

Title: Regulatory Impact Assessment for the Climate Change Act (Northern Ireland) 2022	Regulatory Impact Assessment (RIA)
	Date: 18/10/2022
	Type of measure: Primary Legislation
Lead department or agency: Department of Agriculture, Environment and Rural Affairs (DAERA)	Stage: Enacted
	Source of intervention: Domestic
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Summary Intervention and Options

<p>What is the problem under consideration? Why is government intervention necessary?</p> <p>The 'New Decade, New Approach' (NDNA) requires the Executive to 'introduce legislation and targets for reducing carbon emissions in line with the Paris Climate Change Accord' and bring 'forward a Climate Change Act to give environmental targets a strong legal underpinning'. The IPCC's¹ 2018 special report on global warming impacts², stated that to tackle climate change and minimise its detrimental impacts the world cannot continue with a 'business as usual' approach. Risk that action to limit Greenhouse Gas (GHG) emissions which cause climate change, would not happen at a sufficient/timely scale without further government intervention. Northern Ireland (NI) must contribute to the UK net zero by 2050 target³ (UK net zero) under the UK Climate Change Act 2008.</p>
<p>What are the policy objectives and the intended effects?</p> <p>Deliver on NDNA's climate change legislation commitments, and create a local legislative framework to drive action to tackle climate change e.g. setting of statutory local long-term GHG emissions reduction targets. Complement NI's requirements under the UK Climate Change Act 2008 i.e. ensure NI contributes to UK net zero with establishment of an emissions reduction pathway. Provide greater clarity and predictability to plan effectively for, and invest in, a low carbon NI economy. Reinforce NI's commitment and position as part of the UK's role as global leader on climate change action.</p>
<p>What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)</p> <p>The following three options have been considered- Option 1: Do nothing/ Business as Usual – no NI climate change legislation is made; Option 2: Introduce climate change legislation for NI which includes an evidence based target that represents NI's equitable contribution to the UK net zero by 2050 target (i.e. an at least 82% net GHG emissions reductions by 2050 target compared to baseline levels); and Option 3: Introduce climate change legislation for Northern Ireland which includes a 2050 net zero emissions reductions target compared to baseline levels for NI. Option 2 was the option applied to the policy of the Bill as introduced to the Assembly on the basis of the best available scientific evidence and independent expert advice from NI's statutory climate change experts-</p>

¹ Intergovernmental Panel on Climate Change (IPCC) – the United Nations body for assessing the science related to climate change.

² IPCC Special Report 'Global Warming of 1.5°C', 2018, viewed 18th June 2021 < [Global Warming of 1.5 °C — \(ipcc.ch\)](https://www.ipcc.ch)>³ In 2019, the UK government amended the UK Climate Change Act 2008 setting a UK-wide target of net zero greenhouse gas emissions reductions compared to the baseline levels, for 2050. This target is known as 'UK net zero'.

³ In 2019, the UK government amended the UK Climate Change Act 2008 setting a UK-wide target of net zero greenhouse gas emissions reductions compared to the baseline levels, for 2050. This target is known as 'UK net zero'.

the UK Climate Change Committee (CCC)⁴, however, Option 3 was voted through by the Assembly during the Act's Consideration Stage of its legislative passage, as a result of amendments to the Climate Change Bill as introduced.

Will the policy be reviewed? It will be reviewed. Reviews will take place following the passing of the Northern Ireland Climate Change Act's 2030 and 2040 interim net GHG emissions reduction target years. In addition, a review of the Act's targets can take place at any stage as a result of:

- updates and developments in UK and international law and policy, scientific knowledge, and technology, relevant to climate change;
- the receipt and consideration of advice from the UK statutory independent expert body on climate change (i.e. the CCC); and/or
- the views of the Northern Ireland Climate Commissioner and the Just Transition Commission (required to be established under the Act).

If applicable, set review date:

Indicative Cost of the Preferred Option: Option 3⁵ (voted through by the Assembly during the Act's Consideration Stage as a result of amendments to the Bill as introduced)

Total outlay cost £m	Total net cost per year £m	Annual cost for implementation by all Northern Ireland Civil Service (NICS) Departments £m
Gross: 43,445 Net: 13,057	466	Each Northern Ireland Civil Service (NICS) department to identify actions and associated costs, and allocate funding as required to the actions that need to be taken, including those actions and policies required to reduce emissions within their areas of responsibility and remit, so to meet the targets and objectives of the Act.

Does Implementation go beyond minimum EU requirements?	N/A		
Is this measure likely to impact on trade and investment?	YES <input type="checkbox"/>		NO <input checked="" type="checkbox"/>
Are any of these organisations in scope?	Micro Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Small Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Medium Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Large Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		

⁴ The UK Committee Climate Change ('CCC'), also known as the UK Committee on Climate Change, is an independent expert advisory body established under the UK Climate Change Act 2008 who advises the UK government, and UK Devolved Administrations (Northern Ireland, Scotland and Wales) on climate change.

⁵ These investment costs should not be interpreted as capital expenditure that would be delivered solely through the Northern Ireland Budget, nor as costs that only Northern Ireland businesses and consumers have to bear. Some of the actions to reduce emissions will likely be paid for at a UK level and/or socialised across the whole of the UK. The net zero by 2050 costs provided are based on the capital annualised resource costs of at least 82% emissions reduction plus £900 million in capital and operating costs by 2050 in a linear upscaling cost pathway based on data provided by the CCC. However, it may not be the case that these costs are incurred each year, and the CCC have said it is just one example of many cost pathways Northern Ireland could choose to get to net zero by 2050.

Summary: Analysis and Evidence

Policy Option 1

Description: **Do nothing/Business as usual – no Northern Ireland climate change legislation is made.**

ECONOMIC ASSESSMENT: Option 1

Costs (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Cost (£m) (Present Value)
Low	Optional		Optional	Optional
High	Optional		Optional	Optional
Best Estimate				
<p>Description and scale of key monetised costs by ‘main affected groups’ No direct immediate extra monetised costs associated, as option estimated under most reasonable ‘business as usual’ (BAU). Policy and action without local legislative drivers may not be consistent with, or deliver requirements sufficiently to meet UK net zero, with overall net economic effects of BAU in NI being uncertain.</p>				
<p>Other key non-monetised costs by ‘main affected groups’ Risk that statutory UK net zero target will not be met due to insufficient NI climate action. Costs of insufficient action could be measured in terms of climate change impacts on NI e.g. flooding, but such assessments have limitations. Increased uncertainty e.g. for businesses, and risks of missing out on green investments. Risk that NI market models will not be compatible or competitive enough with the forward push for a net zero emissions global market. Overall the costs/benefits will also depend on the local policies chosen to meet UK net zero.</p>				
Benefits (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Benefit (£m) (Present Value)
Low		2022-		
High		2050		
Best Estimate				Uncertain
<p>Description and scale of key monetised benefits by ‘main affected groups’ Monetised benefits cannot be assessed at this time due to considerable risk of not meeting UK net zero due to insufficient scale of climate action at a NI level from an absence of local climate change legislative drivers. However, it is expected there will be short-term savings in public spending under a BAU approach due to non-monetised benefits listed below.</p>				
<p>Other key non-monetised benefits by ‘main affected groups’ Approach does not create additional legislative, regulatory, nor administrative burdens, although benefits will also depend on the local policies chosen to meet UK net zero. There is potential delivery of similar benefits under Option 1 to what is outlined at Option 2 (and Option 3), but such benefits however, are too uncertain in the absence of local legislative drivers to drive sufficient action to meet UK net zero, and any benefits are likely to be out-weighted by predicted long term negative impacts from insufficient action to tackle climate change.</p>				
<p>Key Assumptions, Sensitivities, Risks Robust figures are not available to reflect the full range of costs nor benefits, in particular the short term local transition costs to UK net zero without local legislative drivers. Significant uncertainties on associated costs of climate inaction and/or BAU at a local level-climate change is a global phenomenon and unilateral action on climate change will contribute to any positive/negative effects on NI. This option does not deliver on NDNA, and due to associated risks in regard to potential insufficient climate action, the option is considered not credible.</p>				

BUSINESS ASSESSMENT (Option 1)

Direct Impact on business (Equivalent Annual) £m				
Costs:	Benefits:	Net: Uncertain		

Cross Border Issues (Option 1)

How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland (ROI))

Out of step. All other UK Devolved Administrations (DAs) have bespoke local climate change legislation with emissions reduction targets that complement their requirements under the UK-wide Climate Change Act 2008. ROI has local climate change legislation that sets requirement for a 'climate neutral economy' by 2050.

Summary: Analysis and Evidence

Policy Option 2

Description: **Introduce climate change legislation for Northern Ireland which includes a target that represents Northern Ireland’s equitable contribution to the UK 2050 net zero target.**

This option sets GHG emissions reduction targets in line with independent advice and evidence⁶ provided to Northern Ireland by the CCC in regards to the setting of a statutory ‘at least 82% net GHG emissions reduction target by 2050 compared to baseline’.

ECONOMIC ASSESSMENT: Option 2

Costs (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Cost (£m) (Present Value)
Low		2022-2050		
High				
Best Estimate	(N/A:NICS-wide)			1,172
Description and scale of key monetised costs by ‘main affected groups’ Indicative costs part-informed by CCC’s estimates ⁷ of required capital investment for NI and reflect in-year spending required to deploy a given measure of abatement. Figures do not include costs of establishment of a Climate Commissioner, Just Transition Commission, nor a Just Transition Fund for agriculture. Costs relate to all economy sectors, should not be interpreted as capital expenditure for the NI Budget, the CCC stated they can be delivered largely by the private sector and some costs will be paid at UK level/socialised across UK.				
Other key non-monetised costs by ‘main affected groups’ The new legislative framework will create additional legislative, regulatory and administrative burdens.				
Benefits (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Benefit (£m) (Present Value)
Low		2022-2050		
High				
Best Estimate				1,032
Description and scale of key monetised benefits by ‘main affected groups’ Indicative benefits are based on the CCC’s estimates of operating costs savings due to improved technology or lower energy costs for NI. ⁸				
Other key non-monetised benefits by ‘main affected groups’ CCC evidence suggests Option 2 will drive further climate action, increasing likelihood of meeting UK net zero and facilitating a just transition to a low carbon NI economy. Co-benefits are- greater clarity and predictability to plan effectively for and invest in a low carbon economy; increased likelihood of climate change resilience and adaptability; a more sustainable competitive green economy; increased opportunities for green investment; and other substantial co-benefits, particularly for the natural environment (better air quality) and public health.				

⁶ Lord Deben’s, chair of the CCC, letter to DAERA Minister Edwin Poots on 9th December 2020 providing analysis and advice on Northern Ireland’s fair contribution to the UK net zero target, can be viewed at: <https://www.theccc.org.uk/publication/letter-lord-deben-climate-change-committee-to-edwin-poots-mla/>

⁷ Estimates obtained from analysis of the CCC. Sources: ‘Letter: Economic costs of setting and delivering a 2050 emissions target for Northern Ireland’, 1st April 2021, Figure 1 (page 6) and Figure 2 (page 7), viewed 11th June 2021 <<https://www.theccc.org.uk/publication/letter-economic-costs-of-setting-and-delivering-a-2050-emissions-target-for-northern-ireland/>>; raw data behind the charts was supplied to DAERA by the CCC, to supplement data provided in the ‘Sixth Carbon Budget Dataset’, viewed 17th June 2021, <<https://www.theccc.org.uk/wp-content/uploads/2021/02/The-Sixth-Carbon-Budget-Dataset.xlsx>>

⁸ Estimates obtained from analysis of the CCC, ‘Letter: Economic costs of setting and delivering a 2050 emissions target for Northern Ireland’, 1st April 2021, Figure 1 (page 6) and Figure 2 (page 7), viewed 11th June 2021, <<https://www.theccc.org.uk/publication/letter-economic-costs-of-setting-and-delivering-a-2050-emissions-target-for-northern-ireland/>>; raw data behind the charts was supplied to DAERA by the CCC, to supplement data provided in the ‘Sixth Carbon Budget Dataset’, viewed 17th June 2021, <<https://www.theccc.org.uk/wp-content/uploads/2021/02/The-Sixth-Carbon-Budget-Dataset.xlsx>>

Key Assumptions, Sensitivities, Risks Maximum 5 lines

Figures are indicative only- estimated costs/benefits include uncertainties around cost and availability of new and emerging technologies (e.g. abatement), changes in the economy, behavioural changes, global/unilateral climate action etc. Therefore, full range of costs/benefits is not included, and overall cost figures given may be higher than estimated. Option 2 is considered credible as scientific consensus is that climate change must be addressed, and also it is evidence-based and aligns with independent expert advice from the CCC.

BUSINESS ASSESSMENT (Option 2)

Direct Impact (Equivalent Annual)				
Costs: (£m) 1172	Benefits (£m): 1032	Net (£m): 140 (cost)		

Cross Border Issues (Option 2)**How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland)**

It complements the UK Climate Change Act 2008 in requiring equitable NI contribution to UK net zero, and is therefore similar to the other UK DA's Climate Change Acts. As with ROI, this option provides for climate legislation with a long term 2050 target for net GHG emissions' reductions, but it is a different target to ROI.

Description: Introduce climate change legislation for Northern Ireland which sets an overall net zero by 2050 target for Northern Ireland.

This option sets a GHG emissions reduction target which exceeds what is considered an ‘equitable’ contribution by NI to UK net zero on the basis of independent expert advice and evidence⁹ provided by the CCC.

