



# BELFAST REGION CITY DEAL



Executive Summary

# AN ANALYSIS OF NET-ZERO CARBON OPTIONS FOR THE BELFAST REGION

---

Prof. Andy Gouldson,  
Andrew Sudmant and  
Ruaidhri Higgins-Lavery



# PREFACE

**The Belfast Region City Deal (BRCD) represents a new way of working between central and local government and regional partners and secures a bespoke package of investment from central government and the BRCD partners of more than £850 million to support the delivery of our shared vision of inclusive economic growth.**

By leveraging additional private sector investment, the partners will deliver a programme with an overall value well over £1 billion, strengthening the region's offer in growth sectors such as life and health sciences, the digital and creative industries, and advanced manufacturing. It will support next generation digital capabilities, boost tourism and support our region's regeneration, underpinned by infrastructure developments and skills investment to connect people to jobs and services.

The BRCD partners recognise that although we have sought to integrate within our Deal, projects that will support the delivery of more sustainable development, with for example planned investments in centres of excellence in the application of digital twin technologies, advanced manufacturing and clean-tech and a net-zero challenge fund, there is much more to be done by all the partners if we are to achieve our statutory net-zero targets and grasp the economic opportunities of being at the forefront of the net-zero transition.

The partners therefore agreed to commission this report to help provide an evidence base to inform their decisions going forward. This report does not seek to suggest that there is a single pathway for tackling net-zero, rather it outlines the scale of the challenge and the difficult choices that we will face in the coming years. As well as identifying the choices and the considerable cost of achieving net-zero, it also outlines the value and economic benefits in terms of jobs that will come from such investments.

Much of the work to tackle net-zero will fall beyond the remit of the BRCD and it will be for partners, working with their communities and alongside industry and government, to determine the options that they will prioritise. However, the BRCD is a significant partnership and a major investment programme and therefore this report will also inform project sponsors and Deal leaders as we continue to develop our plans for the Deal and deliver our investment projects to not only deliver more and better jobs, but also strive for growth which is both inclusive and sustainable.

**Damien Martin**  
Programme Director  
Belfast Region City Deal

# CONTENTS

Preface.....	3
Background.....	4
Baselines and targets .....	4
Cost-effective options .....	5
More ambitious options .....	6
Next steps.....	7



# BACKGROUND



**1.** Scientific evidence calls for rapid reductions in global carbon emissions if we are to limit average levels of warming to 1.5°C and so avoid the risks associated with dangerous or runaway climate change.



**2.** Globally, the Intergovernmental Panel on Climate Change (IPCC) suggests that we will have used up the global carbon budget that gives us a good chance of limiting warming to 1.5°C degrees within a decade. This science underpins calls for the declaration of a climate emergency.



**3.** Dividing the global carbon budget up by population gives the Belfast region a total carbon budget of **48.4 million** tonnes from **2023**. Based solely on emissions produced within its boundaries, the Belfast region currently emits **c.8.9 million** tonnes of carbon a year, and as such it would use up its carbon budget by the **end of 2028**.



**4.** This assessment does not include its broader carbon footprint – for example relating to longer distance travel or the goods and services that are produced elsewhere, but consumed within the region (i.e. its Scope 3 emissions).



# BASELINES AND TARGETS

**Scope 1 and 2 (direct) carbon emissions from the Belfast region have fallen by 30% since 1990. With on-going decarbonisation of grid electricity, and taking into account population and economic growth within the city region, we project that the region's annual emissions output will have fallen by a total of 50% in 2050, on 1990 levels.**

