban heat island effect. Improve biodiversity and provide local solutions for the delivery of sustainable, healthy and affordable food for our citizens.
- Value our natural ecosystems and nurture and expand these further in areas most needed such as in our inner city, in order to protect and allow urban communities to thrive.
- Support and shape a city that is learning and building on its existing strengths to become a green, transformed and healthy city - a city that is resilient to the effects of climate change, attractive for green investment and which provides a high quality of urban life for its citizens.
- Evolve into a city that is more sustainable in how it produces food, embedding good practice at every opportunity

Ambitions such as 1 Million Trees, UPSURGE and our tidal flood alleviation schemes will help the city to re-nature and improve food systems.

2 Creating a sustainable circular economy

Within this section of the Belfast Agenda the aims are to deliver on the Belfast Net Zero Carbon Roadmap through less reliance on fossil fuels, investment in our housing stock and the move to a more circular economy that minimises waste and promote the sustainable use of natural resources. We aim to:

- Enable the city to decarbonise at scale by exploring the delivery of the Belfast Local Area Energy Plan (LAEP) and use it to shape and drive investment in decarbonisation measures (for example heat pumps, insulation, solar panels etc.) across the city.
- Actively promote sustainable circular economy approaches to transform our throwaway economy into one where waste is eliminated, resources are circulated, and nature is restored.
- Support a Just Transition to Net Zero in Belfast to address the social risks of the transition and enable social opportunities.
- Increase access to Electric Vehicle Charging infrastructure throughout the city.
- Improve the energy efficiency of our homes as well as our commercial and public buildings.
- Decarbonise the heat supply to buildings in the city

The LAEP and Belfast Retrofit Delivery Hub will help the city reach these ambitions.

3 Innovating to Net Zero

The Belfast Agenda recognises the challenge ahead of us if we are to reach our Net Zero targets. Through the ambitions in this document and the actions below we will be able to progress at pace and innovation will thrive in Belfast.

- Create a Net Zero Park to design and demonstrate green technology to act as an exemplar for the rest of the city and region.
- Develop a stable supply of green energy to the Net Zero Park and surrounding lands to support the industrial cluster.
- Grow and participate in the green economy creating new and better jobs by accelerating the transition to low carbon manufacturing.
- Support the production of sustainable forms of transport, supporting low carbon innovation in transport solutions.

Local Development Plan

The Local Development Plan (LDP) was adopted in May 2023 and will become one of the main drivers of spatial actions within the Belfast Agenda. The LDP will seek to support the development of sustainable neighbourhoods, which are well designed and provide a sufficient supply and choice of homes that will meet the city's growing and more diverse population. As part of the plan an additional set of Supplementary Planning Guidance (SPG) documents have been produced. There are 17 in total and they include topics such as planning and flood risk, sustainable drainage (SuDs) and trees and development.

There are plans to progress work on the Local Policies Plan which is the second part of the Local Development Plan. It will set out the statutory allocations of land for various land uses include housing employment and protected environmental areas.

Belfast Net Zero Carbon Road Map

We launched a Net-Zero Carbon Roadmap for Belfast with our Resilience Strategy in December 2020. We developed this as a Belfast Climate Commission partner through the Place Based Climate Action Network (PCAN). This roadmap has been the ultimate driver for actions aimed at reducing emissions in the city. This roadmap outlines the city targets below and highlights the need for urgent action.

66% reduction in carbon emissions by **2025**, 80% by **2030** and **100%** by **2050**

Belfast CLIMATE ACTION

Re-naturing the city and improving the food system

A. One Million Trees

Aims and Objectives

- To create an inclusive structure and processes which enable tree planting and the growth of green infrastructure and biodiversity in Belfast;
- To plant at least one million trees within the next 15 years- delivering a step change in our approach to climate adaptation and environmental improvements;
- To protect the city and the people of the city by increasing carbon capture, reducing harms from air pollution, weather impact and loss of nature and improving health and well-being.

Looking Back

To date the programme has planted **91,313 trees** across the city and delivered a programme of engagement with schools, businesses and local communities. In **2021, £289,989 was secured from the Woodland Trust's Emergency Tree Fund (ETF)**, with at least **£78,000 leveraged by partners.** The programme has initiated a business engagement and schools programme, a workshop series, established a number of tree nurseries, delivered agroforestry projects, an online engagement platform to identify sites and delivered 'give a tree a home' events with over **4,000 citizens engaged** so far.

The programme has supported the adoption of a **Tree Strategy for the city** and developed an iTree Eco Report identifying over **£16m worth in annual benefits of trees** to the city from flood alleviation, air pollution capture and carbon sequestration.

The Million Trees programme is part of a UK wide Million Trees club with the Tree Council.

Looking Forward

- The current ETF funding ended in May 2024 - priority identifying new programmes of funding and investment to continue the partnership.
- A Tree Equity Map will allow planting of trees to align with areas most in need. An opportunities assessment of potential sites is under development.
- Council is currently seeking funding to develop a Tree Warden Programme that will focus on maintenance, monitoring and management of newly planted sites.
- Developing a pipeline of potential planting programmes and supporting nursery development.
- Continued engagement and dissemination of research - evidence base to support the delivery of climate adaptation in Belfast through tree planting and stewardship.

Partners

BCC, The Belfast Hills Partnership, The National Trust, The Woodland Trust, The Conservation Volunteers, Belfast HSCT, Belfast Harbour, DfI, QUB, Lisburn City and Castlereagh Council, Antrim and Newtownabbey Council, Education Authority NI, Translink, Belfast Metropolitan Residents Group, The Northern Ireland Housing Executive, Department for Communities, Northern Ireland Electricity, Climate NI, Ulster Wildlife, DAERA, Choice Housing.

Contact

Climate Team, Belfast City Council:
climate@belfastcity.gov.uk

UPSURGE

Aims and Objectives	Looking Back	Looking Forward
UPSURGE is an EU funded, Horizon 2020 research project which runs until August 2025. It aims to: • Catalyse nature-based solutions (NBS) in urban environments to support: pollution alleviation and regenerative development. • Test nature-based solutions in 5 demonstrator cities across Europe • Develop a resilience garden to test native plant species' resilience to climate change, and a substantial community garden, designed with stakeholders and community, to test urban growing practices and sustainable food creation. • To utilise bee monitoring leading to the stimulation of community integration in the area with volunteers, residents and students coming together to learn.	The site was previously of an industrial nature, and therefore has some contamination. It is hoped that through innovative NBS practices, that learning can be gained from the demonstration site, which will better inform BCC and others, about better use and management of previous 'grey sites' and/or other underutilised open spaces. To date, additional funding from Sustainable Places Fund (SPF), had been secured to improve the infrastructure of the site, making it more accessible to members of the public and stakeholder. The new infrastructure includes cycling and pedestrian pathways, a new re-designed entrance, and the construction of the 3 main garden plots.   	• The EU funding will end in August 2025, and it would be hoped that future management/stewardship of the site and the projects ethos, will continue to be delivered with BCC and stakeholders. • an engagement plan has been agreed for the community garden that will see sections of the local community and wider city residents, having access to the practices, developed on site - based around accessibility for all. It will also have a cultural learning element, where some of our city's marginalised groups can share experiences and cultural practices in regard to food, which would improve community relations. • All of the learning gathered from this and other European UPSURGE projects, will be disseminated through an EU Regenerative Urban Lighthouse, where other cities, or regions, can gain access to the learning and practices, to assist their own citizens, with the development of Nature Based Solutions.

Partners	Contact
QUB, E-ZAVOD, UNIVERSITAT PASSAU, Institut za KOMUNIKACISKI STUDII Skopj, ACONDICIONAMIENTO TARRASENSE ASSOCIACION, UNIVERSITEIT ANTWERPEN, Municipality of Patras, COMUNE DI PRATO , FUNDACION AITIIP, OPENCONTENT SOCIETA COOPERATIVA, ICLEI EUROPEAN SECRETARIAT GMBH (ICLEI EUROPASEKRETARIAT GMBH), University of Natural Resources and Life Sciences Vienna, Municipality of Budapest 18th District, GEMEENTE BREDA, Beeodiversity, University of Leeds, INSTYTUT EKOLOGII TERENOW UPRZEMYSLOWIONYCH, KATOWICE - MIASTO NA PRAWACH POWIATU, Friends of the Field (Belfast), Friends of Botanic (Belfast), The Lyric Theatre, The Conservation Volunteers (TCV),	Climate Team, Belfast City Council: climate@belfastcity.gov.uk

Belfast Sustainable Food Partnership

Aims and Objectives	Looking Back	Looking Forward
• To establish a diverse, robust, and sustainable cross-sector food partnership with a long-term food strategy, develop a range of local policies and food access initiatives to effectively promote access to sustainable and healthy food for all. • To establish a diverse and connected local good food movement with sustainable food enterprises, backed by local catering and procurement practices; and • To develop systemic responses to address the negative climate and nature impacts of the local food system. 	In June 2022 a Theory of Change workshop was attended by **32 organisations**, agencies, government bodies, businesses and charitable and voluntary voices to identify a series of priorities for a new Sustainable Food Partnership **30 stakeholder interviews and desktop research** were also used to inform a comprehensive baseline of work currently underway in the city. A **research report and 1 year action plan** were developed, and funding secured funding for a part time Sustainable Food Coordinator for 2 years from 2022-2024 from BCC and Sustainable Food Places to help setup and run the Partnership. A governance structure agreed February 2023. In June 2023 - new Belfast Sustainable Food Partnership launched (SFP). In May 2023, the SFP worked in partnership with QUB students to identify solutions for building better local and sustainable food options in Belfast city centre, with concepts presented back to the Partnership. The Draft Belfast Agenda Refresh 2023-2027 embeds sustainable food work as a priority, with 'growing sites' - one currently under construction (at Lower Botanic,) whilst a second has applied for planning permission (Brink!).	• Develop collaborative working across the Sustainable Food Partners, Network and BCC Coordination Group. • Secure a full time coordinator role to help run the SFP and develop a growing strategy • Develop the evidence base of the influence that Belfast's food system has on climate change and its role in reducing emissions and building greater food resilience • Develop a codesigned Sustainable Food Policy and 3 year Strategic Plan for the city. • Secure investment in a sustainable food programme, run a participatory budgeting programme-sustainable food

Partners	Contact
The Larder Social Supermarket, Footprint Women's Centre, Nourish NI, Nature Play NI, Queen's University Belfast, Bryson Recycling, Area Partnerships, New Leaf Compost, Public Health Agency, Food Ethics Council, Hahu Organics, Brink! (Co-Chair),Visit Belfast, Belfast Health Development Unit, Fish City, Food, Farming and Countryside Commission, Social Farms and Gardens, Ulster University, Two Sisters, Belfast Healthy Cities, L'Arche, BCC	Mura Quigley (Sustainable Food Coordinator) Adaptation and Resilience Advisor, Belfast City Council, quigleym@belfastcity.gov.uk

EastSide Greenways - Flood Alleviation

Aims and Objectives	Looking Back	Looking Forward
EastSide Greenways (ESG) was founded by EastSide Partnership (ESP), for the delivery of the Connswater Community Greenway (CCG). Established as a charity, ESG recognises the potential to build on the success of the CCG as a catalyst for the ongoing physical, social and economic regeneration of East Belfast: • To promote the sustainable development, management, improvement and use of open spaces and routes, parks and rivers for the benefit of the public	Opened in 2017, this £40m project was developed by EastSide Partnership and delivered by Belfast City Council (BCC). **Funded by the Big Lottery Fund**, BCC, the Department for Communities and Department for Infrastructure. It includes an **£11 million flood alleviation element which protects 1,700 properties.** CCG has won a range of awards recognising the community engagement model developed by ESP. • **A 9km linear park** for walking and cycling including 16km of foot and cycle paths • **26 new or improved bridges and crossings** • It serves **23 schools and colleges** • Up **to 5km of rivers cleaned** with wildlife thriving • **1700 homes are protected** from flooding • It includes **hubs for education**, interpretation points and tourism and heritage trails • A **wildlife corridor** from Belfast Lough to the Castlereagh Hills • C.S. Lewis Square – provides a unique **hub and spa**ce for events and activities • Footfall of approx. **350,000 per year** at locations with counters.	ESG will continue to focus on the **sustainability of CCG as a living landmark.** A major challenge is ensuring resources to maintain green spaces. How do we ensure that we preserve spaces like the Connswater Community Greenway for future generations? In 2023, ESG commissioned a consultation, which led to the creation of a report titled **Climate Action: A Vision for the Connswater Community Greenway**. This report identified 7 key recommendations; Eliminating Emissions, Building Biodiversity, Capturing Carbon, Raising Awareness, Strengthening Resilience, Nurturing Research and Sustaining Activity. The EastSide Greenways Concept Plan identifies potential greenway routes in East and those **connecting East to the rest of the city**. Next steps include increasing stewardship, exploring **community ownership models** and continued working with environmental bodies to engage with people on nature, biodiversity and climate change. 