ECONOMIC ASSESSMENT: Option 3

Costs (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Cost (£m) (Present Value)
Low		2022-2050		
High				
Best Estimate	N/A: NICS-wide		1,498	43,445
<p>Description and scale of key monetised costs by ‘main affected groups’ Indicative figures, based on annualised resource costs of Option 2, with up to £900million additional capital and operating cost/yr by 2050 in a linear upscaling cost pathway to bridge to net zero from 82% emissions reduction, added on the basis that engineered GHG removal technologies are used (based on CCC advice^{10, 11}). Costs relate to all economy sectors, and Her Majesty’s Treasury (HMT) principles on allocating funding across the UK ‘Principle 10’ indicates the up to additional £900m per year by 2050 will likely be borne directly by NI¹². The precise profile of cost will depend on the emissions pathway chosen by NI to 2050.</p>				
<p>Other key non-monetised costs by ‘main affected groups’ Will result in additional legislative, regulatory and administrative burdens. Non-evidenced targets risk damage to key NI economic sectors with higher risks of regional economic imbalance, carbon leakage without reducing global GHG emissions (off shoring), undermining statutory target credibility and potentially popular support for transition, premature scrappage of assets (e.g. boilers), increased embedded emissions and unfair distributional impacts, particularly if the targets are out of line with HMT actions to support a just transition to UK net zero.</p>				
Benefits (£m)	Total Transitional (Policy) (£m) (constant price)	Years	Average Annual (recurring) (£m) (excl. transitional) (constant price)	Total Benefit (£m) (Present Value)
Low		2022-2050		
High				
Best Estimate			1,032	29,938
<p>Description and scale of key monetised benefits by ‘main affected groups’ The CCC were unable to calculate and advise on any projected benefits for this option as it could not model on a sound basis a scenario where NI reaches net zero by 2050, and they could not advise a credible net zero pathway for NI by 2050. However, for the purposes of this assessment, benefits are set equal to those in Option 2. Risks and costs listed above under Option 3 presented by its net zero target may outweigh the benefits under Option 2, and due to significant unknowns, costs could be higher than the figures presented.</p>				

⁹ Lord Deben’s, chair of the CCC, letter to DAERA Minister Edwin Poots on 9 December 2020 providing analysis and advice on Northern Ireland’s fair contribution to the UK net zero target, can be viewed at: <https://www.theccc.org.uk/publication/letter-lord-deben-climate-change-committee-to-edwin-poots-mla/>

¹⁰ The CCC have stated that they were “not able to precisely calculate the costs of Northern Ireland reaching net zero, but they will almost certainly be higher than those of the 82% reduction target, by up to £900 million per year by 2050, if engineered greenhouse gas removal technologies are used”. CCC source: ‘Letter: Economic costs of setting and delivering a 2050 emissions target for Northern Ireland’, 1st April 2021, Figure 1 (page 6) and Figure 2 (page 7), viewed 11th June 2021, <https://www.theccc.org.uk/publication/letter-economic-costs-of-setting-and-delivering-a-2050-emissions-target-for-northern-ireland/>

¹¹ Chris Stark’s, Chief Executive Officer of the CCC, letter to DAERA on 10th January 2022- providing an update on the costs associated with achieving Net Zero by 2050 with engineered removals in Northern Ireland, viewed 2nd February 2022: <https://www.theccc.org.uk/publication/letter-costs-associated-with-achieving-net-zero-by-2050-in-northern-ireland/>

¹² Her Majesty’s Treasury, ‘Statement of Funding Policy: Funding the Scottish Government, Welsh Government and Northern Ireland Executive’, November 2020, viewed 11th June 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943689/Statement_of_Funding_Policy_2020.pdf

Other key non-monetised benefits by 'main affected groups'

Option 3 will create legislative drivers for further climate action and provide a level of clarity and direction for NI industry, households and individuals to plan for, and invest in, a low carbon economy. Further climate action under this option may have same potential for non-monetised 'co-benefits' similar to those mentioned in Option 2. Risks and costs presented by a statutory GHG emissions reduction target which is not evidenced and cannot be credibly achieved (on the basis of expert CCC advice and evidence) may outweigh benefits.

Key Assumptions, Sensitivities, Risks Key assumptions, sensitivities, risks from Option 2 apply here with exception that Option 3 carries additional risks on the basis of CCC evidence and independent advice-that the statutory overall net zero target cannot be credibly met, that it also carries increases in risks of embedded emissions and offshoring, risks that it cannot be achieved through a just transition, and that it will be detrimental to the NI economy; and also that additional costs of aiming to meet the net zero target will likely not be covered at a UK level.

BUSINESS ASSESSMENT (Option 3)

Direct Impact (Equivalent Annual) (£m)				
Costs: 1,498	Benefits: 1,032	Net: 466 (cost)		

Cross Border Issues (Option 3)**How does this option compare to other UK regions and to other EU Member States (particularly Republic of Ireland)**

Other UK DAs have climate change legislation with targets as advised by the CCC which complement the UK Climate Change Act 2008. ROI has legislation with a 'climate economic neutrality' target by 2050, it is not clear if this ROI target is similar/consistent with Option 3's net zero target.

Evidence Base

There is discretion for departments and organisations as to how to set out the evidence base. It is however considered desirable that the following points are covered within this impact assessment:

- 1) INTRODUCTION
- 2) CURRENT INTERNATIONAL AND NATIONAL RESPONSE CONTEXT
- 3) NORTHERN IRELAND – CURRENT PERFORMANCE
- 4) PROBLEM UNDER CONSIDERATION
- 5) RATIONALE FOR INTERVENTION
- 6) CONSULTATION
- 7) INDEPENDENT EXPERT ADVICE AND EVIDENCE
- 8) POLICY OBJECTIVE
- 9) DESCRIPTION OF OPTIONS CONSIDERED
- 10) ASSESSMENT METHODOLOGY
- 11) RISKS AND ASSUMPTIONS
- 12) EVALUATION OF OPTIONS AND OPTION CHOSEN
- 13) COST BENEFIT ANALYSIS OF OTHER ESSENTIAL ELEMENTS OF THE ACT
- 14) SMALL AND MICRO BUSINESS ASSESSMENT (SAMBIT)
- 15) WIDER IMPACTS - RURAL

1. INTRODUCTION

Climate change is a defining crisis of our time on a global and national scale. The Intergovernmental Panel on Climate Change's (IPCC) special report on the impacts of global warming of 1.5°C¹³, and their three most recent reports that complete the Sixth Assessment Report were published in August 2021¹⁴, February 2022¹⁵ and April 2022¹⁶. It has been made clear that to tackle climate change and to offset or minimise the detrimental impacts from climate change the world cannot continue with a business-as-usual approach. It is now unequivocal that human influence, has caused climate change, and it has warmed the atmosphere, ocean and land to an unprecedented degree, with effects almost certain to worsen through the coming decades. The latest report¹⁶ on 'Mitigation of Climate Change' warns that without immediate action to dramatically cut GHG emissions across all sectors of society, our goal of limiting global warming to 1.5°C will be impossible. Anthropogenic climate change is real, present and lasting.

The IPCC has indicated in their 1.5°C Special Report that at current rates, anthropogenic global warming is likely to reach 1.5°C increase from pre-industrial levels between the years 2030 and 2052¹⁷. This presents climate-related risks to both the natural environment and human systems, including increasing sea-level rise, biodiversity loss, more frequent extreme weather events such as flooding, and many other impacts. At a 2°C increased global warming scenario, impacts would be expected to be far greater. The Special Report also highlights that rapid and far-reaching transitions in energy, land, urban and infrastructure, including transport and buildings, and industrial systems

¹³ IPCC 'Special Report on the impacts of global warming of 1.5°C', 2015, viewed 21st June 2021 <https://www.ipcc.ch/site/assets/uploads/2018/10/SR15_SPM_version_stand_alone_LR.pdf>

¹⁴ IPCC 'AR6 Climate Change 2021: The Physical Science Basis, viewed 10th August 2021 <https://www.ipcc.ch/assessment-report/ar6/>

¹⁵ IPCC - Climate Change 2022: Impacts, Adaptation and Vulnerability, viewed 16 March 2022 - <https://www.ipcc.ch/report/ar6/wg2/>

¹⁶ IPCC - Climate Change 2022: Mitigation of Climate Change, viewed 5th April 2022 <https://www.ipcc.ch/report/ar6/wg3/>

¹⁷ IPCC 'Special Report on the impacts of global warming of 1.5°C', p66, viewed 21st June 2021, <https://www.ipcc.ch/site/assets/uploads/2018/10/SR15_SPM_version_stand_alone_LR.pdf>

are required in order to limit global warming to 1.5°C (with limited or no overshoot)¹⁸. These conclusions demand collective global action to transform economies and our behaviours at all levels: individuals, communities, businesses, institutions, and governments.

Climate change is a global phenomenon, and Northern Ireland is not immune to the severity of its impacts. UK climate change projections, published in 2018 (UKCP18), set out a range of possible outcomes over the next century. They are based on different rates of GHG emissions into the atmosphere.

UKCP18 projects a greater chance of hotter, drier summers and warmer, wetter winters with more extreme weather and rising sea levels¹⁹. This will have far-reaching consequences for our environment, economic and societal systems. Climate change is also at the forefront of public concern, and climate change issues are a high priority status on international and national political and public agendas, as tackling climate change and its impacts is a global effort.

There is two-fold decisive action on climate change required for Northern Ireland:

- I. mitigation measures i.e. reduce GHG emissions into, and remove GHGs from, the atmosphere. It is critical to implement a Northern Ireland domestic just transition to a low GHG emissions future, in line with the direction of the UK and other global economies. A CCC report on UK net zero, has indicated that moving more quickly to meet such an agenda will result in benefits from a competitive advantage and unlock the opportunities associated with green growth²⁰ ;
- II. adaptation measures i.e. actions to address the impacts from ongoing and future impacts from the climate change which we cannot prevent, to plan for and build Northern Ireland's climate change resilience and adaptability.

2. CURRENT INTERNATIONAL AND NATIONAL RESPONSE CONTEXT

International

Paris Agreement

In 2015, under the United Nations Framework Convention on Climate Change's Paris Agreement²¹, 197 countries including the UK committed to limiting global warming to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. The Agreement provides an enhanced transparency global framework for action on the causes of climate change (mitigation action). The Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change, through appropriate financial flows, new technology and enhanced capacity-building frameworks.

Conference of the Parties

¹⁸ IPCC 'Special Report on the impacts of global warming of 1.5°C' p15, viewed 21st June 2021, <https://www.ipcc.ch/site/assets/uploads/2018/10/SR15_SPM_version_stand_alone_LR.pdf>

¹⁹ DAERA website, UK Climate Change Projections, 2018, viewed 21st June 2021, <<https://www.daera-ni.gov.uk/articles/uk-climate-change-projections>>

²⁰ Climate Change Committee, 'Net Zero The UK's contribution to stopping global warming' May 2019, Page 35, viewed 21 June 2021, <<https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>>

²¹ United Nations, 'The Paris Agreement', 2015, viewed 21st June 2021, <<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>>

The 26th annual Conference of the Parties of the United Nations Framework Convention on Climate Change (COP26), hosted by the UK government, took place in Glasgow between 31st October and 12th November 2021. Italy hosted pre-COP26 events. This important summit represented a significant opportunity for the UK to showcase the actions and innovations already underway or planned to tackle climate change and to commit to further action. The UK government is keen that the momentum gained from the changes during Covid-19 will spark a clean, green recovery and that the UK leads the way on ambition and action as it holds the COP26 Presidency, while also encouraging other nations to do the same.

Also, a significant United Nations conference, the Biodiversity Conference- COP15, took place over 2 phases. Phase 1 was a virtual session which ran from 11th - 15th October 2021, and phase 2 was a conference in Kunming China from the 25th April to 8th May 2022, with the view to agree targets to be met by 2030.

Department of Agriculture Environment and Rural Affairs (DAERA) co-ordinated the Northern Ireland Executive's response to COP26 and COP15. COP26 and COP15 focused on driving action towards reducing global emissions, a zero carbon society, restoring nature and biodiversity, reducing pollution to our land, water and air and adapting effectively to climate change. There were five high-level themes for COP26 – Nature; Energy; Transport; Adaptation/Resilience; and Finance and the UK Government has identified four key areas where it wants to achieve specific goals – Mitigation, Adaptation, Finance and Collaboration. The development of Northern Ireland's Green Growth Strategy and Climate Action Plan, led by DAERA, was well timed for COP26. When finalised it will be Northern Ireland's route map to a low carbon society – aimed at driving climate action while delivering green jobs and a clean environment.

COP15 sets the post-2020 global biodiversity framework and targets, providing the opportunity to align measures to address the dual challenges of the biodiversity crisis and climate emergency through nature-based solutions. The framework will set out an ambitious plan to implement broad action to address the drivers of biodiversity loss, to ensure that, by 2030, we have reversed biodiversity loss and created a nature positive world and by 2050, the shared vision of living in harmony with nature is fulfilled. This will form the basis of the forthcoming Biodiversity Strategy for Northern Ireland. Also, these goals are in line with the draft strategic Northern Ireland Programme for Government (PfG) Framework Outcome '*We live and work sustainably, protecting the environment*'.

Sustainable Development Goals

In 2015, world leaders agreed to 17 Global Goals (officially known as the Sustainable Development Goals, or SDGs). Goal 13 calls for urgent action to combat climate change and its impacts. It is intrinsically linked to all 16 of the other Goals of the 2030 Agenda for Sustainable Development²².