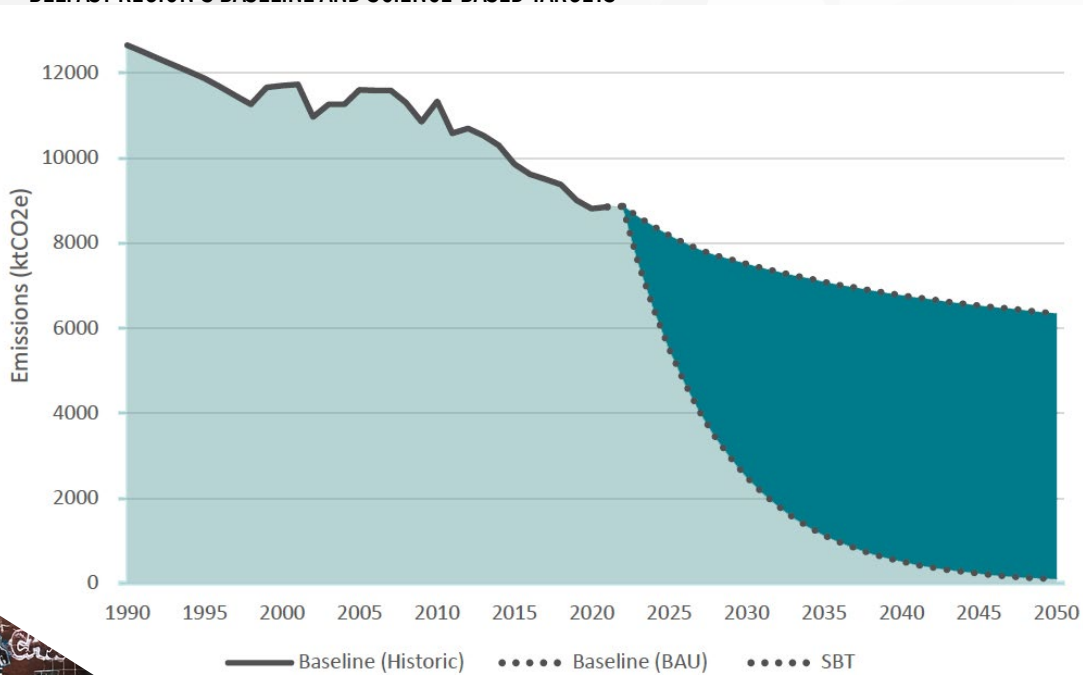
If it is to stay within its carbon budget, the Belfast region needs to add to the emissions reductions already achieved to secure **56%** reductions on its 1990 level of emissions by 2025, **80%** by 2030, **91%** by 2035, **96%** by 2040, **98%** by 2045 and **100%** by 2050.

In short, the majority of all emissions reductions across the region need to be delivered within the next ten years.

Without further activity to address its carbon emissions, we project that the Belfast region's annual emissions will exceed its carbon budget by **5 million** tonnes in 2030, and **6 million** tonnes per annum by 2050.

**FIGURE (I)**

**BELFAST REGION'S BASELINE AND SCIENCE-BASED TARGETS**



# COST-EFFECTIVE OPTIONS

**To meet these carbon reduction targets, the Belfast region will need to adopt low carbon options that close the gap between its projected emissions in future and net-zero emissions.**

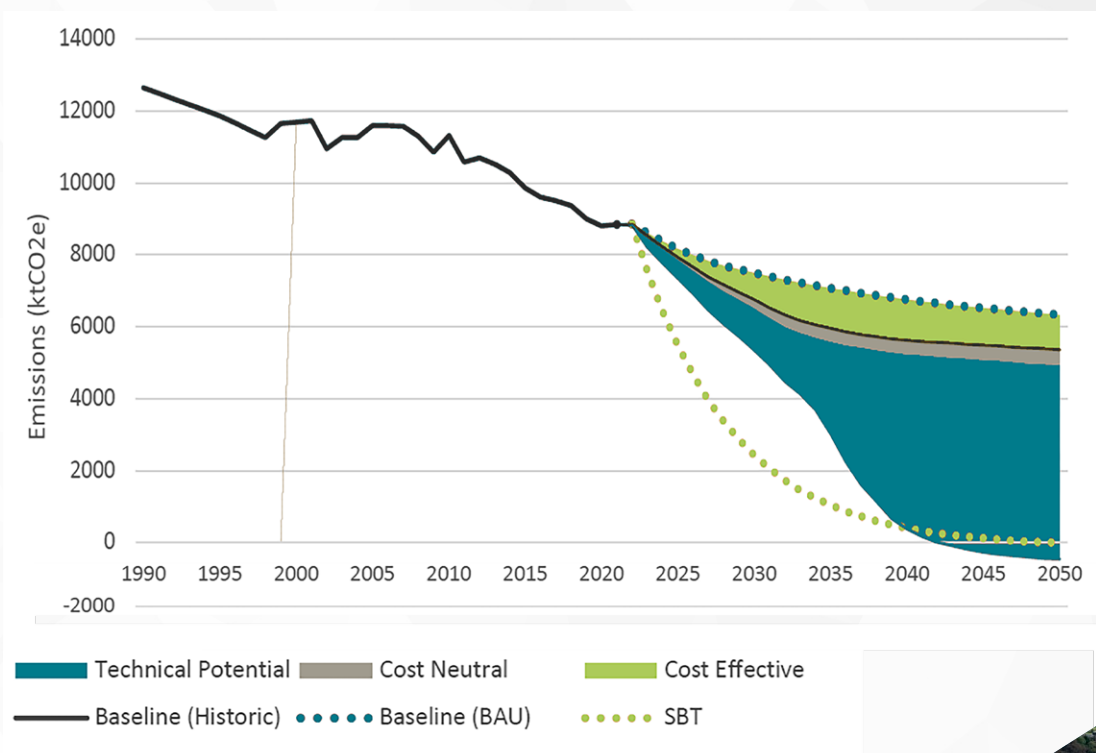
This can be partially realised through cost-effective options that would more than pay for themselves through the energy cost reductions they would generate whilst generating wide social and environmental benefits in the area.