Partners	Contact
Belfast City Council, The Department for Infrastructure and The Department for Communities	Jacqueline O'Hagan, EastSide Greenways Manager jacqueline@eastsidepartnership.com 028 9045 1900

Sustainable Drainage

Aims and Objectives	Looking Back	Looking Forward
This Strategic Drainage Infrastructure Plan seeks to: • Help protect against flooding by managing the flow of water through a catchment from source to sea; • Enhance the environment through effective wastewater management and provision of blue/green spaces to benefit local communities; and • Grow the economy by providing the necessary capacity in our drainage and wastewater management systems to facilitate new development projects including house building.  	Living With Water in Belfast, an Integrated Plan for Drainage and Wastewater Management in Greater Belfast, was endorsed by the NI Executive and published by the Department for Infrastructure in November 2021. Living With Water in Belfast is a long term plan that promotes partnership working to develop and deliver integrated sustainable drainage solutions for the benefit of society. The published plan indicated that its implementation could cost around £1.4 billion over the next 12 years, with over £1.2 billion of this needed to upgrade our wastewater treatment works (WwTW) and sewerage networks. Approximately £200m is also needed for investment in blue/green infrastructure which includes more natural drainage solutions to help manage the flow of water through the urban areas.	• To facilitate the management of such a significant programme, the Living With Water in Belfast area has been divided into nine smaller catchment areas. • Integrated Catchment Delivery Plans (CDPs) are being developed and implemented for each of the 9 areas. • The CDPs will include river flood alleviation projects, upgrades to sewerage networks and WwTW and integrated blue/green initiatives. • Development and delivery of the CDPs are being taken forward by four Catchment Delivery Groups made up of officials from DfI, NI Water, NIEA and other delivery partners. Inflationary costs in construction since Nov 2021 along with some changes to project scope have impacted programme costs. A review of the affordability of Living With Water in Belfast is currently underway.

Partners	Contact
DfI, NI Water, Belfast City Council, NIEA, DAERA, Utility Regulator NI	Living With Water Programme livingwithwater@infrastructure-ni.gov.uk

Belfast Tidal Flood Alleviation Scheme

Aims and Objectives

- To identify a scheme of works that will provide a long-term approach to tidal flood risk management for Belfast.
- To reduce the risk of tidal flooding. Tidal flood risk is of most concern, with over 1,500 properties currently at risk from a significant tidal event. The impact of climate change causing sea level rise will increase the number of properties at risk to over 3,900 (3,023 residential and 902 commercial) by 2080 and over 7,300 (5,865 Residential and 1,466 Commercial) by 2117.

Looking Back

Design and Build (D&B) contract was awarded in September 2021. Construction began in **July 2022**. The scheme is funded by the Department for Infrastructure (Dfl).
The scheme extends from **Belfast Lough** to **Stranmillis Weir**, which is the extent of tidal influence on the River Lagan. The scheme is split into five flood cells through various parts of the city. Dfl's design standard for sea defences is to protect to the **1 in 200 year level** with an appropriate increase in level (freeboard) to allow for uncertainties.

Looking Forward

Programmed completion of the overall scheme is currently anticipated as **late summer 2024**. When complete, the scheme will provide enhanced tidal flood protection to over **1,500 properties** in a current day tidal flood event. Future actions include:

- Consultation with major stakeholders and landowners - critical to the successful completion of the construction phase.
- Upon completion of the scheme the Department's existing deployment plans will be updated - requirement for a significantly reduced emergency deployment to achieve a much higher standard of protection.
- Updates will be provided to the Belfast Flooding & Severe Weather Working Group, and the Belfast Emergency Preparedness Group, to ensure that the Department have well-established and coordinated arrangements in place for the emergency deployment of the non-permanent sections of the flood defences.
- Appropriate programme of regular training and exercising for deployment of the demountable/temporary barriers

Partners	Contact
Dfl Rivers	Caoimhe O'Neill Dfl Rivers Caoimhe.ONeill@infrastructure-ni.gov.uk

QUB Environmental Solutions Centre – i. GroundsWell consortium

Aims and Objectives

The GrounssWell Consortium comprises Belfast, Edinburgh and Liverpool City Region. GroundsWell aims:

- To take a systems approach - the multiple and interconnecting components of policy-making, practice, perception and people which together affect the presence, location, character and use of UGBS
- To transform the system so that the components function together.
- To develop and use meaningful community engagement

Looking Back

Partner Workshop - At the outset a workshop was convened with partner organisations sharing an interest in the Connswater Community Greenway and climate action. This included BCC, the DFI and Climate NI.

Public Questionnaire - Survey developed and circulated amongst the public on paper and online. 188 responses were received and form the basis of the report

Love Your Greenway Market Stall - Public engagement took place during a Saturday afternoon market event held at C.S. Lewis Square with a stall specifically for this initiative.

Public Drop-In Event - All day event was held at the Skainos Centre which included focus group workshops and arts based activities with local school children.

Webinar - The findings and draft proposals presented and discussed during an online event. Feedback used to further refine the vision.

Looking Forward

The report identifies 7 recommendations:

1. Carbon capture – prioritise sequestration
2. Eliminate emissions – target direct and indirect greenhouse gas emissions
3. Strengthen resilience – adapt the Greenway and surrounding areas
4. Build biodiversity – manage ecologically
5. Raise awareness – inform and inspire action
6. Sustain activity – maintain and grow capacity
7. Nurture research – test and develop

Partners

Connswater Community Greenway Climate action partners: EastSide Partnership and The Paul Hogarth Company
GroundsWell consortium list of partners available here: https://www.qub.ac.uk/sites/groundswell/Whoweworkwith/
GroundsWell consortium list of research partners available here: https://www.qub.ac.uk/sites/groundswell/Meettheteam/

Contact

Project contact: Professor Ruth Hunter, Professor of Public Health and Planetary Health, Centre for Public Health, Queen's University Belfast; email: ruth.hunter@qub.ac.uk

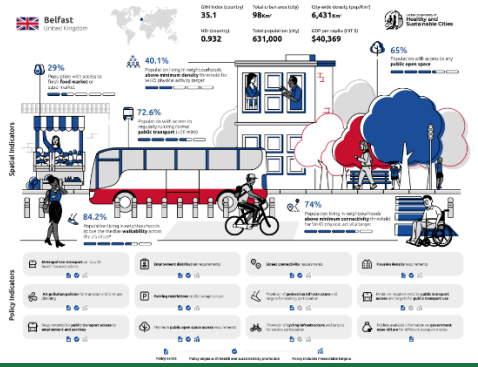
QUB Environmental Solutions Centre – ii. SPACE:

Supportive environments for physical & social activity, healthy ageing & cognitive health

Aims and Objectives	Looking Back	Looking Forward
• To Involve older adults and a range of stakeholders from the outset and throughout. • To review existing research, to understand the relationships between our biology, our lifestyles and our environment. • To analyse data from over 8,000 older people in Northern Ireland, to explore how different environmental factors, , relate to brain health. • To collect new data from 1,000 older people that are measures of brain health and physical activity, and monitor the locations they visit in their environment • To explore how our biology plays a role in how the urban environment • To host workshops with local citizens to 'sense-check' our findings https://youtu.be/1SEEl_oD7nk	To date, SPACE has the following outputs: • Causal loop diagram exploring the complex system of the urban environment and cognitive health: • Evidence gap map showcasing and summarising the research evidence on urban environment and cognitive health: • A linked dataset on environment and healthy ageing: • A dataset collecting GIS, GPS and accelerometer data with 400 older people: • An exploration of epigenetics and biological responses to urban environment factors and cognitive health: • A video series on 5 topics (noise and light pollution; green and blue spaces; urban planning; air and soil pollution; planetary health and climate change: A series of fact sheets to accompany the video series above and a geoportal providing access to over 80 environmental datasets in NI • 26th October 2023 – launch of the SPACE geoportal • 8th February 2024 – SPACE celebration event providing insights into key findings from research, policy and practice	In the next year - • A White Paper outlining a series of policy recommendations on environment and health. • Practice-oriented outputs for urban planners, urban designers and other urban practitioners . • Further analyses and research findings, and extension of SPACE cognitive health model to other chronic disease conditions. SPACE SUPPORTIVE ENVIRONMENTS FOR PHYSICAL & SOCIAL ACTIVITY, HEALTHY AGEING & COGNITIVE HEALTH

Partners	Contact
Partners include: Innovation Lab (Department of Finance), Belfast Healthy Cities, Public Health Agency NI, Belfast Healthy Ageing Strategic Partnership (HASP), Age NI, Belfast City Council, Commissioner for Older People NI, Land and Property Services, Department for the Economy, EastSide Partnership, Translink, The Paul Hogarth Company, Anaeko Limited, Thermo Fisher Scientific: https://www.qub.ac.uk/sites/space/OurPartners/	Project contact: Professor Ruth Hunter, Professor of Public Health and Planetary Health, Centre for Public Health, Queen's University Belfast; email: ruth.hunter@qub.ac.uk

QUB Environmental Solutions Centre –
iii. Global observatory of healthy and sustainable cities

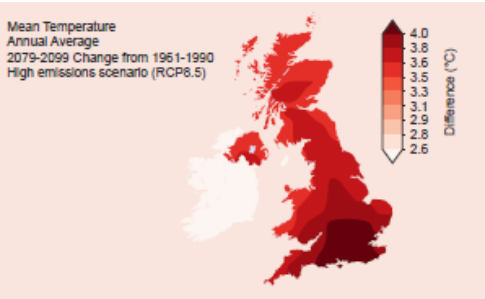
Aims and Objectives	Looking Back	Looking Forward
• To provide comparable spatial and policy indicators of healthy and sustainable urban design and planning for cities across the globe. • To use indicators that allow benchmarks, and tracking progress for attaining cities that, by design, maximize people's health and wellbeing, whilst contributing to climate change mitigation.	Launched in **May 2022**, the Global Observatory of Healthy and Sustainable Cities website has had over **6,000 website visits**, with 153 downloaded scorecards and reports - coming from 31 countries and 79 cities and represent 12 different sectors. The Lancet Global Health Series on Urban Design, Transport, and Health, published in May 2022 demonstrates how those indicators can be used to measure **urban design and transport policies** and features in cities. We present the results of a 3.5 year case study in 25 cities (of which Belfast is one of these exemplar cities) in 19 lower-middle and high-income countries. We identified thresholds for built environment interventions that could help achieve the World Health Organization's target for **increasing physical activity by 15% by 2030**. We also show how the indicators can guide decisions about what must change in order to create **healthy and sustainable cities**; policies for urban and population health; create tools so that cities can replicate our indicators, and explore 'what next' is needed to create healthy and sustainable cities.  	1000 Cities Challenge Our vision for the Global Observatory of Healthy and Sustainable cities is that it will: • Be used as a surveillance, reporting, goal setting, policy making, practical guidance and advocacy tool. • Encourage the scaling up of healthy and **sustainable urban design and planning.** • Provide **data comparability** across multiple cities of the world. • Grow to include additional **city planning indicators** and comparable data for over 1000 global cities. The scorecards and reports for the cities, available to date as part of the Observatory, are only the beginning of a bolder, **global challenge.** We are seeking city governments and organizations working with geospatial data scientists, policy researchers, and the Open Data community from around the world to join the 1000 Cities Challenge

Partners	Contact
The list of global research partners can be accessed here: https://www.healthysustainablecities.org/about	Project contact: Professor Ruth Hunter, Professor of Public Health and Planetary Health, Centre for Public Health, Queen's University Belfast; email: ruth.hunter@qub.ac.uk