Public Context

Greta Thunberg is a globally influential climate change activist and has emerged as a spokesperson for her peers (the youth generation) on climate change issues. Prior to covid-19,

²² United Nations Assembly, Sustainable Development Goals, 'Goal 13: Take urgent action to combat climate change and its impacts', 2015, viewed 21st June 2021, < <https://www.un.org/sustainabledevelopment/climate-change/>>

she inspired and mobilised an international movement of school students to take regular school strikes under the umbrella title of 'Fridays for Future' across the globe including in the UK and Northern Ireland. At the same time, she and many other citizens across the world demanded stronger and immediate action by world leaders to tackle climate change.

The Northern Ireland Statistics & Research Agency's Northern Ireland Environmental Report published in 2020²³ found that climate change was the biggest environmental concern for households in Northern Ireland in 2019/20.

National Political and Legal Context – UK, Scotland, Wales, Republic of Ireland (ROI) and EU

Climate emergency declarations

After consideration of scientific evidence and the increased public call for action, the UK government declared a climate emergency on 1st May 2019, Wales declared a climate emergency on 29th April 2019, and Scotland declared the same on the 14th May 2019. On 10th May 2019 ROI declared a climate emergency and by November 2019, the European Parliament had done the same, and in addition more than 11,000 scientists jointly declared that Earth is clearly and unequivocally facing a climate emergency (Ripple *et al.*, 2020)²⁴.

Increasing ambition by raising emission reduction targets

UK: The UK has committed to the 2015 Paris Agreement, which affirms the global ambition to keep the increase in global average temperature to well below 2°C above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5°C. In the 2019 amendment to the UK Climate Change Act 2008, the UK in line with the CCC's advice and recommendations, showed the intent required of the Paris Agreement, by committing to reaching net zero GHG emissions reductions by 2050 compared to baseline levels. This statutory target is known as 'UK net zero'. The UK Climate Change Act 2008, also mandates a process for setting five yearly carbon budgets. Each UK carbon budget provides a five-year, statutory cap on total GHG emissions, which should not be exceeded by the UK, in order to meet the UK's emission reduction commitments. The UK government implemented the advice of the CCC's Sixth Carbon Budget and laid regulations which came into force on 21st June 2021 which set UK emissions at 965 MtCO_{2e}²⁵ for the carbon budget period 2033-2037. They also committed, which was at the time the world's most ambitious climate change target into law - to reduce emissions in the UK by 78% by 2035 compared to 1990 levels, in line with the CCC's advice and recommendations²⁶. The CCC's Sixth Carbon Budget advice set out, for the first time, the detailed balanced pathway to meeting the UK's net zero target in 2050. The relative contributions expected from different sectors will be/is set through policy. After a carbon budget has been set in law, the UK Government is mandated under the UK Climate Change Act 2008 to define, as soon as practical, its strategy for meeting that budget. All Devolved governments within the UK, including Northern Ireland are required to contribute to this budget.

²³ Northern Ireland Statistics & Research Agency, 'Northern Ireland Statistics Report', 2020, viewed 21st June 2021, < <https://www.daera-ni.gov.uk/publications/northern-ireland-environmental-statistics-report-2020> >

²⁴ William J Ripple, Christopher Wolf, Thomas M Newsome, Phoebe Barnard, William R Moomaw, 2020. 'BioScience, World Scientists' Warning of a Climate Emergency', Volume 70, Issue 1, January 2020, pages 8–12, viewed 21st September 2020 < <https://doi.org/10.1093/biosci/biz088> >

²⁵ legislation.gov.uk website, 'The Carbon Budget Order 2021', viewed 21st June 2021, < <https://www.legislation.gov.uk/ukdsi/2021/9780348222616/contents> >

²⁶ UK government website, 'UK enshrines new target in law to slash emissions by 78% by 2035' viewed 20th May 2021 < <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035> >

The UK has published a Net Zero Strategy- Build Back Greener²⁷ on 19th October 2021, which sets out policies and proposals at a UK level for decarbonising all sectors of the UK economy to meet the UK net zero target by 2050 and the UK Sixth Carbon Budget.

Although the UK Climate Change Act 2008 sets no specific emissions targets for Northern Ireland, England, Scotland or Wales, England and all the UK devolved administrations are required to contribute to required emission reductions (including the UK carbon budgets) to meet UK net zero. It has been stated that when the UK net zero is met, it will bring to an end the UK's contribution to rising global temperatures²⁸, and will align with the UK commitments to the Paris Agreement. This Sixth Carbon Budget will ensure the UK remains on track to achieve this.

Scotland: In 2019 Scotland updated their statutory emissions reduction targets, based on recommendations from the CCC. Scotland is aiming to achieve net zero GHG emissions by 2045 and increased its interim targets for 2020 (to at least 56% reduction from baseline levels), 2030 (to a 75% reduction from baseline levels) and 2040 (to a 90% reduction). Scotland is considered as having more potential capacity to remove emissions from the atmosphere than the rest of the UK due to its abundant land, with greater potential for afforestation (planting trees to create forests, which are natural carbon sinks)²⁹.

Wales: In 2019 the Welsh Government accepted a target recommended by the CCC, to achieve at least a 95% reduction in GHG emissions by 2050. The target was expected to be made law by the Welsh Government in 2020. However, following a recommendation report by the CCC, after consideration of new updated evidence, legislation was brought forward to commit Wales to aiming to achieve net zero emissions by 2050³⁰. The new evidence which informed the update on the recommendations from the CCC in regard to setting the Welsh net zero emissions targets, related to the capacity for greater reductions within the Welsh industrial sector to help achieve their net zero goal, as a large proportion of Welsh emissions come from a small number of big industry emitters, such as Port Talbot steelworks³¹.

ROI: In compliance with its commitments as an EU Member State, ROI has legislated for 'climate neutral economy' by 2050 through its National 2050 Climate Objective under its Draft Climate Action and Low Carbon Development (Amendment) Act 2021³². A 'climate neutral economy' is defined in the Act as '*a sustainable economy and society where GHG emissions are balanced or exceeded by the removal of greenhouse gases*'.

EU: The European Union currently has laws in place to require the bloc to reduce emissions by at least 55% by 2030, compared with baseline levels, with a commitment to achieving 'EU climate neutrality' by 2050. These targets will be partly implemented by annual emissions

²⁷ UK government website, 'Net Zero Strategy: Build Back Greener', viewed 19th October 2021, <<https://www.gov.uk/government/publications/net-zero-strategy>>

²⁸ Climate Change Committee 2019, 'Net Zero The UK's contribution to stopping global warming', page 8, viewed 21st September 2020 <<https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>>

²⁹ UK Climate Change Committee, 'Net Zero: The UK's contribution to stopping global warming', 2 May 2019, viewed 15th June 2021, <www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

³⁰ Welsh Government Press Release, 'Welsh Government Wales commits to net zero by 2050, but sets out ambitions to get there sooner', 9th February 2021, viewed 15th June 2021 <<https://gov.wales/wales-commits-net-zero-2050-sets-out-ambitions-get-there-sooner>>

³² Electronic Irish Statute Book (eISB), Climate Action and Low Carbon Development (Amendment) Act 2021' viewed 4th October 2021 <<http://www.irishstatutebook.ie/eli/2021/act/32/enacted/en/print>>

targets set for each Member State³³, which apply to specific sectors only, and each Member State's target is calculated to reflect its relative level of wealth³⁴. Less wealthy countries have less ambitious targets because their relatively higher economic growth is likely to be a stronger emission driver and they have relatively lower investment capacities.

Policy Context

Responsibility for climate change in Northern Ireland, which includes tackling the causes of climate change and adapting to its impacts, is a collective responsibility for everyone and all sectors of Northern Ireland.

The Northern Ireland government has an integral part to play in leading both effective climate change mitigation and adaptation. Tackling climate change and addressing its impacts is cross-cutting in Northern Ireland, with all government NICS departments bearing a collective responsibility for taking forward climate change action in their sectoral lead areas of responsibility and remit.

DAERA lead on a co-ordinated NICS-wide departmental response to climate change under the UK Climate Change Act 2008. In addition, DAERA has reported on GHG emissions as an indicator under Outcome 2 of the current draft PfG.³⁵

On behalf of the Executive, DAERA is leading development of a multi-decade Green Growth strategy to tackle climate change, in partnership with other departments, Local Government and stakeholders from across the business and voluntary and community sectors. An eight-week public consultation on the draft Green Growth Strategy took place from 26th October to 21st December 2021. The Strategy is currently being revised to take account of the feedback received through the consultation exercise and the new legislative provisions that are to be brought forward through the Climate Change Act (Northern Ireland) 2022. Green Growth means using the move from a high to a low greenhouse gas emissions society to improve people's quality of life through green jobs and a clean environment. The Green Growth Strategy will help to deliver on the Northern Ireland Executive's commitment in the 'New Decade, New Approach' to tackle climate change head on, with a strategy to address the immediate and longer-term impacts of climate change. It will set out the long-term vision and a solid framework for tackling the climate crisis in the right way. Associated to the Green Growth Strategy, a Climate Action Plan, will be developed for Northern Ireland by the end of 2023. It will focus on the short-term actions that will need to be taken across all individual sectors to meet sector-specific greenhouse gas emission targets, in line with Northern Ireland's Climate Change Act and the UK's net zero by 2050 ambition.

³³ The obligation for EU Member States to comply with emission reduction targets are given legislative effect through Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021–2030, contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) 525/2013 (Effort Sharing Regulation). At the time of drafting this RIA, this regulation is due to be updated as part of an agreed package which proposes to revise several pieces of EU climate legislation, including the EU ETS, transport and land use legislation, setting out in real terms the ways in which the Commission intends to reach EU climate targets under the European Green Deal..

³⁴ National emissions reduction targets for EU Member States apply only to sectors such as such as transport, buildings, agriculture and waste, and they do not include emissions from: i) the 'Land-Use, Land-Use Change and Forestry Sector', or ii) emissions from businesses whose size and / or type requires them to participate in the 'EU Emissions Trading Scheme'. European Commission website, 'Effort sharing: Member States' emission targets', viewed 18th June 2021, <
https://ec.europa.eu/clima/policies/effort_en>

³⁵ Outcome 2 is 'We live and work sustainably – protecting the environment'. Under Outcome 2, Indicator 29 is a reduction of 1% per year in emissions to 2021, or reduction of 1 MtCO₂e (5%) by March 2021.

The Department for the Economy published its new Energy Strategy³⁶ – ‘The Path to Net Zero Energy’ in December 2021 and the Department for Infrastructure have responsibility for infrastructure and flooding management strategies and policies.

DAERA through the cross-departmental Adaptation Working Group also lead on the development of the 5 yearly Northern Ireland Climate Change Adaptation Programme, as required under the UK Climate Change Act 2008, with the most recent programme being published in September 2019.³⁷ This adaptation programme sets out Government’s response to priority risks identified in the Climate Change Risk Assessment (CCRA) for all departments across the whole of the Executive, promoting policies to reduce the impact of climate change, given the interconnected nature of the environment between emissions and impacts. There are a number of Northern Ireland strategies and proposed strategies that take into account climate change and the natural world. For example, DAERA has drafted an overarching Environment Strategy for Northern Ireland designed to safeguard our natural environment and build climate resilience and a Peatland Strategy to provide the framework for protecting and restoring our peatland habitats to help mitigate for, and adapt to climate change, as well as leading on a number of other programmes such as the Forests for Our Future.

Climate Emergency

A Climate Emergency was declared in the Northern Ireland Assembly on 3rd February 2020.

Northern Ireland Assembly Motion

On 21st July 2020 a non-legally binding motion was passed by the Northern Ireland Assembly on climate change, on the ‘Introduction of a Climate Change Act within 3 months’.

All-Party Group on Climate Change

An All-Party Group on Climate Change was set up under the Northern Ireland Assembly, with the purpose of working to ensure:

- the Executive and Departmental Ministers take account of climate change in government policy,
- Northern Ireland’s GHG emissions are reduced, and
- any targets set in the Climate Change Act (Northern Ireland) 2022 are met.

This group met on several occasions during the legislative passage of the Act and updates regarding the progress of the new climate change legislation for Northern Ireland were high on their agenda.

New Decade, New Approach agreement

The Northern Ireland Assembly was reconvened in January 2020 with all the main political

³⁶ Energy Strategy - ‘The Path to Net Zero Energy’, published December 2021, viewed 22nd April 2022 <https://www.economy-ni.gov.uk/sites/default/files/publications/economy/Energy-Strategy-for-Northern-Ireland-path-to-net-zero.pdf>

³⁷ DAERA, 2019, ‘Northern Ireland Climate Change Adaptation Programme’, viewed 21st September 2020, <<https://www.daera-ni.gov.uk/articles/northern-ireland-climate-change-adaptation-programme> >

parties in Northern Ireland endorsing the 'New Decade, New Approach' (NDNA) document.³⁸ NDNA states that '*The Executive will introduce legislation and targets for reducing carbon emissions in line with the Paris Climate Change Accord*'. Under the climate change section of the NDNA at Appendix 2 it states that '*The Executive should bring forward a Climate Change Act to give environmental targets a strong legal underpinning*'.

3. NORTHERN IRELAND – CURRENT PERFORMANCE

GHG Inventory

Statistical analysis of climate change is based on international standards to support consistency and enable comparison. The UK's statistics are contained in the UK GHG inventory.