More specifically, the analysis shows that the Belfast region could close the gap between its projected emissions in 2050 and net-zero emissions by **15%** purely through the adoption of cost-effective options in houses, public and commercial buildings, transport and industry.

Adopting these options would reduce the region's total projected energy bill in 2050 by **£431 million** per year whilst also creating **11,629 years** of employment in the region. They could also help to generate wider benefits, including helping to tackle fuel poverty, reducing congestion and productivity losses, improving air quality, and enhancements to public health.

The most carbon-effective options for the region to deliver these carbon cuts include improved deep retrofitting of heating, lighting and insulation in houses, cooling and insulation in offices, shops and restaurants, and a range of measures across the transport sector including modal shift to non-motorised transport and the wider uptake of electric vehicles.

**FIGURE (ii)**  
BELFAST REGION'S EMISSIONS BASELINE WITH COST-EFFECTIVE, COST-NEUTRAL AND TECHNICAL POTENTIAL SCENARIOS



# MORE AMBITIOUS OPTIONS

**The analysis also shows that the Belfast region could close the gap to net-zero emissions in 2050 (across the buildings, transport, and industrial sectors<sup>1</sup>) by 68% through the adoption of options that are already available, but that some of these options would not pay for themselves directly through the energy savings that they would generate. Many of these options would, however, create wider indirect benefits both economically and socially in the region.**

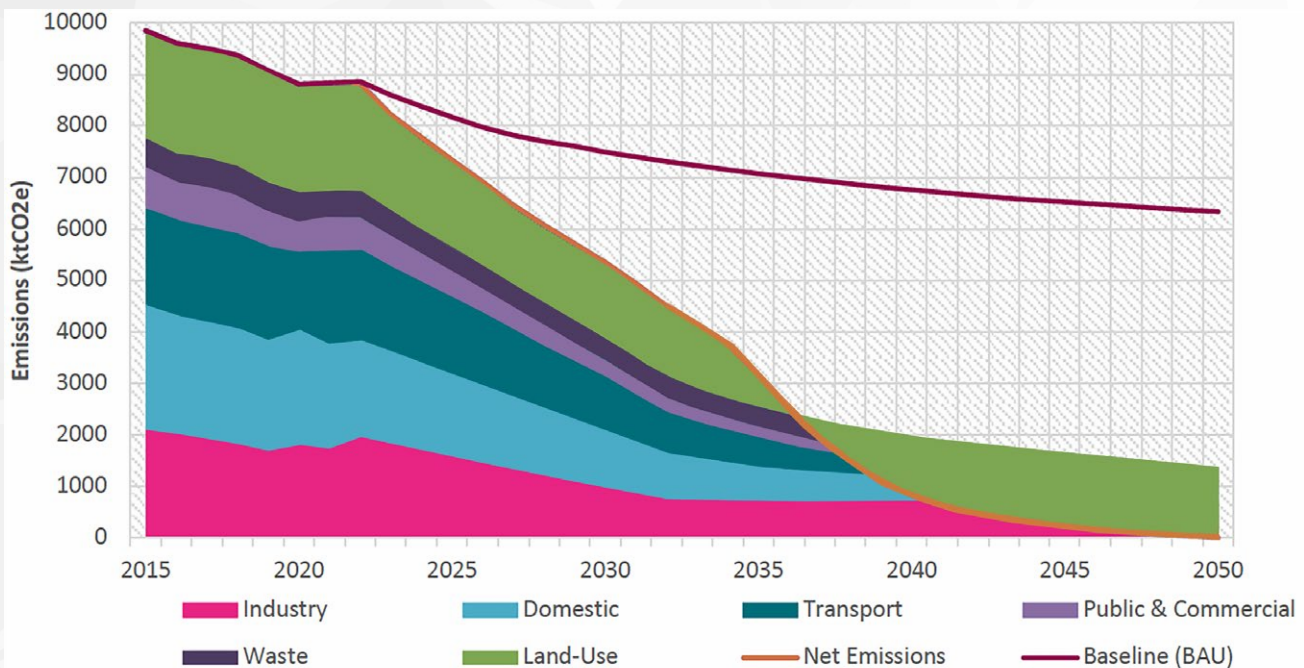
This means that although it can achieve significant reductions in emissions by focusing on established cost-effective and technically viable measures, the Belfast region still has to identify other more innovative interventions that could deliver the last **32%** of shortfall between projected emissions in 2050 and a net-zero target in these sectors.