Belfast Urban Heat Climate Service

Aims and Objectives

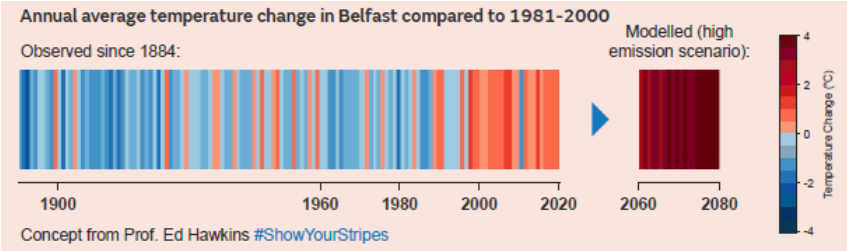
This work aims to address an information gap at the city and sub-city level by using high resolution climate projections from a model that provides enhanced detail over urban areas and subsequently more representative estimates of the heat hazard in urban areas



Looking Back

What's been achieved:

- Running 'heat walks' across the city to understand the various vulnerabilities the city has to increasing temperatures and the urban heat island effect
- Application of the work into the Belfast Tree Equity Study to ensure future heat projections across the city can inform where new trees need to be planted across the city
- Use of the Belfast Heat Vulnerability Index into the Climate Change Risk Assessment for Belfast City Council and
- Use of the Belfast heat service for learning and knowledge exchange across the UK iva academic publications:
  - https://www.sciencedirect.com/science/article/pii/S2405880724000190
  - https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/spf/ukcr_heat_pack_belfast.pdf
  - https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/research/spf/belfast-city-pack_august-2022.pdf



Looking Forward

The Belfast Heat Service provided by the Met Office is having a wide application across climate work in Belfast that will be further developed in 2024:

- Application of heat vulnerability scores to climate risk assessment for Belfast
- Further education through urban heat walks and talks with universities
- Use of heat vulnerability to identify targeting of green infrastructure in the city in areas of greatest need.

Partners

Belfast City Council, Climate NI, Met Office

Contact

Project contact: Victoria Ramsey, Met Office, Victoria.ramsey@metoffice.gov.uk

UrbanARK -
Enhancing Flood Risk Management for Urban Coastal Communities Using LiDAR Applications

Aims and Objectives

The UrbanArk project aims:

- To **improve the resilience** and emergency preparedness of urban centres and their communities to the threat of coastal flooding.
- To locate and **identify internal geometry of underground spaces** in urban centres by using low-cost light detecting and ranging (LiDAR) data, integrating these data into refined flood prediction models and using the LiDAR digital twin as a risk communication tool to better engage communities in emergency preparedness.

Looking Back

The project has collected **high-resolution LIDAR data for Belfast City Centre** and developed refined flood models for coastal flood scenarios. UrbanARK has developed a cloud-based data platform that can be integrated with other smart city applications. The use of LiDAR-based 3D digital twins of the urban environment for flood risk communication has been trialled. The project has **engaged with key stakeholder** groups at a workshop event in Belfast City Hall.

In order to explore the use of the high-resolution LiDAR data collected in Belfast for other Smart City applications, leveraged **funding under the EPSRC Impact Accelerator Award Scheme was secured.** These activities will explore the use of the LiDAR data set in the context of green infrastructure management and wireless communication asset management.

Looking Forward

- Further development of the flood risk simulations for Belfast City, in particular the impact of underground spaces on street-level inundation and community risk.
- The developed cloud-based data platform provides opportunities to link the collected high-resolution LiDAR data to other urban and smart city use cases; it is envisaged that feedback from stakeholder engagement will highlight the most appropriate areas for application.
- Opportunities for leveraged follow-on funding will be sought to explore the use of the developed cloud-based data platform and the high-resolution LiDAR data in the context of other smart city and urban management applications.

Partners

Belfast City Council, University College Dublin, New York University, Queen's University

Contact

Dr. Ulrich Ofterdinger, School of Natural and Built Environment, Queen's University Belfast
U.Ofterdinger@qub.ac.uk

Belfast Local Area Energy Plan

A Local Area Energy Plan (LAEP) is a whole energy system approach, led by local government, in collaboration with key stakeholders. It identifies the most cost-effective integrated plan for the local area to contribute to timebound national and local Net Zero targets whilst maximising co-benefits to society. The LAEP builds a strategic case for local energy system decarbonisation in Belfast. The evidence base is guided by existing ambitions, plans, and strategies for Belfast stakeholders and the wider N. Ireland context. Analysis uses Belfast's existing emissions and reduction targets applied to the local government area boundary.

This LAEP provides a 'pathway', co-developed with the support of local stakeholders, for Belfast to achieve a Net Zero energy system by 2050. The pathway is based on techno-economic modelling from multiple scenarios, which describe possible futures for Belfast, with analysis of local co-benefits and impacts of energy system change. The Pathway highlights changes which are considered low regrets, and some which remain uncertain requiring future decisions to be made. The LAEP signposts opportunities for investment, which could bring significant local benefits, such as employment creation, air quality improvements, bill savings and healthier homes. Key risks to the successful implementation of the projects, actions, and recommendations of this LAEP are also identified.

The LAEP highlights the following outline priority projects:

- Oil to low carbon heating transition
- Domestic retrofit measures
- High temperature district heat network in the city centre
- Solar photo voltaic (PV) on public buildings
- Solar carport with electric vehicle (EV) charging

A rich dataset that details individual buildings along with their current attributes as well as future predictions of potential (around solar PV generation) was created as part of the LAEP modelling exercises. The data when combined with low level data from other sources is a gamechanger for evidenced based decision making in the city around energy.

This data has already been used to support projects that further explore energy solutions for the city in the form of an Innovate UK Pathfinders project. This project will help to overcome a range of non-technical barriers to help deliver 2 of the projects outlined in the LAEP. The non-technical barriers include assessments of conflicts or compatibility with other masterplans (housing developments, transport plans etc), low maturity/readiness of the market, legal and commercial arrangements and it will then also identify potential business models.

Belfast CLIMATE ACTION

Creating a sustainable and circular economy – delivering Belfast's Net Zero Carbon Roadmap

Belfast Region City Deal (BRCD)

Aims and Objectives	Looking Back	Looking Forward
Our 'Digital Innovation' activity is committed to delivering emerging projects in a way that reflects social, economic and environmental sustainability priorities – with 'Sustainability & Resilience' selected as one of the Region's 'Grand Challenges' for the development of its challenge fund programme. Our aims are: • To seek investment opportunities to invest in enabling infrastructure to meet the wider ambitions of the city and wider BRCD region. • To promote innovation and sustainability to support economic growth and climate action and improve connectivity.  	Two projects in the Digital Pillar of BRCD have completed business cases: • A new 7,000 m² **i4C Innovation and Cleantech Centre, led by Mid and East Antrim Borough Council,** will utilise £13.5M of BRCD funding. It will provide a physical base that supports open innovation and commercialisation activity, focusing on acceleration of 'clean tech' for the benefit of SMEs and industry across NI, aligning with the UK Industrial Decarbonisation Strategy. It will provide a base for firms in the cleantech sector, including the emerging hydrogen economy to benefit from being located in a geographic cluster. It has been approved by the Economy Minister and is now proceeding for DoF approvals. • Digital Catapult UK has been leading on proposals for a **Digital Twin Centre in Northern Ireland**, focusing initially on maritime, aerospace and defence sectors. Opportunities offered include shortening time to market, reducing costs, reducing emissions and accelerating inclusive growth. Other benefits - increased GVA and the creation of higher value jobs; a skills uplift, SME growth in the NI ecosystem and an opportunity for an innovation cluster to nurture and grow locally and nationally. An outline business case (OBC) was approved by the Department for Economy in October 2022 and is currently moving through the process towards Department of Finance approval.	As we progress the above projects and consider other opportunities aligned to the Digital Programme we will continue to take account of the need to **contribute to a sustainable and resilient future for the region**. Plans for the **first phase of the challenge fund** programme will shortly be developed and implemented.

Partners	Contact
Antrim and Newtownabbey Borough Council, Ards & North Down Borough Council, Belfast City Council, Lisburn & Castlereagh City Council, Mid & East Antrim Borough Council, Newry, Mourne & Down District Council, Ulster University, Queen's University, Belfast Met, Northern Regional College, South Eastern Regional College, Southern Regional College.	Damien Martin, Programme Director Belfast City Council: martindamien@belfastcity.gov.uk

Belfast Stories

Aims and Objectives	Looking Back	Looking Forward
• To grow Belfast's economy through tourism led regeneration and support for screen-based creative industries; • To create and sustain a diversified, shared, vibrant city where people want to live and work, visit and invest; and • To engender a greater sense of connection and belonging. 	In 2021 / 22 an accessible and prominent site for Belfast Stories was secured. Located on the Royal Avenue / North Street intersection, it includes the 1928 former Bank of Ireland listed building. Sustainability and inclusive economic growth are at the heart of the project. In 2022 BCC commenced the procurement of the design teams. Belfast Stories aspires to be at the forefront of environmentally sensitive design, minimising energy consumption and maximising the potential for enhancing biodiversity, on-site energy generation and the use of sustainable transport. We have specified **BREEAM** 'Outstanding' sustainability standard to be obtained for the whole project and CEEQUAL 'Outstanding' for the civil/public realm aspects. The building is to be designed to Passive House 'Plus' standard requiring low energy demand for heating and cooling as well as utilising onsite renewables. A feasibility study for the use of geothermal energy on site was completed in 2022 showing favourable site conditions for further consideration by the successful design team. www.belfastcity.gov.uk/BelfastStories	The Integrated Design Team will include architects, engineers, environmental consultant, planning consultant and landscape architect. The Interpretative Planning and Exhibition Design Team will design the compelling visitor experience. The teams will produce the design brief and concept design to RIBA 2 by **Q2 2024.** In 2024 we will develop the Outline Business Case for submission to the Belfast Region City Deal / Department for funding. The designs will consider how best **Belfast Stories can be a demonstrator of intent and Net Zero carbon exemplar** for the city and region. By the end of 2024 we hope to have a contract for funding for Belfast Stories. **Challenges** - ensuring we have the right teams in place to deliver Belfast Stories; funders' requirements; ensuring costs remain within budget with rising inflation and construction costs; and meeting sustainability requirements.

Partners	Contact
Belfast City Council, Northern Ireland Screen, Belfast Region City Deal, Tourism Northern Ireland.	Wendy Langham, Belfast City Council: BelfastStories@belfastcity.gov.uk

A Bolder Vision

Aims and Objectives

- To create a 'civic spine' with a focus on people – to provide safe and accessible movement through the city centre, including car-free streets.
- To reimagine the Inner Ring Road and end car dominance - reducing physical severance for surrounding communities and becoming a sustainable mobility corridor.
- To promote city centre living – by providing greater quality, choice and affordability of accommodation and establishing a city-wide network of people friendly routes and city parks.
- To embrace the River Lagan and waterfront - encouraging better use of the river and strengthening connections between the river and the city centre.

Looking Back

A Bolder Vision (ABV) is a joint initiative that aims to provide a holistic look at the city centre's infrastructure and connectivity with surrounding communities; its streets and places, **connecting routes and placemaking** and regeneration opportunities from a people and place-based priority. It is:

- A **framework** for delivery of key infrastructure and regeneration projects that will help to unlock and shape design considerations to allow progression on the major planned capital investment including Streets Ahead 3 and 5, BRT2 and the Inner Ring Road Gateway Public Realm schemes.
- And will, inform the Eastern Transport Plan (ETP) and future projects.

Establishing the right direction for change through the Bolder Vision will be a key consideration in developing the right integration of demand management in conjunction with prioritised **sustainable and active travel**. The joint team will work with external partners, which could include the BIDs, communities, Maritime Mile, Weaver's Cross, the Universities, Innovation City Belfast and private sector partners as well as Council's own investment prioritisation to identify collaborative funding and delivery mechanisms.