The latest GHG inventory published on 7th June 2022³⁹, based on 2020 figures for Northern Ireland, reported that:

- i. In 2020, Northern Ireland's net GHG emissions were estimated to be 20.9 million tonnes of carbon dioxide equivalent. This was a decrease of 4.2% compared with 2019.
- ii. The longer-term trend showed a decrease of 23.9% compared to the base year (1990).
- iii. The largest emitting sectors in 2020 were agriculture (26.6%), transport (16.2%), residential (13.7%), energy supply (13.6%) and business sectors (13.4%). Most sectors showed a decreasing trend since the base year; the transport sector showed the largest sectoral decrease for 2019-2020, due to restrictions on travel imposed during the COVID-19 pandemic.
- iv. The largest decreases between 1990 and 2020, in terms of tonnes of carbon dioxide equivalent, were achieved in industrial process (71%), the public sector (67.2%), waste management (60.1%) and energy supply (46.4%). These were driven by improvements in energy efficiency, fuel switching from coal and oil to natural gas, which became available in the late 1990s, and the continued process of methane capture and oxidation systems in landfill management.
- v. Northern Ireland accounted for 5.2% of UK GHG emissions in 2020.
- vi. In total, the UK reduced emissions by 49.9% between the baseline year and 2020. Scotland and England reduced emissions by 51% and 52.5% respectively. Wales and Northern Ireland reduced emissions by 40% and 23.9% respectively.

Northern Ireland Projections

The most recent Northern Ireland GHG Projection statistics (updated on a yearly basis), which are based on the 2019 UK GHG Inventory data for Northern Ireland⁴⁰, found that net GHG emissions in Northern Ireland are expected to reduce by 32% between 1990 and 2030 to 18 Metric tons of carbon dioxide equivalent (MtCO₂e).⁴¹

³⁸ "New Decade, New Approach", viewed 26th September 2020, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856998/2020-01-08_a_new_decade_a_new_approach.pdf >

³⁹ DAERA website, 'Northern Ireland Greenhouse Gas Statistics 1990-2020', published by Northern Ireland Statistics and Research Agency ('NISRA') in conjunction with DAERA Statistics and Analytical Services Branch, viewed 7th June 2022, <<https://www.daera-ni.gov.uk/publications/northern-ireland-greenhouse-gas-inventory-1990-2020-statistical-bulletin>>

⁴⁰ DAERA website, 'Northern Ireland greenhouse gas inventory projections', viewed 13th April 2022, <<https://www.daera-ni.gov.uk/articles/northern-ireland-greenhouse-gas-projections>> ⁴¹

4. PROBLEM UNDER CONSIDERATION

The problem under consideration was that the NDNA commitments required the Northern Ireland Executive to bring forward new climate change legislation for Northern Ireland including setting statutory net GHG emissions reduction targets within that legislation. At the time, there was no specific local Northern Ireland climate change legislation. All other UK devolved administrations have local bespoke climate change legislation which is tailored on the basis of evidence and advice from the CCC to their characteristics and emission reduction capabilities, and which complements their requirements under the UK Climate Change Act 2008, to further drive GHG emission reductions at the local level.

To deliver on the requirements of NDNA, so to address the legislative gap regarding no local climate change legislation, the then Department of Agriculture Environment and Rural Affairs (DAERA) Minister, Edwin Poots MLA, instructed his departmental officials to work with Northern Ireland government's expert primary legislation drafters to draft a Climate Change Bill for introduction to the Northern Ireland Assembly. During the Bill's legislative passage in the Assembly, a number of amendments were agreed by the Assembly to the Bill as introduced, drafted by various Members of the Legislative Assembly, including some which were brought forward by Minister Poots. The amended Bill completed its legislative passage on the 9th March 2022, and it received Royal Assent on 6th June 2022, when it then became the Climate Change Act (Northern Ireland) 2022. The Act can be accessed at the following weblink: <https://www.legislation.gov.uk/nia/2022/31/contents/enacted>.

5. RATIONALE FOR INTERVENTION

The Northern Ireland Executive was required to deliver on the commitment made in NDNA in regard to bringing forward climate change legislation for Northern Ireland. Also, while Northern Ireland's net GHG emissions, and therefore the impact that reductions can have from a global perspective, are relatively small 0.04% globally (estimated by DAERA statisticians using data sourced from the World Resources Institute on total 'world GHG emissions'⁴²), there remained a strong argument for the introduction of domestic climate change legislation.

⁴² Estimates of Northern Ireland's greenhouse gas emissions form part of the UK Greenhouse Gas Inventory and are compiled in adherence to guidelines set out by the United Nations Framework Convention on Climate Change (UNFCCC). The UK returns are compiled by Ricardo Energy on behalf of Department for Business, Energy & Industrial Strategy, with DAERA statisticians' quality assuring the Northern Ireland component. However, as currently only 44 countries report to the UNFCCC on an annual basis, and in the absence of a definitive figure for global emissions produced by UNFCCC, consultants from Ricardo Energy recommended that a 'global' CO₂e figure be sourced from the World Resources Institute (WRI) at <<https://www.wri.org/blog/2020/02/greenhouse-gas-emissions-by-country-sector>>. Using data from the Climatewatch CAIT tool at https://www.climatewatchdata.org/ghg-emissions?end_year=2018&start_year=1990, it was estimated that global greenhouse gas emissions in 2018 (the most recent year available), stood at 48.9 GtCO₂e (i.e. 48,900 MtCO₂e). In 2018, Northern Ireland greenhouse gas emissions were estimated at 20.6 MtCO₂e from data provided in Northern Ireland greenhouse gas inventory 2018 (at <https://www.daera-ni.gov.uk/publications/northern-ireland-greenhouse-gas-inventory-1990-2018-statistical-bulletin>). Thus, using the WRI figure of 48,900 MtCO₂e as a denominator, estimates of Northern Ireland's share of global emissions are estimated at 0.04%.

Northern Ireland is required to contribute to the UK net zero by 2050 target. However, although the 2020 GHG emissions have decreased by 23.9% since the 1990 baseline⁴³, Northern Ireland is currently projected to have a 16% shortfall in meeting the CCC's recommended 48% net GHG emissions reductions by 2030 (see section 3 of this document under the 'Northern Ireland Projections' section). The 2030 target of 48% had been recommended by the CCC as Northern Ireland's fair contribution towards the UK 2030 target of 68% reduction, and as part of a 'balanced pathway' to UK net zero by 2050.

The projected 2030 shortfall demonstrates the need for further action through further government intervention in order to drive down Northern Ireland GHG emissions, and it is fair to assess that action to limit emissions may not happen at a sufficient and timely scale without further government intervention via creation of climate change legislation for Northern Ireland. Indeed, such considerations and costs on climate change inaction on GHG emissions may not be fully factored into private decisions outside of government without this government lead and intervention. A legislative framework is considered to provide the strongest driver⁴⁴ to legally underpin current and future required policies as well as provide optimal clarity going forward for required climate change actions to achieve the required GHG emissions reductions to meet UK net zero.

The UK Government's rationale at the time, for introducing the UK Climate Change Act 2008 (see below) is equally valid for Northern Ireland in regard to bringing forward its Climate Change Act (Northern Ireland) 2022, perhaps even more so due to our greater reliance on fossil fuels for heating and transport, and higher levels of fuel poverty⁴⁵. Furthermore, it could be argued that Northern Ireland is extremely well placed to take advantage of the opportunities that will accrue from the promotion of renewable energy technology and, other green technologies.

The UK Government's stated rationale for introducing a UK Climate Change Act 2008⁴⁶ was to:

- demonstrate leadership by example to help foster collective international action;
- create a clear and coherent framework to enable the UK to meet domestic and international commitments;
- provide greater clarity and certainty for UK industry, households and individuals to effectively plan for and invest in a low carbon economy;
- maximise social and economic benefits and minimise costs to the UK as we pursue these goals; and
- help the UK towards being better adapted to the impacts of unavoidable climate change.

⁴³ DAERA website, 'Northern Ireland Greenhouse Gas Statistics 1990 – 2020', published 7th June 2022, at pages 5 and 7, viewed 7th June 2022, <<https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Greenhouse%20Gas%20Statistics%201990-2020%20Report%20FINAL.PDF>>

⁴⁴ Climate Change Committee Reports: 'The Appropriateness of a Northern Ireland Climate Change Act', published Nov 2011, viewed 18th June 2021 < <https://www.theccc.org.uk/publication/the-appropriateness-of-a-northern-ireland-climate-change-act-northern-ireland-report/>> and 'The Appropriateness of a Northern Ireland Climate Change Act, 2015 Update', published Jan 2016, viewed 18th June 2021, <<https://www.theccc.org.uk/publication/the-appropriateness-of-a-northern-ireland-climate-change-act/>>

⁴⁵ Referenced in Climate Change Committee, 'Sixth Carbon Budget Report – The UK's Path to Net Zero', published 9th December 2020, page 296, viewed 14th June 2021, <<https://www.theccc.org.uk/publication/sixth-carbon-budget/>>; Northern Ireland data available at: GOV.UK website, 'Estimates of Fuel Poverty in Northern Ireland in 2017 and 2018', viewed 14th June 2021, <<https://www.gov.uk/government/statistics/estimates-of-fuel-poverty-in-northern-ireland-in-2017-and-2018>>

⁴⁶ As referenced in 'Fifth Report of Select Committee on Environment, Food and Rural Affairs 2007', viewed 14th June 2021 <<https://publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/534/53405.htm>>

When considering the desirability of introducing a Climate Change Bill to the Northern Ireland Assembly in October 2015, the then Department of Environment Minister (Mark H. Durkan, MLA) sought independent advice from the CCC on the appropriateness of a Northern Ireland Climate Change Act, effectively updating an earlier CCC advisory report, produced in 2011.⁴⁷

Findings of the updated report published in 2016,⁴⁸ stated that:

- a) Legislation may provide the Executive with greater clarity: about longer-term requirements, and greater accountability to meet required emission reductions. It may help to galvanise action;
- b) Locally-led and designed legislation may be more appropriate to circumstances in Northern Ireland, though carbon budgets / targets need to be supported by a sufficient degree of clarity over the policies to achieve them if they are to provide confidence to make investments;
- c) If targets are legislated the aim should be to reflect circumstances specific to Northern Ireland (costs and opportunities), not simply to take a pro-rata proportion of the UK target; and
- d) There are uncertainties over agriculture emissions. The most appropriate option would be to set targets now but allow flexibility to revise these as uncertainties are reduced.

The CCC concluded within this report that the range of circumstances that are unique to Northern Ireland suggest that local legislation is appropriate. The benefits of specific legislation only outweigh the costs if it is possible to pass local legislation without adding undue additional costs onto the Northern Ireland Executive, ministries or the wider economy.

The aim of the Climate Change Act (Northern Ireland) 2022 is to create a framework addressing multiple aspects and issues of both climate change mitigation and adaptation in a holistic, overarching manner in order to deliver our contribution to the UK's net zero target, and thus commitments to the Paris Agreement.

The rationale for the Climate Change (Northern Ireland) Act 2022 is to:

- i. demonstrate political and moral leadership;
- ii. create a clear and coherent basis for managing the transition to a low carbon economy through Green Growth;
- iii. create a clear and coherent evidence-based and science-led framework for managing a just transition to a low carbon economy;
- iv. maximise social and economic benefits of new technologies;
- v. provide greater direction for the private and public sectors to plan for investment;

⁴⁷ The Climate Change Committee 2011, 'The appropriateness of a Northern Ireland Climate Change Act – Northern Ireland Report', viewed 18th August 2020 <<https://www.theccc.org.uk/publication/the-appropriateness-of-a-northern-ireland-climate-change-act-northern-ireland-report/>>

⁴⁸ The Climate Change Committee, 'The appropriateness of a Northern Ireland Climate Change Act – Northern Ireland Report (2015 update)', 2016, viewed 18th June 2021 <<https://www.theccc.org.uk/publication/the-appropriateness-of-a-northern-ireland-climate-change-act/>>

- vi. help Northern Ireland to contribute to real-world reductions in global GHG emissions to minimise the levels of climate change, adapt and be better prepared for the impacts of unavoidable climate change, and to have a sustainable environment; and
- vii. deliver on the commitments of NDNA in relation to bringing forward a local Climate Change legislation for Northern Ireland.

6. CONSULTATION

DAERA ran a consultation, on a 'Discussion Document on a Climate Change Bill for Northern Ireland', from 8th December 2020 to 1st February 2021. The public consultation received 269 discrete responses which were submitted via Citizen Space or directly to the Climate Change Bill team via e-mail.

A total of 48% of respondents preferred a Northern Ireland Climate Change Bill which sets evidence based GHG emission reduction targets to reflect Northern Ireland's equitable contribution to the UK net zero GHG emissions by 2050 target. 40% of respondents were in favour of a Bill which requires Northern Ireland to be net zero in GHG emissions by 2050. The remaining 12% of respondents were 'not sure or had no opinion' on the level of targets to be set in a Northern Ireland Climate Change Bill. 82% of consultation respondents supported having a Bill which provided flexibility for reassessing targets, etc. in light of any updates to evidence, science or understanding around climate pressures and measures to address these. The majority of the respondents were also in favour of including provisions in the Bill in relation to public bodies reporting on measures being taken in terms of adaptation (87%) and mitigation (86%) to climate change.

DAERA worked with Northern Ireland Statistical Research Agency (NISRA) statisticians to determine the appropriate approach to analysing all of the responses to the consultation to ensure a robust and consistent methodology was applied. The findings of the analysis of the responses to the consultation are outlined in a summary report⁴⁹. The findings have helped inform the development of the Climate Change Act (Northern Ireland) 2022 prior to its introduction to the Assembly as a Bill, i.e. in determining the potential policy elements to be included in the Act. There was also an urgency in bringing forward climate change legislation within the current mandate for the Assembly to meet the requirements of NDNA, and to deliver on the public and political call for urgency for Northern Ireland Climate Change legislation to be put in place. For these reasons the DAERA made the decision that it would not be appropriate nor possible for a further consultation on the draft Bill due to the limited time availability.