Options identified elsewhere that could be considered in the Belfast region include promoting the use of low carbon vehicles, electrification of heating and cooking, and planting trees. Carbon emissions could be cut further still through behavioural and consumption-based changes such as the promotion of active travel (e.g. walking and cycling), reductions in meat and dairy consumption and the generation of food waste, and reduced consumption of concrete and steel with more emphasis on green infrastructure.

The scale of activity and investment needed to reach or even get close to the carbon emissions reduction targets set is significant. We find that across the region, many hundreds of thousands of homes and square-metres of floorspace will require retrofitting and widespread changes will be needed in the travel patterns and the way that people travel.

<sup>1</sup>The land-use sector is the only sector capable of achieving negative emissions using currently available low-carbon measures (ie removing more carbon than it emits), through reductions in livestock numbers and afforestation. Mitigation from the land-use sector has been included in aggregated results, but its inclusion in the above metric would mask the abatement potential of the other sectors.

**FIGURE (III)**  
BELFAST REGION'S REMAINING SECTORAL EMISSIONS AND NET-EMISSIONS PATHWAY TO NET-ZERO BY 2050



# NEXT STEPS

**The Belfast region needs clear and ambitious climate action plans. The case for such plans is supported by the evidence that much – but not all – of the action that is required can be based on the exploitation of win-win low-carbon options that will simultaneously improve economic, social and health outcomes across the region.**

The Belfast region and other City and Growth Deals should engage with relevant NI Government Departments to consider the most appropriate models for climate action planning and delivery.

The plans for the Belfast region need to be developed in the context of the agreed approach for Northern Ireland. The recent Climate Change Act should be celebrated as an important step forward for Northern Ireland's climate-action journey, while recognising that more ambitious, specific and locally-led action is also necessary.

The Belfast region comprises 60% of Northern Ireland's population, is responsible for 42% of all territorial emissions, and 33% of the land area and there is therefore a responsibility for partners to advocate for and lead the way in enacting climate action in NI. In order to match emissions reductions and legislative progress in other areas of the UK, as well as the Republic of Ireland, urgent and ambitious action is required across all sectors.

The climate action plans should adopt science-based targets for emissions reduction. As well as longer term targets, it should include five-yearly carbon reduction targets.

The action plans should focus initially on the region's direct (Scope 1 and 2) carbon footprint as these emissions are most directly under the region's influence, but in time it should also widen its scope to consider its broader (Scope 3) carbon footprint.

The action plans should also set out the ways in which the Belfast region will work towards achieving these science-based targets, drawing on the deployment key performance indicators listed in the report. Action should also be taken to monitor and report progress on emissions reductions.

**//..delivering on these targets will require action across the region and the active support of the public, private and third sectors//**

It is important to stress that delivering on these targets will require action across the region and the active support of the public, private and third sectors. Establishing an independent Climate Commission has proven invaluable in Belfast and in other areas, such as Yorkshire and the Humber in England. These commissions help to draw actors together and to build capacities to take and track action.

Leadership groups should be formed for key sectors such as homes, public and commercial buildings, transport and industry, to develop clear plans for the delivery of priority actions in each sector. All large organisations and businesses in the region should also be asked to match broader carbon reduction commitments and to report back on progress.



## FOR FURTHER INFORMATION:

For further information and to read the full report, please contact:

Email: [brcd@belfastcity.gov.uk](mailto:brcd@belfastcity.gov.uk)

Tel: **028 9032 0202**

Visit: [belfastregioncitydeal.co.uk](http://belfastregioncitydeal.co.uk)



**Belfast**  
City Council



**Antrim and Newtownabbey**  
BOROUGH COUNCIL



**Ards and North Down**  
Borough Council



**Lisburn & Castlereagh**  
City Council



**Mid & East Antrim**  
Borough Council



Comhairle Ceantair  
an Iúir, Mhúrn  
agus an Dúin  
**Newry, Mourne  
and Down**  
District Council



**QUEEN'S UNIVERSITY BELFAST**



**Ulster University**



**NORTHERN**  
Regional College

**SERC**  
INSPIRING. TRANSFORMING. ENRICHING.

**SRC** Southern Regional College



Northern Ireland  
Executive



UK Government

 [#BRCityDeal](https://twitter.com/BRCityDeal)

 [belfastregioncitydeal.co.uk](http://belfastregioncitydeal.co.uk)