Looking Forward

- **An agreed plan for public transport movement** along a clearly defined and recognisable civic spine that is configured to prioritise the movement of people along primary streets, supports effective access by public transport and further delivers on the place-making priorities of Belfast Streets Ahead Phase 1 and the principles of A Bolder Vision into future public realm and capital infrastructure schemes.
- Complete a Strategic Environmental Assessment
- Publish A Bolder Vision for Belfast Strategy and Action Plan.
- **Establish an Integrated Delivery Team** comprising key stakeholders from the public, private, community and voluntary sectors to take forward the actions from A Bolder Vision for Belfast into delivery plans.

Partners	Contact
Belfast City Council, The Department for Infrastructure and the Department for Communities.	Callie Persic, Development Manager, City Regeneration and Development Section, Belfast City Council, 028 9027 0288 ext 3418 persicc@belfastcity.gov.uk

Belfast Harbour – Green Port

Aims and Objectives

Belfast Harbour's integrated Environmental, Social and Governance (ESG) strategy puts human capital and sustainability at the core of everything we do and is underpinned by our Trust Port mandate to operate, maintain, and improve the Belfast Harbour Estate.

The 'Green Port' pillar of our corporate plan commits that we 'operate in a way that conserves the earth's depleting resources, delivers sustainable economic growth, and improves the wellbeing of our communities and planet for generations to come'.

Climate Action represents a core pillar of Belfast Harbour's ESG agenda, our Climate Action Strategy approaches this challenge in an agile and cohesive manner incorporating mitigation, facilitation, and adaptation.

Our ambitious goal:

Net-Zero Green House Gas (GHG) emissions in our direct operations by 2030

Looking Back

In 2023, Belfast Harbour's Scope 1 & 2 emissions totalled 1,756 tCO2e, a decrease of 18% from the previous year, due largely to the continued implementation of Hydrotreated Vegetable Oil (HVO) as a low carbon alternative fuel.

Our associated actions in 2023:

- We invested over £250k in new electric vehicle fleet and charging infrastructure, almost 50% of our vehicle fleet is now electric.
- We continued to upgrade street and quay lighting across the Harbour estate with high efficiency LED alternatives.
- We transitioned our marine vessels onto low carbon alternative fuel - HVO. In 2024, this will cut our Scope 1 emissions by a further 40%.
- We procured 100% REGO certified renewable electricity, for our own facilities and for our tenants, reducing our Scope 2 & 3 emissions by over 3,500 tCO2e per annum.
- We continue to collaborate with leading industry partners, like Catagen and Artemis Technologies, on promising maritime focused decarbonisation and future fuel projects.

Looking Forward

By improving our own performance, we are developing a stronger, more sustainable future for everyone, driving economic growth, making positive contributions to our local communities, protecting our environment, and inspiring positive change. Looking forward, we will:

REDUCE our own emissions:

- Through data driven analytics and energy efficiency actions
- The continued adoption of alternative fuels
- Electrification of heat, plant & mobility
- The seamless integration of on and off-site renewable technologies

SUPPORT the local clean energy transition:

- Through targeted investment into dedicated offshore wind construction terminal facilities
- Supporting clean energy technology clusters
- Developing capabilities that will enable shore power
- Facilitating future fuels for the maritime industry

ADAPT to climate change risks and opportunities:

- Reducing vulnerabilities to the physical impacts of climate change

Mainstreaming climate risk in business planning and operations.

Partners	Contact
Belfast Harbour	Nicholas Cowan n.cowan@belfast-harbour.co.uk

Translink - A Zero Emissions City Bus Fleet by 2030

Aims and Objectives

- Procure and place into service, within the Belfast Metro Network, 103 zero emission double deck buses consisting of both hydrogen fuel cell and battery electric vehicles by end 2022.
- Decarbonise its entire Belfast bus fleet by 2030.
- To aid Translink's plans to target a 50% reduction in GHG emissions, per passenger km, by 2030.
- Support Translink being Net Zero from 2040 and climate positive by 2050 going beyond achieving Net Zero to create and an environmental benefit by removing additional carbon dioxide from the environment while growing our business.

Looking Back

Translink's Zero Emission Programme involved collaboration with Wrightbus on development, build and delivery of **100 Zero Emission buses: 20 Streetdeck Hydroliners and 80 Streetdeck Electroliners**. To support these vehicles the project also undertook significant work to introduce complex electric charging hubs at 2 Belfast sites, innovative hydrogen refuelling stations and associated upgrades to maintenance facilities. Additional work was required to ensure adequate supply of utilities - electricity and procurement of hydrogen gas.

A successful pilot with the Office of Zero Emissions saw three hydrogen fuel cell vehicles introduced into Belfast in December 2020.

The project utilised several business change workstreams to identify changes to existing procedures in addition to developing new systems of work and embedding them into the business effectively. The project also completed training for 600 plus staff across several disciplines to support our operation.

The DfI supported funding in the region of £54 million in response to the project business case. Translink has assigned a dedicated team to oversee the project. This project team has also been supported by cross divisional representation from throughout the business.

100 zero emission vehicles were put in passenger service in Belfast Metro at the end of March 2022.

Looking Forward

- Continue to decarbonise Belfast's transport system through modal shift to public transport and active travel from the private car.
- **38 battery** electric vehicles, replacing the existing Foyle Metro fleet, to have the fully zero emission bus service on the City of Derry network.
- Launch 6 battery electric minibus vehicles into Coleraine, with 2 dedicated for the Giant's Causeway Tourist Centre.
- Continue to plan and prepare for further zero emission bus roll out for 2024, seeing further vehicles introduced to Belfast Metro resulting in **circa 50 % of all services being zero emission**.
- Further comprehensive route modelling assessments-inform future bus technology choice.
- To assess the total cost of ownership for zero, low or convertible technologies and depot and operational assessments to determine suitability of the different zero emission technologies.
- All Belfast and Foyle Metro bus fleets will transition to zero emission technologies by 2030.
- This decarbonisation programme poses an opportunity to help position Northern Ireland as a market leader in renewable energies such as the hydrogen economy.

Partners	Contact
Wrightbus, ChargePoint, Logan Energy, NIE, Power NI, Henry Brothers	Ian Campbell - Ian.Campbell@Translink.co.uk

Translink - Developing a Hydrogen Eco System

Aims and Objectives

- To procure and place into service, within the Belfast Metro Network, 23 zero emission hydrogen fuel cell double deck buses by the end of 2022.
- To install the necessary hydrogen refuelling infrastructure to facilitate refuelling of hydrogen fuel cell buses.
- To upgrade depots to enable safe and efficient maintenance of hydrogen powered buses.
- To aid, Translink's plans to target a 50% reduction in GHG emissions, per passenger km, by 2030.
- To support a Net Zero public transport system by 2040.

Looking Back

Translink's journey to decarbonise the fleet commenced with a pilot project involving a collaboration formed with Power NI. This project saw the provision of **3 hydrogen fuel cell double** deck buses launched in December 2020, which will be powered using hydrogen generated from curtailed wind power at a wind farm in Co. Antrim.

The project was supported by funding from the Office of Zero Emission Vehicles (OZEV) as well as DfI. As well as the buses, **the first hydrogen refuelling station (HRS) in Ireland was commissioned in 2021**, as well as an upgrade to the maintenance facility to ensure safe and efficient maintenance of the buses.

Translink have implemented a further Zero Emission Programme involving collaboration with Wrightbus on development, build and delivery of 100 Zero Emission buses, which included **20 Streetdeck Hydroliner** fuel cell double deck buses.

To support these vehicles the project also undertook significant work to introduce a further innovative hydrogen refuelling station with Logan Energy and associated upgrades to maintenance facilities in Newtownabbey Depot.

Looking Forward

- Continue to decarbonise Belfast's transport system through modal shift to public transport and **active travel** from the private car.
- Continue to work with the industry to ensure that high volumes of locally produced green hydrogen can be obtained to enable further roll out of fuel cell buses.
- Carry out further comprehensive route modelling assessments to inform the future bus technology choice.
- Continue to assess the total cost of ownership for zero, low or convertible technologies.
- Perform depot and operational assessments to determine suitability of the different zero emission technologies.
- **Lead the transport transformation in NI** creating public transport that attracts people from private cars for a better quality of life for all. This decarbonisation programme poses an opportunity to help position Northern Ireland as a market leader in renewable energies such as the hydrogen economy.
- Further zero emission buses to ensure Belfast has a Net Zero bus network by 2030.

Partners

Wrightbus, Logan Energy, Power NI

Contact

Ian Campbell - Ian.Campbell@Translink.co.uk

Belfast Retrofit Delivery Hub

Aims and Objectives

- To identify opportunities for retrofit, bringing together partners who can realise those opportunities.
- To identify and endorse required standards of building performance
- To identify ways of supporting economic activity, skills and jobs that achieving those standards require
- To draw together partners to source and release funding
- To promote a collaborative, solutions approach sharing knowledge across ownership and tenure
- To ensure engagement with stakeholders across the city, to support and promote complementary initiatives
- To report on progress to the Our Planet Board

Looking Back

120 representatives of 66 organisations have been engaged with a core group of around 12 lead agencies. Best practice has been shared through a series of site visits and case studies, drawing on experience of longer established initiatives in NI, GB and the RoI. Unique attributes that differentiate the Belfast Retrofit Delivery Hub from others in the UK include the following:

- Stakeholders from all aspects of retrofit delivery have been involved, effectively getting **the 'whole system in a room'.**
- Using the UK National Retrofit Strategy as a reference point has enabled discussions to reflect on how delivering retrofit, at scale, is a complex problem where many different elements all need to move at once.
- Aiming to be **funding ready** rather than funding led
- Most retrofit programmes focus on one tenure only -this spans all **tenures and sectors.**

Looking Forward

Over the next 12 months partners aim to agree a programme of work packages, to be delivered by Hub members through a series of task and finish groups on the following themes:

- Pilot cross-tenure retrofit project
- Creating **customer demand** - Improving understanding, creating the market
- Skills and awareness – building professionals and communities
- Funding and financing mechanisms

Partners

ARUP, Bank of Ireland, BCC, Belfast Met, Belfast Trust, Chartered Institute of Architectural Technologists (CIAT), Chartered Institute of Building, Chartered Institute of Housing (CIH), Choice Housing, CITBNI, Climate NI, Connected Places Catapult, Construction Employers Federation, Construction Industry Training Board (CITBNI), Consumer Council, Danske Bank, DfC, DfE, DE, DoF, Construction & Procurement Delivery, Education Authority - Energy and Sustainability, Energy Store Limited, Federation of Master Builders, Health Trust, Invest NI, JP Corry Builders Merchants, Landlord Association for NI, Leeds University, NEA, NI Federation of Housing Associations, NI Water, NIFHA, NIHE, QUB, Royal Institute of Chartered Surveyors, Royal Society of Ulster Architects, SIB, Sodexo, SONI, South Eastern Regional College, South West College, SSE, Supporting Communities, Ulster Bank, UU

Contact

Brenda Roddy Project Officer
roddybrenda@belfastcity.gov.uk

Alleviating Fuel and Transport Poverty

Aims and Objectives	Looking Back	Looking Forward
• To determine the nature of energy and transport poverty, and what can be done to alleviate these conditions, in terms of physical solutions and technical analysis. • Survey to determine lived experience of those in energy and transport poverty • To conduct a first of its kind Just Transition case study in the form of geographically explicit analyses of identified solutions to energy and transport poverty	Research discusses the importance of a "Just Transition" emphasising need for fairness and equity. Addressing energy and transport poverty is crucial for achieving this goal, particularly in Northern Ireland and the Republic of Ireland. The initial part of the work highlights the complexities in their conceptualisation and measurement. It suggests the replacement of single indicators with composite metrics that consider the overlap between these two forms of poverty and incorporate factors related to vulnerability. A survey conducted in Ireland fills data gaps by measuring energy and transport poverty. Surprisingly, the expected correlations between causal mechanisms and poverty conditions were not found, leading to the conclusion that the official criteria for identifying the energy or transport poor should be broadened. The study includes case studies from both rural and urban/suburban areas in NI, examining solutions such as domestic retrofit for energy poverty alleviation and the provision of eBikes and car sharing for transport poverty alleviation. The results indicate that these solutions generate net economic benefits, regardless of social equity considerations.	Recommendations for future research include: • Revamped and more thorough housing data collection in Northern Ireland is required to explicitly include elements such as external wall area which can be fed into appropriate housing stock energy models (HSEMs). • Model development, in the field of transport, to explicitly incorporate multiple elements of the transport poverty condition - cost elements into models that are concerned with accessibility or those that take a geographic approach to transport modelling. • Field of energy, to develop an open-source, modular HSEM which has been noted to be missing from the field for some years. • An up to date assessment of the performance of energy poor dwellings before and after retrofit is required. • Deep retrofit targets should be developed for NI along with an implementation plan. • An explicit equity assessment of the outcomes of the case studies • Assessment of the physical and digital infrastructure needed to support modal shifting and policy mechanisms for facilitating car sharing is needed.