⁴⁹ Summary Report Responses to the Discussion Document on a Northern Ireland Climate Change Bill, published September 2021, viewed 22nd April 2022 <https://www.daera-ni.gov.uk/publications/summary-report-responses-discussion-document-northern-ireland-climate-change-bill>

7. INDEPENDENT EXPERT ADVICE AND EVIDENCE

On 9th December 2020, the CCC published its Sixth Carbon Budget Report⁵⁰ to the UK Government. The report sets out advice from the CCC on the volume of UK net GHG emissions for the period 2033-2037, setting it at 965mCO₂e. This sets out a 'balanced pathway' to UK net zero by 2050, as involving equivalent effort for all parts of the UK in actions to address climate change by reducing GHG emissions.

DAERA Minister Edwin Poots MLA, in February 2020, had requested separate, specific analysis and advice on Northern Ireland's equitable contribution to the UK net zero target. Lord Deben, chair of the CCC, wrote to Minister Poots on 9th December 2020 providing this advice⁵¹, in conjunction with the CCC's publication on its advice on the UK's Sixth Carbon Budget.

In summary, Lord Deben's lettered reply to Minister Poots highlighted that:

- Achieving net zero emissions for the whole UK by 2050 does not necessitate that every part of the UK (both geographical and sectoral) gets to net zero emissions. Northern Ireland achieving net zero GHG emissions is not necessary for the UK to meet its climate targets including delivering on their Paris Agreement commitments. However, deep and ambitious emissions' reductions in Northern Ireland are still crucial if the UK is to reach net zero by 2050 overall.
- Northern Ireland is a significant net exporter of agri-food products with nearly 50% of all agri-food products produced in Northern Ireland consumed in the rest of the UK. It is therefore fair that, as well as taking the right actions to reduce emissions from agriculture, some of these emissions are offset by 'sinks' that are located elsewhere in the UK.
- In every scenario for achieving UK net zero that the CCC have, and could have constructed on a sound basis, Northern Ireland would not get to net zero GHG emissions by 2050.
- In the CCC's recommended 'balanced pathway' to net zero, which meets net zero by 2050 at a UK level and, a pathway on which the recommended Sixth Carbon Budget is based, Northern Ireland would achieve net zero carbon dioxide emissions by 2050.
- The recommended long-term target of an at least 82% reduction in all GHG net emissions in Northern Ireland represents an equivalent effort and a fair contribution to the UK net zero target.
- Getting to net zero for all GHG's in Northern Ireland by 2050 is not considered realistic nor achievable, and the CCC have categorically stated such a target cannot be credible set.

As part of the process in progressing work towards the development of the Climate Change Act 2022 to deliver on NDNA in regard to climate change legislation for Northern Ireland, DAERA

⁵⁰ The CCC's Sixth Carbon Budget report and supporting documents, published December 2020, viewed 22nd April 2022 - [Sixth Carbon Budget - Climate Change Committee \(theccc.org.uk\)](https://www.theccc.org.uk/publication/sixth-carbon-budget-climate-change-committee/)

⁵¹ Letter from Lord Deben to Minister Poots MLA, on Northern Ireland's fair contribution to the UK Net Zero target and reductions by 2030, viewed 22nd April 2022 - <https://www.theccc.org.uk/publication/letter-lord-deben-climate-change-committee-to-edwin-poots-mla/>

requested further advice from the CCC on the economic implications of the target which it had recommended for Northern Ireland. Lord Deben provided a reply to this request in April 2021⁵².

In January 2022, the CCC further wrote to the DAERA providing further clarification of the costs associated with achieving net zero greenhouse gas emissions by 2050 in Northern Ireland as requested by DAERA⁵³. The CCC provided more detailed information within this letter about the basis for their cost estimate set out in an earlier CCC letter to Minister Edwin Poots on April 1st 2021; the associated follow-up CCC correspondence with the then AERA Committee⁵⁴ regarding an example (just one of many possible Northern Ireland pathways) of a linear upscaling cost pathway to bridge to net zero from 82% emissions reduction by 2050, added on the basis that engineered GHG removal technologies are used.

The advice and evidence provided in the CCC's letters reaffirmed and categorically stated that a net zero emissions reduction target could be credibly set at this time for Northern Ireland by 2050 nor any earlier than that year. The detail within the CCC's letters to DAERA, including Minister Poots has been used to largely part-inform this impact assessment, including the cost-benefit analysis below, and references below are made to the information contained in those letters.

8. POLICY OBJECTIVE

Overall objective

The objective of the Climate Change Act (Northern Ireland) 2022 is to create robust, effective and proportionate Northern Ireland Climate Change legislation which will:

- deliver requirements of the NDNA agreement in regard to climate change legislation including legally underpinning requirements for delivering international agreements and policies (e.g. Paris Agreement);
- establish an emissions reduction pathway to 2050, by putting into statute interim targets in 2030 and 2040 and a long term 2050 net GHG emission reduction targets from the baseline, and a system of five yearly carbon budgets which will limit the total amount of net GHG emissions in a given time period, and a system of 5 yearly climate action plans (which includes setting of annual targets for GHG emissions and air quality, and setting of soil quality and biodiversity to be achieved for the 5 year Budget period), and sectoral plans;
- drive further appropriate climate change action in a sufficient and timely manner;
- be a cornerstone to a response to the declarations of a climate emergency by the UK and Northern Ireland;
- be an incremental legal tool in building climate change resilience and adaptability within Northern Ireland;
- underpin related Northern Ireland climate change policies and strategies going forward;

⁵² Letter from Lord Deben to Minister Poots MLA on 1st April 2021 on the economic costs of setting and delivering a 2050 emissions target for Northern Ireland, viewed 22nd April 2022 - <https://www.theccc.org.uk/publication/letter-economic-costs-of-setting-and-delivering-a-2050-emissions-target-for-northern-ireland/>

⁵³ Letter from Chris Stark, Chief Executive Officer of the CCC, to DAERA on 10th January 2022 providing an update on the costs associated with achieving Net Zero by 2050 with engineered removals in Northern Ireland, viewed 2nd February 2022: <https://www.theccc.org.uk/publication/letter-costs-associated-with-achieving-net-zero-by-2050-in-northern-ireland/>

⁵⁴ The AERA Committee undertake a scrutiny, policy development and consultation role with respect to the Department for Agriculture, Environment and Rural Affairs and play a key role in the consideration and development of legislation.

- provide greater clarity and predictability to plan effectively for, and invest in, a low carbon Northern Ireland economy.
- drive forward a local low GHG emissions, circular Northern Ireland economy through a just transition;
- reinforce Northern Ireland's commitment and position as part of UK in its role as global leader on climate change; and
- complement Northern Ireland's current requirements under the UK Climate Change Act 2008

Elements of the Act

There are key elements essential to creating effective climate change legislation, in addition to setting GHG emission reduction targets. The following sets out objectives and intended effects of each of the Act's main elements.

i) 2050 target, interim targets, carbon budgets, climate action plans and sectoral plans

Objective:

The Act creates a statutory long-term target, for Northern Ireland's net emissions of GHGs to be reduced by "at least" 100% (lower than the baseline) by 2050, It also includes a separate provision for the level of reductions in methane emissions, i.e. that methane emissions are not required to be more than 46% lower than the baseline (1990). This methane level is not a supplementary target, but a clarification on a fair contribution towards UK net zero as it is consistent with the IPCC and the CCC evidence and advice in regard to reducing methane to achieve long term temperature goals in the Paris Agreement.

'Interim Targets' are set for 2030 (48% lower than baseline) but for 2040 the emissions reduction target is required by the Act to be set in line with achieving the 2050 target within 24 months of the Act receiving Royal Assent. The 2030 target will also be reviewed when setting the 2040 target.

The duty to achieve these targets is placed on all Northern Ireland departments collectively. In addition to having the same target-achievement duties as other departments, the Act also creates an administrative and co-ordination role for DAERA.

There are also duties for requiring all other departments to furnish DAERA with relevant climate change information in a timely manner, information of which is relevant to the functions of those other departments. DAERA's duties will involve (with part-input from departments as required) reporting on achievements and progress against targets (this is further discussed below), as well as the creation of a series of carbon budgets for five-year periods through the setting of net GHG emissions caps, for those five years by subordinate regulations. There are also requirements to lay 5 yearly Climate Action Plans (which contain policies and proposals to meet carbon budgets, and also includes requirements to set annual targets for GHG emissions and air quality, and the setting of soil quality and biodiversity to be achieved within that budgetary period), and requirements around production of sectoral plans. For each proposed carbon budget period and associated Climate Action Plan, a public consultation lasting at least 16 weeks and a financial, social, economic and rural impact assessment must be carried out. The carbon budgets for the first three budgetary periods required by the Act are to be set

before the end of 2023, and the carbon budgets for the fourth and subsequent budgetary periods must be set at least 12 years in advance of the budget period commencing. The first budgetary period will be 2023-2027. The emission limits set within carbon budgets are required to be consistent with the Act's 2050 emissions target and interim targets, so as to act as a mechanism for limiting emissions over shorter periods, as steps towards achieving the longer-term emission reduction targets.

The Act also provides for powers to amend targets (to an earlier year or higher percentage than that specified) and carbon budgets, and there are strict and robust pre-conditions attached to the use of these powers. Preconditions include events such as updated scientific evidence and knowledge about climate change, advances in technology relating to climate change, changes in UK and international law and policy on climate change, or after consideration of advice and evidence received from the statutory independent advisory body (the CCC), the Republic of Ireland Climate Advisory Council or the Intergovernmental Panel on Climate Change, and the views of the Climate Commissioner and the Just Transition Commission required to be established under the Act. The powers would also be subject to Executive and Assembly approval of any amending legislation.

The Climate Change Act (Northern Ireland) 2022 also lists the GHGs to be included in emissions' calculations and provides that those emissions will be calculated and recorded in 'carbon units'. The Act provides that DAERA may make further provision, by regulations, for how removals of a gas are calculated and recorded and requires that the methodology for determining emissions and removals of a gas is in accordance with international carbon reporting practice. The Act gives DAERA the power to amend, by regulations, the baseline years of a GHG. Such amendments can only be made if DAERA is satisfied it is appropriate to do so as a result of significant developments in law or policy relating to climate change. Any amendments made would also be subject to Executive and Assembly approval.

Intended effects:

- i. To provide a legislative requirement for a clear pathway for decarbonisation/GHG emissions reductions, providing greater certainty for investment and policy decisions.
- ii. To set out how Northern Ireland GHG emissions will be calculated and, what will and will not be included in the Northern Ireland emissions account to provide transparency.
- iii. To ensure each five-year carbon budget is progressively reduced in order to achieve the required long-term reduction in emissions, with carbon budgets calculated to reduce emissions at a rate to meet the Act's 2050 target.
- iv. To ensure that soil quality, air quality and biodiversity targets are set.
- v. To allow flexibility, where a need for a slower transition to low emissions in one area can be balanced with more rapid progress in another.
- vi. To enable a robust methodology to take into account advances and changes in international law and policy/commitments, science, technology and understanding such as amending or modifying what GHGs are calculated in our emissions.

ii) Reporting and Statements on Climate Change

Objective:

The Act places implementation and progress reporting duties on DAERA with input required from all other Northern Ireland departments. These duties are subject to time restrictions and requirements to prepare and lay the reports before the Northern Ireland Assembly:

- a proposed target for the year 2030 and 2040, in line with the overall target for the year 2050, must be laid before the Assembly within 24 months of this Act receiving Royal Assent and be approved by draft affirmative resolution;
- produce and publish Climate Action Plans (CAPs) within 24 months from the day on which this Act receives Royal Assent, and every 5 years thereafter (to include carrying out a public consultation, with sector-specific advisory groups, on the draft CAPs lasting at least 16 weeks);
- develop and publish sectoral plans, setting out how the targets will be achieved by sector.
- carbon budget implementation reports which lay out what Northern Ireland departments will do to meet a particular five-year budget (to be laid before the end of the first year of the relevant carbon budget);
- final carbon budget statement reports, on the final emissions, removals and net emissions for Northern Ireland during a budgetary period, to be used to determine whether a carbon budget has been met, and it is required to be laid before the end of the second year after the budgetary period in question;
- final statements for interim target years and the long term 2050 target to be laid before the end of the second year after the target year to which it relates, to determine if and why the 2050, 2040 or 2030 target has or has not been met;
- 'shortfall reports' will be required where a carbon budget has not been met, setting out the proposals and policies in subsequent budgetary periods to compensate for the excess emissions, to be laid within 3 months of the relevant carbon budget final statement;
- interim progress reporting on carbon budgets to be laid before the end of the third year of each budgetary period; and
- enabling provisions are included to give DAERA power, through secondary legislation, to require climate change reporting by public bodies, after appropriate consultation.

Intended effects:

- i. To set out the key reporting requirements for progress being made in ensuring Northern Ireland is kept on track to achieve the Act's targets;
- ii. To evaluate and track long term action at the carbon budgets and interim targets' stages, to ensure that the long-term target remains achievable and/or to inform future consideration to make it more ambitious if achievable;
- iii. To provide transparency, accountability and focus in delivering emissions reductions and other stated targets in the Act, through mechanisms for timely assessment of trajectory and driving of actions towards meeting the budgets and targets;
- iv. To ensure further and compensatory actions are identified and taken in the event that carbon budgets and emissions targets are not met; and
- v. To ensure continuity, by linking budgetary periods with the Northern Ireland government's reporting cycles, so that each successive government will set out their policies and proposals for dealing with climate change; and

- vi. To help ensure a just transition to net zero is managed fairly, creating a better future for everyone.

iii) Role of Advisory Bodies

Objective:

The Act places a duty on DAERA to seek expert, independent advice when setting carbon budgets. DAERA will therefore seek CCC advice on the appropriate level of carbon budget for a period, but also give due regard to the expertise and advice from the Republic of Ireland Climate Change Advisory Council and the IPCC. DAERA will also be required to consult with the Northern Ireland Climate Commissioner and the Just Transition Commission (both required to be established under this Act), and the other Northern Ireland departments before laying proposed carbon budgets before the Assembly. Regulations laid in the Northern Ireland Assembly will set out the limits in each carbon budget period. The CCC is also required to provide independent review of Northern Ireland's progress against carbon budgets and emission targets, before the end of the first carbon budgetary period (i.e. before 2027) and after the laying of final statements on budgetary periods, and on the statements on the interim emissions targets in 2030 and 2040. Additional reporting by the CCC on Northern Ireland's progress in implementing its climate change adaptation programmes is also included, with interim reviews required, thereby supporting the optimal development of the next adaptation programme in the series.

The main function of the Northern Ireland Climate Commissioner will be to provide an independent review that will oversee and report on the operations of the Act. It is the responsibility of The Executive Office (TEO) to make regulations that will establish the Climate Commissioner and set out its powers and duties. These Regulations must be laid within two years of the Act coming into operation.

The main function of the Just Transition Commission will be to oversee the implementation of the just transition elements of the Act and provide advice to the Northern Ireland departments on how to ensure that proposals, policies, strategies and plans required under this Act comply with the just transition principle. DAERA are required, under the Act, to make regulations that will establish the Just Transition Commission and set out the powers and duties of the body. The Act sets out a list of mandatory groups, e.g. the agricultural sector, environmental groups, trade unions, etc, that must be represented as members of the commission.

Intended effects:

- i) Provide expert, independent timely advice in advance of setting or modifying carbon budgets or targets, to help ensure that the Bill's targets and budgets are evidence based robust, credible and the highest achievable.
- ii) Provide independent expert timely advice and review on the progress towards achievement of the carbon budgets that have been set, within the framework of the interim and long-term emission reduction targets and carbon budgets to support assessments on where further action is needed.

iii) Provide advice and evidence on wider relevant climate change issues and changes and updates, including also on the Northern Ireland departments implementation and delivery of just transition principals when developing and bringing forward Northern Ireland climate change related policy so that targets and objectives of the bill are met through a just transition.

iv) Provide increased transparency and accountability.

9. DESCRIPTION OF OPTIONS CONSIDERED

During the Act's development, prior to the legislation being introduced to the Assembly for agreement, three options with respect to climate change legislation for Northern Ireland was considered and these options are described below. The methodology used, evaluation of the options, risks and assumptions, the recommendations and finally the chosen outcome is covered within later sections in this document.

Option 1: Do Nothing / Business as Usual – no legislation is made.

Under this option new climate change legislation will not be created, however, it will remain implicit that Northern Ireland contributes to UK net zero and UK carbon budgets under the Climate Change Act 2008. Actions aimed at achieving this requirement would be implemented through current and future policy and strategic frameworks only, but not through new legislative framework drivers.

Option 2: Introduce climate change legislation for Northern Ireland which includes a target that represents Northern Ireland's equitable contribution to the UK 2050 net zero target.

Under Option 2, new climate change legislation is made, and this option would therefore deliver on the commitment in the NDNA agreement in relation to creating climate change legislation for Northern Ireland. The level of the 2050 net GHG emissions reduction target within the legislation under this option, is set at a least 82% reduction in net emissions by 2050 compared to baseline. This target aligns with the CCC's advice and recommendation (referred to in section 7 above) where it is considered (based on best available science and evidence) to be an equitable contribution by Northern Ireland towards UK net zero under the CCC's advised balanced pathway. This 2050 target:

- i. takes into consideration the likely capability of Northern Ireland to meet that particular target due to its unique local characteristics/profile allowing for a just transition to that target; and
- ii. ensures that it is in line with delivering the UK's commitments to the Paris Agreement

through an equitable contribution to the UK net zero.

The legislation under this option does not specify the policies or plans to deliver such a target. The legislation will, however, underpin current and future climate change policies as it will create a legal structure for all Northern Ireland departments to design and implement policies necessary to meet the requirements of the legislation, including its emissions reduction targets and carbon budgets. Such policies will be subject to their own impact assessments as required, which will be completed by the relevant departments in which the remit of the policies development and lead implementation lies.

Option 3: Introduce climate change legislation for Northern Ireland which includes a 2050 net zero target for Northern Ireland.

Under Option 3, new climate change legislation is made and therefore this option delivers on the commitment in NDNA in relation to bringing forward climate change legislation for Northern Ireland. This option sets a net GHG emissions reduction target for Northern Ireland to reach by 2050. The legislation under this option does not specify the policies or plans to deliver such a target. As with Option 2, this option will create legislation which will underpin current and future climate change policies as it will create a legal structure for all Northern Ireland departments to design and implement policies necessary to meet the requirements of the legislation, including the legislation's emissions reduction targets and carbon budgets. Such policies will be subject to their own impact assessments as required, which will be completed by the relevant departments in which the remit of the policies development and lead implementation lies.

The emissions reduction target set within legislation under Option 3, is not evidence based, and does not align with the CCC's advice and evidence (referred to in section 7 above) and their recommendation of what is an equitable contribution by Northern Ireland towards the UK net zero under their advised 'balanced pathway'. This option therefore sets targets for emission reductions which would be beyond what is considered to be an equitable contribution towards UK net zero.

10. ASSESSMENT METHODOLOGY

Rationale and evidence that justify the level of analysis used in the RIA (proportionality approach)

Reaching UK net zero, and Northern Ireland net zero, will bring the UK and Northern Ireland important benefits, but it will incur large costs. Estimating either of these with any accuracy at a UK or a local Northern Ireland level (and indeed for the other countries of the UK) is difficult, given the level of uncertainty around new and emerging technologies, and changes in the economy and people's behaviour changes etc. The most robust economic analyses of the costs and benefits of reducing emissions have been conducted at a global and UK level. The CCC have stated that the broad order of magnitude of the aggregate UK annual cost (1 – 2% of 2050 gross domestic product (GDP)) of meeting UK net zero is likely to be robust.⁵⁵ As such, where appropriate and where available, global and UK analysis has been used to inform this impact assessment. Where Northern Ireland specific economic data and other relevant information are available then these are quoted and considered in the analysis, and most have

⁵⁵ Climate Change Committee 2019, 'Net Zero The UK's contribution to stopping global warming', p230, viewed 25th June 2021 <<https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>>

been sourced from the CCC's evidence and advice in the links provided in section 7 above and have been used to part-inform the assessment's analysis including the cost-benefit analysis below.

Accordingly, the evidence used for this Regulatory Impact Assessment is considered to be wide-ranging, and every effort has been applied to ensure that the most relevant and up-to-date sources have been used. The level of reliance placed upon the CCC's advice and evidence to inform this assessment analysis is considered appropriate, based not only upon the CCC's independent and expert statutory role in providing world leading climate change advice to the UK government and UK Devolved Administrations (as set out in the UK Act 2008), but also in consideration of the CCC's extensive expertise, formed through collaboration through an extensive range of sources of expertise. The CCC are also world renowned and nationally and internationally respected.

The following list of CCC contributors and collaborators to their advice is provided as an indicative sample rather than exhaustive list:

- Academic and professional advisory groups such as: Cambridge Econometrics, Grantham Institute of Imperial College London, UCL Energy Institute, Element Energy, Centre for Research into Energy Demand Solutions at University of Leeds, European Bioenergy Institute at Aston University, the Institute of Health Equity and the Bangor Bio-Composites Centre;
- Government groups such as the UK Adaptation Committee and Parliamentary Advisory Group on Carbon Capture and Storage;
- International equivalent expert independent advisory bodies, including but not limited to, their Republic of Ireland counterparts- 'the Climate Change Advisory Council' who advise the Government of Ireland on Climate Change matters; and
- Collaboration with the UK Climate Assembly (a body set up by the 2008 Climate Change Act) - whose membership includes a proportional over-representation for Northern Ireland, calculated on population.

11. RISKS AND ASSUMPTIONS

Option 1, 2 and 3 - General

There are general assumptions and limitations when evaluating and assessing the costs and benefits of each of the three options 1, 2 and 3 (listed above). Such costs and benefits will depend for example, on the plans and policies chosen to meet the level of net GHG emissions reduction targets set in the new legislation (i.e. under Option 2 and 3). There is also risk and unknowns associated with all of the options around undue economic burden if the assumed future innovation, technological developments, and behavioural changes required to meet net zero, and any expected associated productivity gains for Northern Ireland, do not come to pass. It is difficult also to assess if society will be resistant to required changes in terms of personal choices and behavioural changes to deliver on required emissions' reductions in Northern Ireland. However, the trends in other parts of globe and UK jurisdictions to drive emissions' reductions down is now evident and all stakeholders may now recognise that change in order to reduce their own emissions is inevitable. There are many significant uncertainties relevant to all three options and to summarise these are:

- Climate change is a global phenomenon and how other countries/unilateral actions address climate change will contribute to the positive/negative effects on Northern Ireland- therefore there is likely significant uncertainties on associated costs and

benefits;

- Policy pathways and choices and their implementation timings, rates and effectiveness to tackle climate change and climate change targets;
- Level, type and speed of behavioural change in driving down GHG demands;
- Cost and availability of low-carbon or energy efficient technologies;
- Relative costs of fossil fuels; and
- All models that attempt to calculate costs have a degree of uncertainty because the underlying economics are constantly shifting.

Option 1:

It is assumed with Option 1 that the status quo will remain the same, with no change to the current situation. It should be noted however, that it is highly unlikely that the Northern Ireland government will take no further action on climate change, as it is explicit that Northern Ireland contributes to UK net zero under the UK Climate Change Act 2008, and also due to likely increasing international pressures to reduce GHG emissions. However, it also assumed that without further local legislative drivers there are significant uncertainties and risks on whether climate change action will be delivered at a time and scale sufficient to drive down GHG emissions in Northern Ireland to required levels in order to meet UK net zero.

Options 2 and 3 - General:

It is assumed that the creation of new climate change legislation will equate to increased certainty and clarity in Northern Ireland as a whole in regards to tackling climate change, which is expected to drive the necessary changes and actions to dramatically reduce GHG emissions across all Northern Ireland sectors. Such an assumption is similar to one of the stated drivers by the UK government for the creation of the UK Climate Change Act 2008, in that such an Act will allow *'for UK industry, households and individuals to effectively plan for and invest in a low carbon economy'*.

Option 2

Option 2 aligns with the CCC's recommended 'balanced pathway' which sees net zero emissions by 2050 at a UK level, and on which the UK's Sixth Carbon Budget is based (see section 7 for further information on the CCC's advice). Under Option 2 and the CCC's balanced pathway, Northern Ireland would require at least an 82% reduction in net GHG emissions by 2050 compared to 1990 levels. Similar risks and assumptions applied by the CCC in their balanced pathway advice on the UK's Sixth Carbon Budget and UK net zero, also applies to their balanced pathway for Northern Ireland under these targets. As Option 2 aligns with the CCC's advice these risks and assumption are therefore applied to Option 2 of this impact assessment. The CCC have stated that the balanced pathway and therefore Option 2, is ambitious while bounded by realistic assumptions over the speed at which low-carbon technologies can be developed and rolled out, allowing time for supply chains, markets and infrastructure to scale up. The balanced pathway, and therefore Option 2 of this assessment, makes moderate assumptions on behavioural change and innovation and takes actions in the coming decade to develop multiple options for later roll-out (e.g. use of hydrogen and/or electrification for heavy goods vehicles and buildings).

The CCC have said that the balanced pathway to UK net zero and the recommended Northern Ireland emissions reduction target within it, has been designed to be ambitious on emissions' reductions over the next 15 years, but fully achievable given real-world constraints and uncertainty on how supportive people will be of the transition in their choices and behaviours and how quickly technologies will develop.

Option 3

Economic data on the costs or benefits of Option 3 are not readily available, the CCC's analysis (which uses the best available science and evidence) was not able to produce or model a scenario on a sound basis that sees Northern Ireland reach net zero GHG emissions itself in or before 2050. Current evidence from the CCC is that for Northern Ireland, the 'earliest credible year for net zero GHG emissions [would be] Post-2050'.⁵⁶

The CCC have said in their letter of April 2021⁵² 'Our analysis has not produced a scenario for UK Net Zero that sees Northern Ireland reach Net Zero in or before 2050. We are not therefore able precisely to calculate the costs of Northern Ireland reaching Net Zero, were this to be feasible. The costs of doing so would be higher than those of the recommended 82% reduction target, for example by up to £900 million per year by 2050 if engineered GHG removal technologies are used to meet the gap between the Balanced Pathway for 82% and Net Zero in 2050'. In a subsequent letter from the CCC on the 10th January 2022⁵⁷ to clarify the projected costs of delivering net-zero greenhouse gas emissions by 2050, the CCC indicated that the annual costs would not likely begin at £900 million but would likely scale up in the years preceding 2050 and that the cost profile over the preceding years could vary significantly, depending on the type of engineered Greenhouse Gas Removal (GGR) technology used and the rate of scale-up. The data provided by the CCC which is relevant to Option 3, therefore only enables calculation of a best estimate of monetised costs under this option. For the purposes of this impact assessment, it is assumed the benefits are the same for Option 2 due to limited data availability.