Partners	Contact
Northern Ireland Department for the Economy, Queen's University Belfast and The University of Manchester	Professor Aoife Foley (Chair in Net Zero Infrastructure), Email: aoife.foley@manchester.ac.uk and Dr Christopher Lowans

European Regional Development Fund – External Wall Insulation to Non-Traditional Houses

Aims and Objectives

Key objectives:

- To improve the energy performance of upwards of **1500 non-traditional properties**.
- To help improve the overall **energy rating** of Housing Executive stock to an average EPC of grade C.
- To **reduce carbon emissions** from some of the worst performing Housing Executive properties.
- To **reduce primary energy usage** from some of the worst performing Housing Executive properties.
- To establish an industry in Northern Ireland of **good quality retrofit design and installation.**

Looking Back

Since the project began in 2019, multiple ERDF schemes have been completed across the province.

- To date, over **800 properties** have been upgraded, of which over **470 are in the Belfast area**.
- This has been led by the **Housing Executive** who, along with the **Department for Communities**, secured the funding and have delivered the schemes through three procurements, involving approximately five contractors and countless sub-contractors. This has been a **catalyst for developing an industry** in Northern Ireland that is capable and confident in delivering retrofit.
- Identification of challenges, including those brought on by the **pandemic** which was followed by an **unstable construction** market and **fluctuating prices**.
- Housing Executive worked with contractors to support them in acquiring the **skills needed** to achieve a high-quality product. Lesson-learned exercises were carried out to ascertain the difficulties that emerged, so that these could be addressed in the next procurement.
- Impact and **success** of this scheme, in terms of its scale and quality, has been recognised nationally at the **Inside Housing Development Awards 2023**.

Looking Forward

- Schemes procured in 2022 are well under way and the aim is to deliver the remaining **600 properties** by the end of 2024.
- There are many challenges to face to achieve this, including maintaining a **capable workforce and attracting new contractors** who are perhaps not familiar with retrofit but are keen to enter into that area of work.
- By 2025 we hope to continue to support the retrofit industry by providing a **steady work-stream,** and by pushing standards to meet best practice, so that Northern Ireland is recognised a key contributor to meeting the UK's carbon reduction targets.

Partners

European Regional Development Fund, Department for Economy, Department for Communities, Northern Ireland Housing Executive

Contact

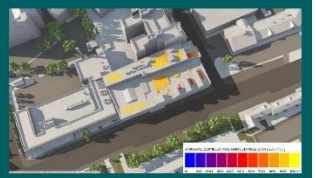
Adrian Blythe: Adrian.blythe@nihe.gov.uk

Delivering Belfast's Net Zero Carbon Roadmap: Solar PV Analysis

Aims and Objectives

- To reduce carbon emitted from buildings as per Belfast Carbon Roadmap. The project feeds into this ambition as it looks at the solar PV potential of council buildings across the city.
- To prioritise high energy consumers and reduce carbon emissions.

Example – Falls Leisure Centre



Results	SAP	CBDM
Existing Electricity Usage (kWh)	377,829	377,829
System Size (kW)	38.5	38.5
Estimated PV Generation (kWh/Year)	32,514	24,504
No. of Panels	110	110
% Contribution to Existing Electricity Usage / Self-Sufficiency (%)	9%	6%
Estimated Carbon Emissions Savings (tonnesCO_{2e}/ Year)	11.15	8.4

Looking Back

Working with Cork, Belfast City Council secured Shared Island funding to explore the potential of solar PV on its buildings. The output has been **two reports that analysed the potential and outline costs and savings** in terms of both money and carbon. The 2 projects were:

- Assessment of 10 buildings, with **5 in Belfast**, 5 in Cork. Included a visual structural assessment of the buildings.
- Focusing on 10 buildings in Belfast a desk-based exercise using a 3D software called VUCity outlined the potential generation of **electricity from solar PV** on each of the roofs compared to current **consumption levels**.
- A further project using the same software (VUCity) was undertaken with the Department for the Economy (DfE), looking at 56 buildings across the city, **11 owned by council**.
- The reports have been used to apply **for capital funding** to install solar panels on one of the buildings studied. Success will be measured by number of capital funding applications for PV panels, buildings that have had them installed, partnerships created (with Cork, DfE, VUCity), carbon and cost savings.

Looking Forward

Council is working with DfE on a continuation of the project at a wider area in the city and the solar PV potential of all buildings within the chosen boundary. The area will be the **UP2030** area, therefore adding to another ongoing project that is also aiming to reduce carbon emissions and create a Net Zero neighbourhood.

Challenges include obtaining data on existing consumption as the majority of the buildings will be privately owned. Planning is in place for alternative data sources and estimates that will enable the project to be delivered accurately and on time.
By summer 2024 we will have the UP2030 area mapped for its entire solar PV potential.

Partners

Belfast City Council, Cork City, VUCity, GIA, DfE and JBBarry

Contact

Claire Shortt, Monitoring, Learning and Reporting Officer
shorttclaire@belfastcity.gov.uk

Re-Wind

Aims and Objectives	Looking Back	Looking Forward
The aim of the Re-Wind project was to develop an approach and options for the repurposing of the wind turbines blades • **For the built environment**, the focus was to develop sustainable design options that drive change and best-practice in dealing with decommissioned wind turbine blades. • To develop a Geographic Information Science (GIS) approach for wind blade repurposing.	The Re-Wind Design Catalogue has been produced and presents designs and details of structures and products made from End-of-Life repurposed wind turbine blades https://www.re-wind.info/ Wind turbine blades have been successfully designed and tested as structural elements of telecoms towers, a footbridge, suitable for greenways, cycle paths or other areas of public space. Repurposed turbine blades have the potential to offer carbon savings. • One project in Cork in collaboration with Cork City Council – in Jan 2022, was funded under the Irish Department of Transport's Project Ireland 2040 initiative. The 5m span bridge was fully assembled at a local fabricator, then dismantled, reassembled and installed on site in half a day. The cost, excluding design and testing, totalled £23,208. • The second bridge of 5.8m span was installed for experimental purposes in Draperstown, NI, at a cost of £10,808, excluding design and testing. Funded as part of the US Ireland Re-Wind project funded by DfE Science Foundation Ireland and the US National Science Foundation.	• Increasing awareness of the issue as many of the 1st generation wind farms, at/or fast approaching their End-of-Life (EOL) stage. • Development of existing collaboration to promote and encourage the use of repurposed wind turbine blades as part of the city's and regionwide planning and development of sustainable circular strategies. • Promote uses including bus shelters, barriers, street furniture • Continue development and testing • Develop a Live-Build Projects Early Architectural Education module. • Promote company BladeBridge for future uses Success would be: • The repurposing of wind turbine blades would be an integral part of the city and region's climate resilience and sustainable circular strategies. • Wind turbine blades would have been successfully designed and tested as structural elements for replacement footbridge, in greenways, cycle paths • Wind turbine blades -successfully designed and tested for other potential uses including cycle and bus shelters, barriers, etc

Partners	Contact
Georgia Institute of Technology, University College Cork, Queen's University Belfast, City University New York and Munster Technological University, Cork. Department for the Economy (DFE). This work was supported by Department for the Economy (DFE), Grant USI-116; by Science Foundation Ireland, Grant 16/US/3334; and by the U.S. National Science Foundation under grants numbers 1701413 and 1701694, under the project "Re-Wind".	Prof Jennifer McKinley, Geography, SNBE j.mckinley@qub.ac.uk Blade bridge build in Draperstown, Prof Marios Soutsos and Kenny McDonald, SNBE, QUB. Live-Build Project, Dr Chantelle Niblock, Architecture, SNBE, QUB. Blade Bridge, Dr Angie Nagle angie@bladebridge.ie

Linen Quarter as Northern Ireland's First Sustainable District

Aims and Objectives

- To develop sustainable transportation options and promote active travel.
- To minimise environmental impact and promote clean energy sources.
- To promote efficient use of resources and reduce waste.
- To increase awareness of climate adaptation and mitigation.
- To enhance overall well-being and quality of life for all.
- To ensure all employees have access to fair and just compensation.
- To create a vibrant and safe social space for all.

Looking Back

Projects delivered are:

- Recruiting and onboarding of a Healthy and Sustainable Manager
- Successfully organised a health week in June 2023 attended by 330 participants.
- Delivered climate awareness training for levy payers.
- LQ BID designed and installed Flaxx (Brunswick St) and parklets (Linenhall and Bedford St)
- Launched the roll out of our Cycling UK 75% subsidised accreditation fee for levy payers and accompanying social media campaign.
- Accreditation from the Living Wage Foundation. This will be followed by an implementation plan in partnership with the Living Wage foundation.
- Regenerated Bankmore Square, including managed habitat.
- Summer programme filled with inclusive social activities that has been attended by 800 participants.

Looking Forward

Our target for the next phase relies on stakeholder engagement and a conducive public policy that supports and prioritises sustainability.

Transportation and mobility: increased Cycling Friendly Employers accreditation from Cycling UK, connected cycling lanes and more pedestrian zones for increased safe social spaces.

Social outcome: develop long-term planning solutions that are tailored to the community.

Challenges and support needed: Several challenges include a lack of engagement and resistance to change. The key to overcoming these barriers lies in stakeholder engagement and prioritising sustainability in policy making.

Moving forward: Greater collaboration needed to fully deliver our bold vision of a sustainable district -including local and private participation. We will continue to provide improvements while addressing environmental, social, and economic sustainability challenges. Our aim is to collectively contribute to the creation of a district that is environmentally responsible, economically viable, socially inclusive, and resilient to the future. www.linenquarter.org

Partners

Power NI, Cycling UK. RiverRidge, Living Wage Foundation, GEMS NI, Belfast City Council (UP2030), Climate NI, British Heart Foundation, DfI, DfC,

Contact

Regeneration Christiaan@linenquarter.org Healthy and sustainability Lawrence@linenquarter.org High level LQ initiatives Chris@linenquarter.org

Sustainable Tourism

Aims and Objectives

- To measure Belfast's sustainability performance at a destination level.
- To **benchmark** the city's performance against leading destinations globally.
- To **identify priority** areas for improvement and development.
- To put in place **interventions** to accelerate sustainability practices within the sector.
- To build sustainability capacity, culture and buy-in across the industry.
- To help to position Belfast as a responsible and sustainable destination to visit, meet and live.

Looking Back

Since 2020 Belfast has moved from 47th/48th to 11th in the world across 100 destinations globally in the Global Destination Sustainability Index (GDS). It is only one of two cities in the UK to feature in the global top 20 and its scores have increased from 41.9% to 86.4% in three years.

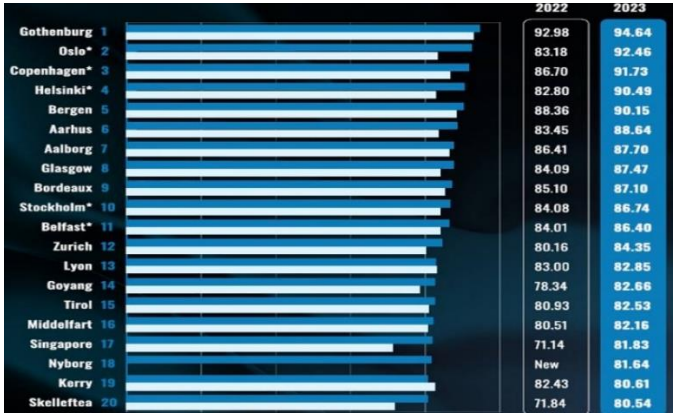
- Visit Belfast is now the joint **2nd highest** performing Destination Marketing and Management organisation in the GDS index with 95.8%.
- Belfast's industry/supplier performance has been transformed from **30% in 2020** to **87.5% in 2023.**
- Successful Green Tourism certification and acceleration of sustainability practices.
- **76%** of Belfast's hotel bedrooms are **sustainably certified** in 2024 from a baseline position of 23%.
- Visit Belfast won the Global GDS Innovation award in 2022 for its '**Changing the Menu. For Good'** project which has raised over £30,000 for food banks through delivering more sustainable events
- Cruise Belfast (VB-BH) developed its first **cruise sustainability plan.**
- National industry awards include – ABPCO Best Sustainability Initiative 2021, Best EDI event 2022, Best Legacy and Impact Initiative 2023.