There has been no other evidence made available from elsewhere, which provides an alternative view at this stage of the achievability, credibility and the financial impacts or otherwise of a net zero target on Northern Ireland either on or before 2050.

12. EVALUATION OF OPTIONS AND OPTIONS CHOSEN

Option 1: Business as Usual – No legislation is made

Costs: Without local level legislation with embedded statutory GHG emissions reduction targets to provide an adaptable legal structure to drive and manage concerted local climate action, there may be insufficient incentive and clarity for Northern Ireland to make the required transitions/actions and attract the required investment, in a timely manner to achieve a low GHG emission economy. In addition, there is a risk to continuity of action, with the possibility that policies impacting on climate change could change with a change in government administration. Therefore, without strong local legislative drivers on climate change in place there is a risk that the statutory UK net zero will not be met through sufficient and timely Northern Ireland action.

The CCC stated in their April 2021 letter to Minister Poots (see section 7), that the greatest risks are associated with failing to act quickly enough to tackle climate change. Such delays to action are likely to increase global climate risk, increase uncertainty for businesses and households, lead to unnecessary costs in future, and could lead to Northern Ireland missing out on the benefits of climate investment that takes place elsewhere in the UK. This effect was also stated in the Stern Review as: '*Uncertainty about the future existence or overall direction of policy creates difficulties for how businesses respond. There is a risk that businesses will*

⁵⁶ Climate Change Committee, 'Net Zero The UK's contribution to stopping global warming', 2019, p172, viewed 25th September 2020, <<https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf> >

⁵⁷ Chris Stark's, CEO of the CCC, letter to DAERA on 10th January 2022 - providing an update on the costs associated with achieving Net Zero by 2050 with engineered removals in Northern Ireland, viewed 2nd February 2022: <https://www.theccc.org.uk/publication/letter-costs-associated-with-achieving-net-zero-by-2050-in-northern-ireland/>

*adopt a 'wait and see' attitude, delaying their investment decisions until the policy direction becomes clearer.'*⁵⁸

The CCC have also stated in their letter of April 2021, that a slower path to decarbonisation in Northern Ireland would bring large-scale risks that would be difficult to manage, with the following potential cost associated risks:

- A slower path than advised, could introduce more uncertainty and more room for indecision in Northern Ireland that will increase costs of capital and lead to more capital scrappage as high-carbon investments continue unnecessarily.
- Slow progress to reduce GHG emissions can lead to other unnecessary costs, for example, the historical failure to ensure that new homes are built to high zero-carbon standards has meant that over a million homes have been built that will require more expensive retrofit in later years and that have higher than necessary energy bills for their occupants.
- A slower path than advised, to reducing emissions would likely miss opportunities for increased investment to provide a boost to the recovery (from the covid-19 pandemic) and to use under-utilised resources in the economy. In particular, a failure to act decisively in Northern Ireland could have distributional impacts if the rest of the UK accelerates climate action, with Northern Ireland missing out on the growth and job-creation benefits of low-carbon investment. The recent increase in climate commitments in other countries also emphasises there are risks attached to moving too slowly.

The CCC further stated in their April 2021 letter that '*Wider Net Zero commitments by other countries and businesses clearly demonstrate momentum building towards greater climate action. These commitments are a demonstration that future markets lie with low-carbon products. Business models that are not compatible with a Net Zero future are increasingly risky.*' There is risk under this option in that Northern Ireland market models will not be compatible or competitive enough with the forward push for a net zero emissions global market. Northern Ireland may not move quickly enough and lose out on the UK's 'first-mover advantages' in embracing its net-zero targets early, for instance by taking a lead in developing specific technical innovations.⁵⁹

Also, although direct figures are not available for Northern Ireland, the overall costs of climate inaction was estimated by the 'Stern Review on the Economics of Climate Change', as being equivalent to losing at least 5% and perhaps more than 20% of global GDP, as well as incurring consequential and unrecoverable costs – '*Our estimate of the total cost of 'business as usual' climate change over the next two centuries equates to an average welfare loss equivalent to at least 5% of the value of global per-capita consumption, now and forever.*'⁶⁰ The Stern Report also showed that delaying climate change intervention make the actions more costly in and of themselves, the impact of which would be exacerbated by having less time over which to spread the elevated costs.⁶¹

⁵⁸ Stern Review: The Economics of Climate Change, 2016, at page 326, viewed 17th June 2021, < https://biotech.law.lsu.edu/climate/Stern-%20Report/stern_review_report.html >

⁵⁹ Foreign & Commonwealth Office, *Foreign Secretary speech on climate change*, 10th October 2014, GOV.UK, viewed 6th June 2021, < www.gov.uk/government/speeches/foreign-secretary-speech-on-climate-change >

⁶⁰ Stern Review: 'The Economics of Climate Change, 2016, at pages 144 and 211, viewed 11th June 2021, < https://biotech.law.lsu.edu/climate/Stern-%20Report/stern_review_report.html >

⁶¹ Stern Review: 'The Economics of Climate Change, 2016, at pages 199 -203, viewed 11th June 2021, < https://biotech.law.lsu.edu/climate/Stern-%20Report/stern_review_report.html >

Benefits: Option 1 potentially provides the least cost administrative approach, as there is no new legislative, regulatory nor administrative burdens put in place by a new legislative structure. For example, currently Northern Ireland pays 2.9% of the Committee costs and 1.45% of the Adaption Committee costs which equated to £112,983 share of the £4,390,955 million annual 'core costs'⁶² for 2021/22 to the CCC for their provision of advice and evidence on climate change matters at a UK-level, to the UK Government and Devolved Governments; this is the statutory advisory role established under the UK Climate Change Act 2008. Northern Ireland would not create any extra reporting requirements of the CCC in a 'Business as Usual' approach, so Northern Ireland will continue to pay only its fair share of the CCC's core costs, without additional progress and/or advisory reports tailored to Northern Ireland.

Evaluation: This option would not deliver on the NDNA commitments in relation to creating local climate change legislation for Northern Ireland, and therefore this option is not considered viable.

Recommendation: Option is not recommended/preferred.

Outcome: Option was not chosen due to reasons set out above.

Option 2: Introduce climate change legislation for Northern Ireland which includes a target that represents Northern Ireland's equitable contribution to the UK 2050 net zero target.

Costs: The calculation of precisely where costs of this option will fall, and how they will impact on output by each Northern Ireland sector, will depend upon the paths and policies chosen by the Northern Ireland departments to deliver the emissions reductions required in the legislation.

However, the economic assessment tables for Option 2 are set out at the beginning of this impact assessment and they show the indicative monetised costs under this option. It should be noted that these investment costs should not be interpreted as capital expenditure that would be delivered solely through the Northern Ireland Budget, nor as costs that only Northern Ireland businesses and consumers have to bear. Some of the actions to reduce emissions will likely be paid for at a UK level and/or socialised across the whole of the UK.

Also, accordingly, these costs and the costs laid out below are largely part-informed by Lord Deben's letter of April 2021 to Minister Poots (see section 7 above):

- Investment: Northern Ireland's large sustained low-carbon capital investment will need to scale up, adding around £1-1.5 billion annually by 2030, as part of UK-wide required increase in investment of around £50 billion (compared to current UK-wide investment of nearly £400 billion). The largest increases are for low-carbon power capacity, retrofit of buildings and the added costs of batteries and infrastructure for electric vehicles. This required increase in investment can be delivered largely by the private sector.
- Resource costs: The investment requirements and operational cost savings under this option are combined to form Northern Ireland's central estimate of the annualised resource cost, which measures the net additional cost each year to deliver the same services with lower emissions. The CCC estimate of the annualised resource cost peaks

⁶² 'Core costs' refers to reporting duties to the UK government, as specified in the Climate Change Act 2008, has been calculated using the population model agreed with the Devolved Administrations (i.e. BEIS 83.8%, Scotland 8.4%, Wales 4.9% and Northern Ireland 2.9%).

at around £300 million per year in the early 2030s. Resource costs are projected to be less than 1% of 2018 GDP in Northern Ireland in every year from now through to 2050.

- Investment & Funding sources: These costs should not be interpreted as capital expenditure that would be delivered solely through the Northern Ireland Budget, nor as costs that only Northern Irish businesses and consumers have to bear. Many of the actions to reduce emissions will likely be paid for at UK level and/or socialised across the whole of the UK.
- Scale of investment for UK Transition: The total level of investment required to reach UK net zero for the whole of the UK is well within the range of historical changes in UK total investment. The sectoral increases have broadly been seen before, for example, in the transport sector as car-buyers shifted towards larger cars, in the power sector as renewable investment increased in the last decade, and in the housing sector as spending on refurbishments increased. It can be financed at low cost if policies are constructed to give long-term clarity to consumers and confidence to investors.
- The added resource costs of the CCC's recommended balanced pathway, which forms the basis for their advice to the UK Government, will not necessarily reduce UK GDP by an equivalent amount, particularly given the spare capacity in the economy following the COVID-19 pandemic. Modelling commissioned for the CCC used in their advice suggests that, when implementing the balanced pathway, the level of UK GDP could be around 2% higher than it would have been by 2035 as resources are redirected from fossil fuel imports to UK investment. The complex and dynamic macroeconomic impacts of such an investment programme are uncertain, and more so when considering sub-national impacts. Positive or negative growth impacts could be highly concentrated in some regions of the UK. However, the UK government and Northern Ireland government both have key roles to play in delivering a just transition, which ensures that the costs of UK net zero are spread fairly and the benefits shared widely.

Benefits: This option would deliver on the commitment in the NDNA agreement in regard to climate change legislation for Northern Ireland.

The economic assessment tables for Option 2 are set out at the beginning of this impact assessment and they show the indicative monetised benefits under this option. Also, accordingly, these benefits and the benefits laid out below are largely part-informed by Lord Deben's letter of April 2021 to Minister Poots (see section 7 above):

- The target of an at least 82% net GHG emissions reduction by 2050 in Northern Ireland supports a UK leadership-driven global pathway that reflects the goals and requirements of the Paris Agreement, recognising the UK's responsibilities as a richer developed nation and its capabilities. The UK government pursuing an emissions pathway aligned with the Paris Agreement, it can better influence the global emissions trajectory.
- The balanced pathway to UK net zero, and the recommended Northern Ireland emissions reduction target within it, has been designed to be ambitious on emissions reductions over the next 15 years, but fully credible and achievable.

- On a UK basis it is estimated that the necessary interventions will cost between 0.5 and 1% of GDP, but are predicted to add 3% to the UK GDP, in addition to adding 300,000 jobs to the UK economy up to 2035, which Northern Ireland could avail off.
- The at least 82% net GHG emissions reduction target would reduce Northern Ireland's contribution to global climate change due to real world GHG emissions reductions and lower risks of carbon leakage and assist in the minimisation of the unavoidable effects of climate change, such effects as an increase in drought-affected areas and flood risk, major changes to ecosystem structure and function, decreased crop productivity and food production, increased coastal erosion, and health implications.
- The costs of deep decarbonisation required under this option are affordable and achievable for Northern Ireland as part of the balanced pathway to UK net zero.
- This option will present green recovery opportunities (recovery from covid-19 pandemic) and the investment requirements and operational savings such as from fuel costs and increased efficiency will offset the investment costs Northern Ireland in later years.
- The emissions reduction target under this option, as part of a balanced pathway to UK net zero, implies a decisive and clear pathway supported by policies that can give businesses confidence that their investments will be future-proofed, and there will job-creation benefits of low-carbon investment.
- Likelihood of more fair distributional impacts, as Northern Ireland targets would likely be in line with Her Majesty's Treasury (HMT) actions to support a just transition to the UK net zero target. A smooth transition is more likely under this option, and it is therefore more likely to be a just transition, avoiding stop-start programmes for the jobs market and investment.
- Long-term decarbonisation from delivering on this target within this option can also bring substantial co-benefits, particularly for the natural environment, climate change adaptation, and public health. For example, the CCC's Expert Group review of the health impacts of decarbonisation showed that the near-term benefits to public health of taking action on climate change are manifold, but good policy is needed to ensure those benefits can be experienced by all. The actions required to decarbonise Northern Ireland can bring vastly improved air quality, healthier ways of travelling, more comfortable and efficient homes and workplaces, and better-quality diets.
- There will be economic, social, and environmental benefits from immediate expansion of the following measures so to meet the emissions reduction target under this option:
 - a) Investments in low-carbon and climate-resilient infrastructure;
 - b) Support for reskilling, retraining and research for a net-zero, climate-resilient economy;
 - c) Upgrades to our homes and other buildings ensuring they are fit for the future. • Action to make it easy for people to walk, cycle, and work remotely; and
 - d) Tree planting, peatland restoration, and investment in green spaces and other green infrastructure
- Although Northern Ireland specific figures are not available, the CCC have said in their CCC Sixth Carbon Budget balanced pathway to UK net zero, that reducing emissions from UK land use and agriculture could deliver annual co-benefits of £0.6 billion in 2050 in the balanced pathway, covering recreational benefits of creating new woodland and restoring habitats, improved air quality, improved health from increased physical activity

and flood alleviation.⁶³ These will continue to rise after 2050. The CCC says these could 'partially or fully offset costs', for instance by reducing hospital admissions, and enabling people to be more productive.⁶⁴

Evaluation: This option would deliver on the commitment in the NDNA agreement in regard to climate change legislation for Northern Ireland and therefore is considered viable. The CCC have said that Northern Ireland achieving an at least 82% net reduction in GHG emissions by 2050 is very challenging, however achievable in real world terms and it is the equivalent in terms of effort and ambition to that of other regions of the UK in action to meet UK net zero. Compared to Option 3, Option 2 is the best value for money option (see the economic assessment tables for Option 2 and 3 above) and due to this and the benefits laid out above, it is therefore considered that Option 2 would likely be Northern Ireland's best way of facilitating a just transition to a low carbon economy, while delivering what is needed to help ensure UK net zero is met, and which aligns with the UK's commitments in the Paris Agreement.