Looking Forward

We aim to improve our GDS sustainability scores and ensure sustainability is embedded in all aspects of tourism planning and delivery.

Key projects planned include:

- A **carbon baseline study** to measure the footprint of Belfast's tourism industry in 2024 (BCC-VB-Danske Bank Partnership). The study would establish a baseline position to inform decarbonisation plans and KPIs.
- Introduction of **triple bottom line KPIs** to measure the economic, social and environmental impact of tourism.
- Baseline resident sentiment towards tourism and its value for the city.
- Development of **neighbourhood tourism** to maximise the benefits of tourism across all parts of Belfast and in its neighbourhoods.



Partners

Visit Belfast, Belfast City Council, Global Destination Sustainability Movement, Green Tourism. https://www.gds.earth/destination/Belfast/2022/

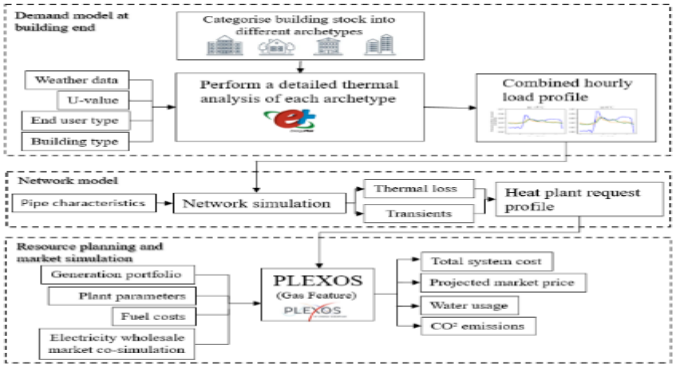
Contact

Rachael McGuickin, Director of Business Development, Sustainability and Transformation, Visit Belfast rachaelmcguickin@visitbelfast.com

Belfast CLIMATE ACTION

Innovating to Net Zero

Decarbonisation of the Heating Sector - Deployment of District Heating Networks

Aims and Objectives	Looking Back	Looking Forward
The aim of this research is to design an effective retail market framework for district heating and to: • Conduct a state-of-the-art literature review to establish the current status of district heating and highlight the issues with deployment. • Conduct a household survey to establish consumer attitude and engagement with renewable energy, quantify energy costs and cross link energy behaviours. • Design a whole system modelling framework which can be used to assess new network proposals. • Conduct a case study for a new network proposal in Northern Ireland using to assess the economic and environmental feasibility.	**October 2020** – we published articles in scientific journals and presented at national and international conferences. **Pin pointed** issues with deploying district heating in NI and developed an approach to locate the areas with the highest heat demand density. We created a multi-step framework for the technical modelling of a district heat network and conducted a cash flow analysis to establish its financial viability. The framework is easily applicable to any region - important as district heating proposals must be analysed on a case by case basis due to the variations in ambient air temperature, building stock characteristics and occupancy. This limits competition and incentivises profit maximisation of the supply company. We have proposed a liberalised market model with a division of wholesale and retail heat markets enabling competition among generators and driving down the cost of heat supply.	The funding ended in December 2023. Priorities include finalising the Belfast case study and presenting the work so the next research group can develop the model further and use it for assessing more case studies for different areas of NI with different heat generation combinations. We focused on domestic heating however there is an opportunity to investigate commercial and industrial heat demands in NI, as to reach Net Zero, heat must be decarbonised across all sectors. This project looked at district heating as a means to decarbonise the heating sector. It is important for these options to be explored also as reaching Net-Zero will require a combination of low carbon heating solutions. 

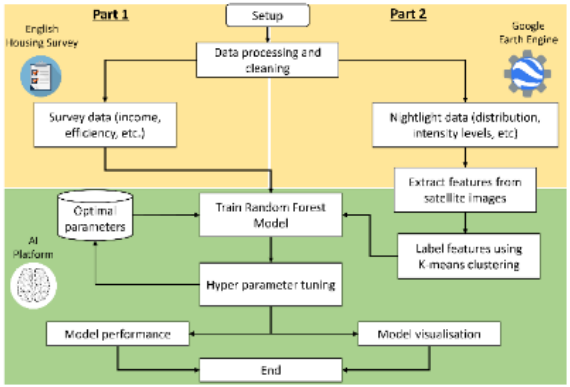
Partners	Contact
Northern Ireland Department for the Economy, The University of Manchester and the Energy Power and Intelligent Control (EPIC) Research Centre at Queen's University Belfast	Professor Aoife Foley, Chair in Net Zero Infrastructure, School of Engineering, The University of Manchester, Oxford Rd, Manchester, M13 9PL | Mobile (UK) +44 (0)7721 741 550 | ✉ aoife.foley@manchester.ac.uk & Alastair Brown (PhD student) ✉ abrown76@qub.ac.uk

Predicting Energy Poverty with Combinations of Remote-Sensing and Socioeconomic Survey Data Analysis

Aims and Objectives

Primary goal is to create a framework that integrates spatial and temporal patterns of energy consumption, housing conditions, and socioeconomic indicators, providing a holistic understanding of **energy poverty dynamics**. Our aims are:

1. To explore the utility of remote sensing data.
2. To analyse the socioeconomic factors contributing to energy poverty.
3. To develop predictive models to forecast energy poverty risks.
4. To assess the effectiveness of potential policy interventions and energy-efficient strategies for mitigating energy poverty in Northern Ireland.



Looking Back

Our research has achieved significant milestones in **predicting energy poverty** by integrating night-time lights (NTL) data from the VIIRS (Visible Infrared Imaging Radiometer Suite) satellite with an array of socioeconomic features, including income, expenditure, and energy efficiency. Our journey began with an extensive literature review, which illuminated the complexities and constraints associated with **energy poverty mitigation.**

We harnessed the power of machine learning to combat energy poverty in England and Northern Ireland. Our innovative approach, which combines VIIRS NTL data with a comprehensive set of socioeconomic factors, has yielded **promising results.**

These achievements hold **transformative** potential for **energy policy and social equity**, not only within the UK but also on a **global** scale.

Looking Forward

Expand our research by incorporating additional critical factors such as **rainfall patterns and PM2.5 levels**. These will provide a more nuanced understanding of energy poverty dynamics, offering insights into interplay between natural and socioeconomic factors in shaping energy vulnerability in the region.

Broaden the scope of our research by extending the predictive model beyond Northern Ireland to **other UK regions**.

A comprehensive **framework for assessing and addressing energy poverty** nationwide, enabling policymakers and stakeholders to make more informed decisions and implement targeted interventions across the UK to alleviate energy poverty and enhance energy equity.

Partners

HM Treasury, The University of Manchester and the Energy Power and Intelligent Control (EPIC) Research Centre at Queen's University Belfast

Contact

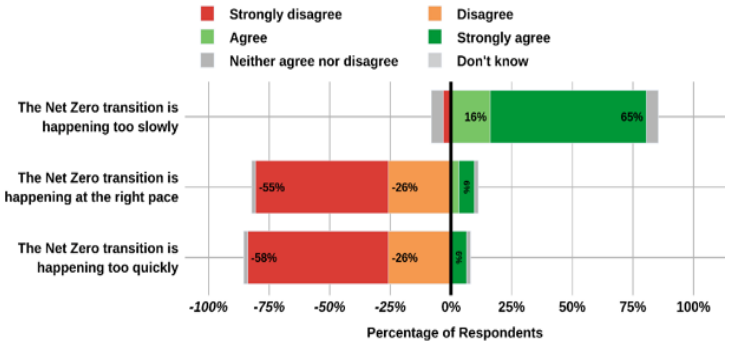
Professor Aoife Foley, Chair in Net Zero Infrastructure, School of Engineering, The University of Manchester, Oxford Rd, Manchester, M13 9PL | Mobile (UK) +44 (0)7721 741 550 | ✉ aoife.foley@manchester.ac.uk &
Dr Dlzar Al Kez – Research Fellow in EPIC ✉ d.alkez@qub.ac.uk

Power and Heat Potential Assessment for Northern Ireland

Aims and Objectives

To undertake a cost-benefit analysis (CBA) of power in electricity, transport, heating and cooling for Northern Ireland. The analysis is structured as five steps:

- To review CBA t**echniques** for energy systems.
- To review decarbonised power technologies.
- To survey and debate event with energy system experts and stakeholders.
- To define metrics, costs, and benefits for the CBA impacts.
- To **quantify and monetise impacts** for the alternative energy system scenarios.



Looking Back

Three key findings so far:

- CBA for energy systems is challenging because externalities cannot be fairly excluded when the **goal is global Net Zero**. It is not possible to shift or trade one country's emissions to another when **all countries must achieve Net Zero together**.
- NI has excellent resources for wind energy, but has **underdeveloped geothermal and marine energy**, lagging behind UK and Europe despite significant potential.
- Perception that the **Net Zero transition is happening too slowly**. While there is acceptance of diverse energy technologies, it was discovered that rapid and widespread impact is prioritised over novelty, with significant concerns about high costs to end-users.

Looking Forward

- Priorities of stakeholders in the energy system will be applied to methodologically assess the strengths and weaknesses of Department for the Economy's (DfE) energy scenarios, Power Play and Flexible Fit.
- Exploring decarbonisation by examining a **100% renewable energy system**, and a low-electrification energy system.
- The future energy scenarios will be analysed in terms of DfE policy pillars of decarbonisation, equity, security, efficiency, and macroeconomic success.
- NI energy system will be divided into legislative boundaries of **heat, power and transport** using departmental decision-making dynamics.
- Highly dynamic nature of Northern Ireland's power grid and its rich natural resources for renewable energy generation means that the region has the potential to become a **world leader** in managing high renewable energy systems.
- Results and methods of this study will be used to highlight Northern Ireland's trailblazing efforts in energy system decarbonisation.

Partners

Northern Ireland Department for the Economy, The University of Manchester and the Energy Power and Intelligent Control (EPIC) Research Centre at Queen's University Belfast

Contact

Professor Aoife Foley, Chair in Net Zero Infrastructure, School of Engineering, The University of Manchester, Oxford Rd, Manchester, M13 9PL | Mobile (UK) +44 (0)7721 741 550 | aoife.foley@manchester.ac.uk &
Dr Che Cameron – Research Fellow in EPIC c.cameron@qub.ac.uk

Belfast CLIMATE ACTION

A Permanent Platform for Involving Children and Young People on Climate Change

The participation of children and young people in decisions that affects their lives is of critical importance in the design of a sustainable city. Our goal, to transition to an inclusive, Net Zero emissions, climate-resilient city by 2050 is not possible unless we involve children and young people in strategy design and ensure their participation in its delivery.

UP2030

Aims and Objectives	Looking Back	Looking Forward
• To develop a framework for creating a **Net Zero neighbourhood** that can be scaled across the city and beyond. The pilot area for this project includes the Linen Quarter district and the surrounding communities of the Market, Donegall Pass, Sandy Row and Barrack Street. • The framework will consider the transitions required to meet Net Zero through the themes of greening, active travel and retrofit. The project involves **engagement** with communities, **young people**, city partners, and expert advisors to review challenges and opportunities for regeneration through resilience and future proofing, with the aim of creating a place based approach for the project area, and a toolkit of meaningful interventions at varying scales of investment. • A key pillar of this project is supporting a **fair and just transition to Net Zero**.	We received Horizon Europe funding via UKRI totalling **£176,024** for the project starting in early 2023 and running to the end of December 2025. We have engaged with many city partners and organisations to further our understanding of the area, and identify key challenges and needs within each theme. We have also looked at a geospatial analysis of the area, considering recent census data, deprivation data and projections for flood and heat risk, to help us understand the people and the places within the project area that are most vulnerable to climate shocks and stresses. We have recently completed a series of visioning workshops across a number of thematic groups, council staff and young people. Following analysis of the feedback, there will be follow up sessions to review the feedback and findings from the sessions and agree the adaptive pathways for the short/long term sequence of actions that would be required to deliver the vision.	• Establish a retrofit task and finish group to consider potential approaches to the retrofit of residential and commercial/public buildings in the area. • Synthesise the outputs of the visioning and adaptive pathway work with follow up sessions. • Identify pilot opportunities within the project to test ideas and interventions across themes, with continued community engagement and data gathering. • Utilise tools accessible through the UP2030 programme to provide insight, guidance and innovation to the project.  Snapshot from visual minutes taken during visioning workshops

Partners	Contact
Horizon Europe Funded Programme (involves 11 cities and 35 project partners) BCC (City Regeneration & Development team and Climate team)	Niamh Mulrine, Belfast City Council: mulrinen@belfastcity.gov.uk

Architects of Change

Aims and Objectives	Looking Back	Looking Forward
Architects of Change is a sustainable research project focusing on bridging the green skills gap in Belfast — putting architecture students at the heart of educating local business leaders on issues such as Net Zero emission buildings, retrofit and renewable technology • To deliver a sustainable training manual. • To deliver **3 workshops**, where students present topics based on their academic research. • To **connect with stakeholders** throughout Belfast to support more environmentally friendly business practices and policies. 	Since the project launched in March 2021, Architects of Change has delivered a **sustainable manual** – a collaborative effort from the project team of students, researchers and leading academics (link above). This informed **a 3-day workshop in March 2022** where stakeholders attended workshops with topics ranging from renewable technology, immersive technologies, mobility, transport, and spatial quality culminating in interactive group activities daily. External speakers from Belfast Chamber of Trade & Commerce, NI Housing Executive, Aurora Prime Real Estate, Belfast City Council and Belfast Harbour gave insights into their organisations' own green practices. Attendees of the events praised the students on their presentations and research. We achieved our project aims in giving students the opportunity to interact and teach high-profile stakeholders – thereby bridging the green skills generation gap.	**Phase 1 enabled connections** between climate-conscious stakeholders and technical experts to build a better city for current and future generations. **Phase 2, is a programme of education and engagement** for children (7-14 years). It combines a year-long training programme with fieldwork providing pupils with on-site experiences, connecting school (theory) and real-world (practice). Supported by Ulster University's Schools' Outreach team, **6 x 1 hour-long workshop**, focused on topics such as climate change; pollution; carbon footprints, etc., - teaching sustainability through artistic expression, worksheet activities and interactive games. The project continues to grow in ambition and is currently **awaiting approval on funding for Phase 3.**

Partners	Contact
Belfast City Council, Ulster University, Northern Ireland Housing Executive	Jenny Jackson-Smyth, Ulster University: j.jacksonsmyth@ulster.ac.uk

Ulster University MSc in Planning and City Resilience

Aims and Objectives

The programme was designed to meet a growing need for a new cadre of practitioners with the technical and transferrable skills needed to - appreciate the interrelationships between land uses and human activities and to question norms, practices and opinions that oppose the achievement of sustainable development and the advancement towards a more resilient future. The education aims of the programme are:

- To provide a coherent course of postgraduate study combining planning and resilience, which is firmly underpinned by a wide range of research, including that carried out by staff who teach on the programme, and by faculty scholarship, consultancy, and links with practice.
- To consider how advances in, and the relationship between, planning, governance, wellbeing, technologies and data enable better understanding of the social, environmental and economic challenges facing cities and communities.
- To engage with theoretical, practical and ethical debates, and drawing on existing and emerging evidence, for informing practice that is both visionary and imaginative to create inclusive and sustainable cities through the generation of resilience-based solutions.

Looking Back

The course gained professional accreditation from the Royal Town Planning Institute (RTPI)

The course had its first intake of students in September 2020. Since then, the course has continued to recruit students and is delivered both on campus (Belfast) and via distance learning mode (full time and part time).

The course was successfully revalidated in 2023 during which time modules were updated and refreshed to take account of recent changes in policy and practices relating to planning and resilience. A questionnaire undertaken in Spring 2023 highlighted very positive feedback from both current students and graduates of the programme in regard to course management and delivery as well as the level of student support and guidance provided by staff.

Students have participated in various events including a recent talk delivered by Carlos Moreno on the 15minute City, and annual celebration of World Town Planning Day.

High quality student work has been produced. This includes the development of 'Resilience Strategies' for selected communities and individual research projects covering a variety of topics such as coastal resilience, community participation, active transport, alley greening and community resilience. Recently a student's work was published in an academic journal article: https://doi.org/10.1080/13549839.2023.2284944

Graduates of the programme have gone on to work in a variety of roles including local authority planners, research assistants, and private planning consultants.

Looking Forward

In 2024/2025 we plan to…

- Continue to recruit students.
- Market the programme effectively on a local, national and international level.
- Work with Belfast City Council / Ulster University to identify suitable sites and/or projects for student coursework.
- Conduct an increased number of site visits around the city, using the city as a living laboratory.
- Facilitate greater student collaboration within the planning programmes at Ulster University and links with industry through the UPLAN society at Ulster University and organising a student-led conference on key themes relating to city resilience.

Partners

Contact

Dr Linda McElduff: l.mcelduff@ulster.ac.uk

Innovation and Inclusive Growth Commission

The Innovation and Inclusive Growth Commission was set up to support the Council and city partners in the further development and implementation of the priorities as set out in the Belfast Agenda. A particular focus was given to the priorities of (1) growing the economy and (2) city development.

The Commission was made up of independent, authoritative, and knowledgeable voices from a range of relevant backgrounds. Brought together to develop constructive, deliverable, and challenging proposals that are focused on delivering radical change to Belfast and Northern Ireland's long-standing challenges in areas including: lack of productivity, economic inactivity, high levels of deprivation, and poor health.

The Commission was unique in that it is independent and is viewing these challenges in the round, recognising the interrelated nature of the causes and effects. It was initially envisaged that the Commission would be convened for one year. However, as COVID-19 took hold the Commissioners thought it was appropriate that it considered how it could be used as a potential recovery mechanism. Commissioners saw the significant impact of the pandemic in terms of: increasing unemployment, increasing deprivation and social isolation, and accelerating decline in some critical industries, such as retail, tourism and hospitality and noted that Belfast and Northern Ireland's prolonged structural weaknesses mean these impacts are likely to be concentrated and longer lasting.

Commission members were acutely aware that their concluding proposals were far-reaching and involve system-wide change. They recognised that, while their proposals are borne of their collective experiences in other cities and places, they also recognise they cannot simply be transplanted into Belfast. For that reason, the Commission suggested that implementation is co-ordinated through lead departments and agencies. These lead departments and agencies will convene small groups of senior officials and stakeholders to bring forward these proposals.

Links to Sustainable Development Goals (SDG's) – indicators and targets

https://unstats.un.org/sdgs/indicators/Global-Indicator-Framework-after-2024-refinement-English.pdf

The indicators below are relevant to many of the projects throughout this document. We will track our movement towards these targets with an annual update of the ambitions listed and new ones that come through the Our Planet Board.

- **1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.
- **3.d** Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.
- **7.2** By 2030, increase substantially the share of renewable energy in the global energy mix.
- **11.7** By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.
- **12.b** Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.
- **13.2** Integrate climate change measures into national policies, strategies and planning.
- **13.3** Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
- **16.7** Ensure responsive, inclusive, participatory and representative decision-making at all levels.

Appendix 1 - Board Members

Organisation	Name
Action Mental Health	David Babington
Belfast City Council	Debbie Caldwell - CO-CHAIR
Belfast City Council	Joe McKearney - SUPPORT
Belfast City Council	Claire Shortt
Belfast Harbour	Nicholas Cowan - CO-CHAIR
Belfast Met	Peter Kane
Belfast Trust	Alastair Campbell
C&VS Panel - CPP	
Community Planning Team rep	Kevin Heaney
Consumer Council	Noyona Chundur
DAERA	Jane Corderoy
Dept for Communities	Angus Kerr
Dept for Economy	Patrice Cairns
Dept for Infrastructure	Beverley Cowan
Dept of Finance	Dave Vincent
Eastside Partnership	Michele Bryans
Education Authority	Adrian Kennedy
Emergency Preparedness	Joan McCaffrey/Clare Carleton
Forward South	Michael Graham
Greater Shankill Partnership	Rowan Davison
HSCNI	Veronica Gillen
HSCNI	Sinead Malone
Invest NI	Paddy Robb
Linen Quarter BID	Laurence Tingson

Organisation	Name
National Trust	Sean Maxwell
NI Water	Gerard Carlin
NICVA	Geoff Nuttall
NIHE	Elma Newberry - CO-CHAIR
PSNI	Marcella McKay
QUB	Mark Emmerson
QUB	Sara Lynch
Belfast Climate Commission	Ciaran Ferrin
Translink	John Thompson
Ulster University	Raffaella Folli
Visit Belfast	Rachael McGuickin
VCSE Panel Rep - Belfast Hills	Jim Bradley
West Belfast Partnership Board	Renee Crawford
West Belfast Partnership Board	Terry Quinn

Appendix 2 - Our Planet Board Projects

Completed	On-going and on track	On-going with a change in direction	Not progressing

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
New city-wide structures to collaborate on climate action	To create collaborative city-wide partnerships to address climate adaptation and mitigation	All Our Planet		September 2019 - Belfast Resilience and Sustainability Board established (now the Our Planet Board) June 2020 - Belfast Climate Commission launched under PCAN The Climate Commission has produced significant research including the Belfast Net Zero Carbon Roadmap and the Young People's Perceptions of the Climate Crisis report.	To expand and refresh membership.
Delivery of recommendations in Belfast's Mini-Stern: A Net Zero Carbon Roadmap for Belfast	To provide an analysis of the scope 1 and 2 emissions in the city of Belfast, identifying transport and buildings as the highest source of emissions in the city.	Innovating to Net Zero		The Roadmap set out recommendations for addressing this, including proposed science-based city targets which were formally adopted by the City in 2022.	The 2024 Belfast Local Area Energy Plan is the critical next stage of the analysis of city-wide energy systems. The plan includes detailed pathway actions and five priority decarbonisation projects.
Climate Change Risk Assessment	The aim was to understand the climate risks most likely to impact on Belfast and identify early actions to address these	All Our Planet		Completed in 2019 Met Office and BCC produced Heat Packs for the city and a Heat Vulnerability Index	UrbanARK - Enhancing flood risk management for urban coastal communities using LiDAR applications and the Belfast Tidal Flood Alleviation Scheme.
Belfast City Council Climate Mitigation and Adaptation Plan	The overall objective is to develop a Climate Action Plan that enables BCC to reduce emissions and risks to current and future climate change	All Our Planet		Completed March 2024 Being reviewed by departments and integration into the council's medium term financial plan and corporate plan.	The development of a Climate Investment Plan (CIP).

Completed	On-going and on track	On-going with a change in direction	**Not progressing**

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
Belfast Harbour – Green Port	To become one of the greenest ports globally – with Net Zero emissions before 2030			Ongoing 50% fleet electric, LED lighting across the estate, 100% REGO certified renewable energy for facilities – 18% reduction in emissions from 2022. The 2024 Decarbonisation Plan for Queens Island provides a high-level emissions reduction pathway and a Net Zero vision.	Further reduction of emissions is planned using data driven analytic and energy efficiency action, adoption of alternative fuels, investment into offshore wind construction and reducing vulnerabilities to climate change. The emergence of a Net Zero Technology Park will also be a key driver for decarbonisation.
The development of a QUB Environmental Solutions Centre	Decarbonisation solutions to reduce GHG emissions and reverse biodiversity loss	All Our Planet		Change of direction with 3 individual projects delivering the aim – GroundsWell (have developed meaningful community), SPACE Project (looking at the relationship of our biology and our lifestyle) and the Sustainable Cities Challenge (developing comparable spatial and policy indicators of healthy and sustainable design).	GroundsWell have developed a report with 7 recommendations that need development. Space have created a White Paper outlining policy recommendation for health and the environment. Sustainable Cities have a vision for a Global Observatory of health, and they are seeking others to join the 1000 City Challenge.
Sustainable District	City's first sustainable district in the Linen Quarter - creating a prosperous, inclusive, climate-resilient district founded on a circular, Net Zero carbon economy	Creating a Sustainable and Circular Economy		Employment of a health and sustainability manager, regeneration of Bankmore Square and a summer programme with over 80 attendees.	Increasing cycling through Cycling Friendly Employer accreditation, connected cycle lanes and more pedestrian zones. More engagement and collaboration.

Completed	On-going and on track	On-going with a change in direction	Not progressing

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
Belfast Region City Deal	Leverage on the Digital Innovation Pillar of the deal which prioritises resilience and sustainability	Innovating to Net Zero		Two projects in the Digital Pillar have completed business cases, Innovation and Cleantech Centre and proposal for a Digital Twin Centre in NI.	Plans for the first phase of the challenge fund programme will shortly be developed and implemented.
Belfast One Million Trees	To plant at least 1million trees over the next 15 years	Re-Naturing the City and Increasing Resilience to Climate Change		To date the programme has planted 91,313 trees across the city and delivered a programme of engagement with schools, businesses, and local communities.	Council is planning to develop a tree warden programme that will focus on maintenance, monitoring and management of newly planted sites whilst developing a pipeline of potential planting programmes.
Belfast Local Development Plan	Development of sustainable neighbourhoods, which are well designed and provide a sufficient supply and choice of homes that will meet the city's growing and more diverse population	All Our Planet		Formally adopted in May 2023. 17 Supplementary Planning Guidance documents produced including ones relating to flood risk, sustainable drainage and trees and development.	To progress work on the Local Policies Plan which is the second part of the Local Development Plan.
Sustainability and Food	Establish a cross-sector food partnership, connected good food movement and respond to climate impact on local food systems	Re-Naturing the City and Increasing Resilience to Climate Change		Belfast Sustainable Food Partnership launched June 2023 Developed a research report with a 1-year action plan. Worked with QUB to identify options for better and sustainable food in the city. Belfast Agenda embeds sustainable food work as a priority. Mapped access to food and growing spaces in the city. Council has committed to providing 1250m2 growing space per 1000 households.	Develop a Sustainable Food Strategy and secure investment in a sustainable food programme and develop collaborative working across food networks.

Completed	On-going and on track	On-going with a change in direction	Not progressing

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
A Permanent Platform for Involving Children and Young People on Climate Change	To give a voice to young people by developing a model to ensure participation in future climate planning.	All Our Planet		In 2020 Belfast Climate Commission established a Youth Working Group, which became one of the most active groups within the Commission. In 2021 at the time of COP26 the group surveyed 1,200 young people on their views about the climate crisis and produced a report called Youth Perceptions of the Climate Crisis.	Youth Climate Commission is currently expanding its membership and developing a work programme for 2024 and beyond.
Quality of Urban Childhood	To produce an urban childhood framework, analysing a specific geographical area	All Our Planet		The Belfast Urban Childhood Framework was produced and went on to receive a Landscape Institute Gold Award. An Urban Childhoods Case Study was developed and a summary of the project was developed by the Landscape Institute Belfast Urban Childhood	The Urban Childhood Framework continues to inform how we develop the city, such as the ongoing Bolder Vision Strategy, and urban regeneration in the city.
Ulster University Architects for Change programme	To bridge the green skills gap in Belfast, putting architecture students at the heart of educating local business leaders on issues such as Net Zero emission buildings, retrofit & renewable technology.	Re-Naturing the City and Increasing Resilience to Climate Change		Launched in March 2021, Architects for Change has delivered a sustainable manual – a collaborative effort from the project team made up of a full-time research assistant, PhD researchers, masters students and leading academics' research.	The project continues to grow in ambition and is currently awaiting approval on funding for Phase 3.
A Playful City	To establish Belfast as a playful city	Our Place		Embedding play in the Belfast Culture Strategy, A City Imagining. Play is being embedded within the 2024 programme. #Belfast2024 is a celebration of creativity featuring new and exciting events, initiatives and programmes developed through new co-design and partnership models between Belfast City Council's Culture Team and city stakeholders, the creative sector, and the citizens of Belfast.	2024/25 marks the beginning of the second implementation phase of A City Imagining, the ten-year cultural strategy and will provide an opportunity for the city to embrace culture and creativity - from neighbourhood interventions to largescale public spectacles.

Completed	On-going and on track	On-going with a change in direction	**Not progressing**

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
City Centre Public Realm Play Spaces	To embed play in the city centre through public realm development	Our Place		Arup - challenged to create an open and connected spaces in a city. The outcome was a framework and design strategy for a more healthy, inclusive and child-friendly city centre supported by the Urban Childhoods Design Toolkit – a resource that provides practitioners, local government and communities with tools and practical templates to guide their design processes.	Opportunities now to build play into city regeneration are being sought, including through projects such as UP2030.
Ulster University MSc in Planning and City Resilience	To embed urban resilience in the development of city planners	All Our Planet		The course had its first intake of students in September 2020. Since then, the course has continued to recruit students and is delivered both on campus (Belfast) and via distance learning mode (full time and part time). The course gained professional accreditation from the Royal Town Planning Institute (RTPI).	Continue to recruit students and develop the course further.
Public Transport	To provide all children and young people have access to free public transport in Belfast.	All Our Planet		This ambition has not yet been delivered but remains under consideration.	
Sustainable Drainage	To deliver the Sustainable Drainage Infrastructure Plan so that Belfast can meet its existing and future growth	Re-Naturing the City and Increasing Resilience to Climate Change		November 2021 - Living With Water in Belfast was ratified by the NI Executive. Living With Water in Belfast is a long-term plan that promotes partnership working to develop and deliver integrated sustainable solutions for the benefit of society.	Inflationary costs in construction since Nov 2021 along with some changes to project scope have impacted programme costs. A review of the affordability of Living With Water in Belfast is currently underway.

Completed	On-going and on track	On-going with a change in direction	Not progressing

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
A Zero Emissions city bus fleet by 2030	To transition to a zero emissions city bus fleet by 2030	Creating a Sustainable and Circular Economy		Translink's Zero Emission Programme involved collaboration with Wrightbus on development, build and delivery of 100 zero emission buses: 20 Streetdeck Hydroliners and 80 Streetdeck Electroliners. To support these vehicles the project also undertook significant work to introduce complex electric charging hubs at 2 Belfast sites, innovative hydrogen refuelling stations and associated upgrades to maintenance facilities.	Continue to decarbonise Belfast's transport system through modal shift to public transport and active travel from the private car with the bus fleet fully decarbonised by 2030.
Delivering Belfast's Net Zero Carbon Roadmap: Buildings	To develop targeted interventions in housing to meet the targets in the roadmap	Creating a Sustainable and Circular Economy		A Belfast Retrofit Delivery Hub was established in September 2022. Shared Island funding was also secured to explore the potential of solar PV on the City's buildings. The output has been two reports that analysed the potential and outline costs and savings in terms of both money and carbon for each of the buildings.	The Hub plans to produce a work programme in 2024, with an event to mark the progress to date. Further research is under way into the solar PV potential within the UP2030 area with funding secured to install solar PV on Donegall Pass Community Centre.
A Bolder Vision	To provide a blueprint for a more attractive, safe and vibrant city centre that will improve economical, societal, health and environmental well-being for all	Creating a Sustainable and Circular Economy		A Bolder Vision will provide a framework for delivery of key infrastructure and regeneration projects and will help to unlock and shape some of the now critical design considerations to allow progression on the major planned capital investment.	To publish A Bolder Vision for Belfast, strategy and action plan and to establish an integrated delivery team.
Electric Vehicle Infrastructure	To deliver a network of electric vehicles support the transition	Creating a Sustainable and Circular Economy		A draft Low Emissions Vehicles Strategy for Belfast has been developed which will create a framework whereby EV infrastructure can be supported in the city. Belfast City Council also installed 10 RAPID chargers in 7 leisure centre sites across Belfast under the FASTER project.	Council will explore how its assets and land bank can support LEV infrastructure.

Completed	On-going and on track	On-going with a change in direction	Not progressing

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
Investment in existing NIHE stock	To improve the existing NIHE stock as part of a city-wide approach to decarbonisation and retrofit of housing stock	Creating a Sustainable and Circular Economy		Since the project began in 2019, multiple ERDF schemes have been completed across the province. To date, over 800 properties have been upgraded, of which over 470 are in the Belfast area.	The remaining 600 properties were scheduled for completion by the end of 2023/2024.
Developing a Hydrogen Eco System	To accelerate the city's transition toa Net Zero carbon economy by developing a network of hydrogen powered infrastructure by 2030	Creating a Sustainable and Circular Economy		Launched in December 2020. This project was supported by funding from the Office of Zero Emission Vehicles (OZEV) as well as DfI. Other ground-breaking work on hydrogen is being undertaken by Catagen, B9 Energy and others.	To support these vehicles the project also undertook significant work to introduce a further innovative hydrogen refueling station with Logan Energy and associated upgrades to maintenance facilities in Newtownabbey Depot.
Belfast Destination Hub - A Low Carbon Exemplar for the City **Sustainable tourism**	To develop a landmark signature building as a bold demonstrator of intent for Belfast's ambitions to be a Net Zero, climate resilient city	Creating a Sustainable and Circular Economy		In 2020 / 21, an interim outline business case was developed in parallel with initial architectural input and further concept development and an accessible and prominent site for Belfast Stories was secured. The design teams were appointed in 2023 to design the compelling visitor experience. The teams will produce the design brief and concept design to RIBA 2 by Q2 2024.	The designs will consider how best Belfast Stories can be a demonstrator of intent and Net Zero carbon exemplar for the city and region. By the end of 2024 we hope to have a contract for funding for Belfast Stories and agreement to move to develop the design.
Sustainable tourism	To accelerate sustainable tourism development and bring a coordinated focus to the sustainable tourism agenda across the city	Creating a Sustainable and Circular Economy		The city began its journey in 2020 ranking 47th/48th. The assessment of 75 criteria across four categories provided a strong evidence base and baseline and acted as a catalyst for action. Visit Belfast moved quickly to put in place an ambitious action plan to transform performance in partnership with BCC and today Belfast was ranked 8th in the world across 73 destinations globally in 2022.	Work is underway to create a carbon baseline to measure the footprint of Belfast's tourism industry.

Completed	On-going and on track	On-going with a change in direction	**Not progressing**

Project	*Aim*	*Belfast Agenda*		*Already completed*	*Next steps*
Training and skills for an inclusive low-carbon economy	Explore the development of a major programme of training and skills for a generation of professionals to lead the transition	Creating a Sustainable and Circular Economy		Belfast Met are partners in this ambition and are involved in a number of projects aimed at training and skills for a low carbon community such as the Digital Innovation Pillar of the Belfast Region City Deal, One Million Trees and the Belfast Retrofit Hub. Artemis and Belfast Met have developed a successful apprenticeship programme to develop a skilled workforce to support zero emission marine vessels.	Outlined in the individual projects above.
Innovation and Inclusive Growth Commission	To develop an integrated, inclusive and long-term growth plan for the city	All Our Planet		The Belfast Innovation and Inclusive Growth Commission delivered the 'Reset for Growth' report in 2021, which set out a strategic vision for the city and a number of priorities to be focused on in coming years.	The Strategy continues to inform how the city addresses challenges such as Net Zero and sustainable economic growth, through strategic collaboration between key anchor institutions in Belfast.
Fuel Poverty	To agree the eradication of fuel poverty as a city-wide ambition	All Our Planet		Fuel poverty if being addressed through a number of schemes supported by NIHE and the inclusive growth team. In 2023-2024, the Council delivered a £1.1million hardship to a range of cohorts including children and families, vulnerable individuals, and families in emergency need and to enhancing the capacity of existing and high-impact support programmes. The Council also developed and shared widely a cost-of-living support guide which helped enhance people's awareness and understanding of the types of support available across the city and improve referral and signposting processes.	A hardship programme will be delivered in winter period with further resources being explored with the Council and other community planning partners. An updated cost-of-living support guide is under development.