Also, the target of an at least 82% net reduction in GHG emissions by 2050 under this Option 2, does not preclude Northern Ireland for aiming for, and achieving higher targets but instead strikes the right balance between ambition and evidence-based advice. The target within the Bill can be revised if it is appropriate and there is the evidence to do so, and under certain robust pre-conditions – such as after consideration of events such as updated scientific evidence and knowledge about climate change, or advancements in technology relating to climate change, changes in international law or policy on climate change, or after consideration of advice evidence received from the advisory body (the CCC). Any amendments to legislation would be subject to Executive and Assembly approval.

This option aligns with the majority of discrete respondents to the consultation regarding the Discussion Document on a Climate Change Bill for Northern Ireland, on the policy content for a Climate Change Bill for Northern Ireland (see section 4 above).

Recommendation: This option was considered the most viable, for reasons set out above in the evaluation and the benefits listed. Also, due to the option's alignment with the best available independent evidence and advice, and as it delivers on NDNA in regards climate change legislation Northern Ireland this option is therefore recommended/preferred.

Outcome: Option was not chosen - Option 2 was the option applied to the policy of the Act as introduced as a Bill to the Northern Ireland Assembly on the basis of the best available scientific evidence and independent expert advice from Northern Ireland's statutory climate change experts- the UK Climate Change Committee (CCC) , however, Option 3 (detailed below) was voted through by the Assembly during the Act's Consideration Stage of its legislative passage, as a result of the Assembly's amendments to the Climate Change Bill as introduced.

Option 3: Introduce climate change legislation for Northern Ireland which includes a 2050 net zero target for Northern Ireland.

⁶³ Climate Change Committee 'Sixth Carbon Budget Report' p276, retrieved 21st June 2021 <[The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf \(theccc.org.uk\)](https://www.theccc.org.uk/publication/the-sixth-carbon-budget-the-uks-path-to-net-zero/)>

⁶⁴ Climate Change Committee, 'Net Zero: The UK's contribution to stopping global warming', 2 May 2019, p213, retrieved 06th June 2021, <www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>

Cost:

The economic assessment tables for Option 3 are set out at the beginning of this impact assessment and they show the best available indicative monetised costs under this option. It should be noted that these investment costs should not be interpreted as capital expenditure that would be delivered solely through the Northern Ireland Budget, nor as costs that only Northern Ireland businesses and consumers have to bear. Some of the actions to reduce emissions will likely be paid for at a UK level and/or socialised across the whole of the UK. The net zero by 2050 costs provided are based on the capital annualised resource costs of at least 82% emissions reduction plus £900 million in capital and operating costs by 2050 in a linear upscaling cost pathway based on data provided by the CCC. These additional costs relate to all economy sectors, and also HMT principles on allocating funding across the UK - 'Principle 10' indicates these additional costs are likely to be borne directly by Northern Ireland. However, it may not be the case that these costs are incurred each year, and the CCC have said it is just one example of many cost pathways Northern Ireland could choose to get to net zero by 2050.

Also, accordingly, these costs and the estimate of costs of this option laid out below has being largely part-informed from Lord Deben's letter of April 2021 to Minister Poots and the CCC's letter to Officials of January 2022 (see section 7) and further key points are:

- It is not possible to accurately calculate the costs of Northern Ireland reaching net zero, as no modelling could be carried out on a sound basis that demonstrates that it is feasible for Northern Ireland to reach net zero by 2050.
- Aiming to attempt to achieve a target to reach net zero in 2050 would require one (or both) of the following:
 - o A larger reduction in output from Northern Ireland's livestock sector compared to the rest of the UK. Even the CCC's most stretching Tailwinds scenario – which entails a 50% reduction in meat and dairy production in Northern Ireland and significantly greater levels of tree planting on the land released – is not enough to get Northern Ireland to net zero emissions locally in 2050.
 - o A much greater than equitable share of all UK GHG removal technologies being located in Northern Ireland.
- It would also mean a much greater than equitable share of all UK GHG removal technologies being located in Northern Ireland compared to the size of Northern Ireland's current emissions, population, land area or economy. As mentioned above, in pure resource cost terms this would require up to £900 million per year in Northern Ireland by 2050. However, there may be strong strategic reasons to locate these technologies outside of Northern Ireland (for example near carbon capture and storage clusters and sources of sustainable biomass elsewhere in the UK).
- Going too fast, and in particular aiming to decarbonise significantly faster than the rest of the UK, also poses the following several cost associated risks:
 - o Setting emissions reduction targets that are too ambitious to be delivered can undermine their credibility;

- Going beyond the natural rate of stock turnover would lead to premature scrapping of assets (e.g. vehicles, boilers). This may be costly, risks undermining popular support for transition, and could cause increased embedded emissions; and
 - Unfair distributional impacts, particularly if Northern Ireland's targets are out of line with HMT actions to support a Just Transition to the UK target. A smooth transition is more likely to be a just transition, avoiding stop-start programmes for the jobs market and investment. An attempt to make the transition too quickly could make a just transition more difficult to achieve as it would imply stop-go replacement profiles and give less time for appropriate supply chains to fully develop and be sustained.
- Evidence suggests the option may likely not to lead to additional overall reductions in UK GHG emissions, but it would rather act to shift a greater share of the UK-wide costs of reaching UK net zero to Northern Ireland.
 - There is risk of other unintended cost associated consequences, as feasible options to reduce emissions are limited. This could lead to a dash for options to fill the gap, which could include large-scale use of biomass (e.g. with carbon capture and storage to provide GHG removals). This may imply a high reliance on imported biomass, potentially beyond what can be supplied sustainably and driving unwelcome land-use changes in other countries.

Benefits: This option achieves the commitment in the NDNA agreement in regard to climate change legislation for Northern Ireland. Option 3 creates legislative drivers for further climate action, and therefore there may be similar benefits to those benefits listed in Option 2 (above) in terms that Option 3 will provide a level of clarity and direction for Northern Ireland industry, households and individuals to plan for and invest in a low carbon economy and co-benefits such economic, social, and environmental benefits from climate action driven by legislative framework.

Evaluation: Risk that the statutory net zero by 2050 target under this option will not be met as the CCC's analysis was not able to produce a scenario on a sound and credible basis for UK net zero that sees Northern Ireland reach net zero GHG emissions itself in or before 2050. The CCC have categorically stated that a net zero target for Northern Ireland cannot be credibly set on the basis of current most up to date evidence and sound analysis, therefore the costs and risks highlighted are likely to outweigh any benefits under this option. Setting emissions reduction targets that are too ambitious to be delivered can undermine their credibility. A significant aspect of the UK's international influence comes from the expectation that once set the UK targets will be met or outperformed.

The best available advice and evidence provided by the CCC (and listed above), demonstrates that a just transition cannot be achieved by going too fast and aiming for Northern Ireland net zero emissions by 2050. However, there are requirements on Northern Ireland departments to apply the just transition principle when they develop and implement their policies to meet the targets. There is also a requirement for a Just Transition Commission to be established that will provide an advisory and oversight role ensuring Northern Ireland departments are applying the just transition principle. The CCC's evidence shows that a net zero target would be highly damaging to important parts of the Northern Ireland economy, creating job losses and

displacement, for example, the agri-food sector, in which 50% of its produce currently feeds the rest of the UK. Should food demands which would have normally been met by Northern Ireland, where to be met by other parts of the UK it would simply shift associated production emissions elsewhere in the UK with no net benefit to the overall UK net zero target. The potential impacts to the agri-food sector have to some extent been minimised as the Act makes provision that the level of reductions in methane emissions are not required to be more than 46% lower than the baseline (1990) by 2050. This methane level represents a fair contribution towards UK net zero as it is consistent with the IPCC and the CCC evidence and advice in regard to reducing methane to achieve long term temperature goals in the Paris Agreement. There is also a provision that requires DAERA to establish a Just Transition Fund for Agriculture which will provide advice and financial support to the agriculture sector in their actions to meet targets set out in the Act and emission limits in carbon budgets. Option 3 also does not align with the UK's published Net Zero Strategy- Build Back Greener, which sets out policies and proposals at a UK level for decarbonising all sectors of the UK economy to meet the UK net zero target by 2050. The Strategy states that *'as we increase our efforts to decarbonise domestically, we must ensure production, and the associated greenhouse gas emissions, does not shift to other countries with lower climate obligations'*⁶⁵

Recommendation: This option was initially not recommended, for reasons set out above in the evaluation and the costs and risks listed.

Outcome: Option was chosen - Option 2 (detailed above) was the option applied to the policy of the Act as introduced as a Bill to the Northern Ireland Assembly on the basis of the best available scientific evidence and independent expert advice from the CCC, however, Option 3 was voted through by the Assembly during the Act's Consideration Stage of its legislative passage, as a result of the Assembly's amendments to the Climate Change Bill as introduced.

13. COST BENEFIT ANALYSIS OF OTHER ESSENTIAL ELEMENTS OF THE ACT

For the purposes of clarity and completeness a cost benefit analysis of these other main essential elements of the Act is carried out below.

Carbon Budgets Framework

Carbon budgets required by new climate change legislation, sets five yearly Northern Ireland sector-wide emission limits and it will include net emissions from all sectors. However, the relative contributions which will be required from different sectors will be determined by subsequent policy development and delivery. After a carbon budget has been set in regulations, Northern Ireland will be mandated to define its strategy for meeting that budget through the laying of a report.

Costs: The implementation of a carbon budget framework in itself does not introduce direct additional costs to stakeholders however, overall, the costs will depend on the specific policies put in place to meet the carbon budgets. Detailed decisions regarding the size of overall carbon budgets and the balance of policies to deliver them will be required. The policies will be the subject of further and more detailed impact assessments, which will be produced when designing individual policy measures to deliver GHG emissions reductions.

⁶⁵ UK government publications 'Net Zero Strategy: Build Back Greener', point 10, page 68, viewed 21st October 2021 <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1026655/net-zero-strategy.pdf >

Benefits: Carbon budgets act as steppingstones towards the 2050 emissions reduction target, enabling and driving forward a well-managed, practical pathway to this long-term emissions reduction target. Setting the carbon budgets will enhance the level of predictability for households and businesses etc. making longer term investment decisions and actions to reduce their GHG emissions. This system will establish a more clearly defined trajectory towards a low carbon economy and may allow emissions reductions to be achieved at a lower cost.

Sectoral Plans and Climate Action Plans

The Act places a requirement on all Northern Ireland departments to produce sectoral plans setting out how sectors will contribute to the achievement of the targets in the Act. Some of these plans are specific to individual departments to meet certain targets for example, the Department for the Economy must ensure that at least 80% of electricity consumption is from renewable sources by 2030; and the Department for Infrastructure must develop sectoral plans for transport, which sets a minimum spend of 10% on active travel from the overall transport budgets. The Act is not very prescriptive in terms of when the sectoral plans have to be produced and updated but the intention would be to align the production of the sectoral plans with the production of the Climate Action Plans.

Climate Action Plans set out the policies and proposals of each Department that aim to meet the carbon emissions set out in carbon budgets. While DAERA is responsible for laying the plan in the assembly, each Northern Ireland department must provide DAERA with its proposals and policies for a budgetary period and such other assistance as DAERA requires in the preparation of the plans.

There are a number of requirements around the production of Sectoral Plans and Climate Action Plans including having regard to the Just Transition principle. Section 30(3) of the Act sets out the Just Transition principles, the principle seeks to ensure that the substantial benefits of a green economy are shared widely across all sectors, while also supporting those who stand to lose economically. When producing Climate Action Plans departments must have regard to the transboundary impact and the impact on small businesses the policies must also consider eliminating or reducing the risk of carbon leakage. The plans must also have soil quality, air quality and biodiversity targets.

Costs

There are many duties and requirements placed on DAERA and other departments throughout the NICS to produce climate action plans and sectoral plans. All these duties will require a large staff resource and may also require DAERA or other departments on occasions to procure external expertise in order to fulfil their duties. This actual staff resources required to meet the Act's requirements cannot be quantified at this stage and therefore the cost associated cannot be fully assessed.

Benefits

Climate Action Plans and Sectoral Plans will set out the policies that are to be implemented by departments to reduce GHG emissions. These plans ensure the Department have focus to address climate change. The plans must be publicly consulted upon before being laid in the Assembly. It ensures all Departments are working collectively and that the actions taken will ensure that emission limits set out in Carbon Budgets are met.

Monitoring and Reporting Framework

Climate change reporting is an existing Northern Ireland Executive statutory commitment under the UK Climate Change Act 2008. The UK Climate Change Act 2008 requires each of the UK devolved administrations to report on climate change to the UK Secretary of State. This reporting inputs into various National Climate Change Reports on targets and budgets and reserved matters within National Adaptation Programmes, which are laid before the UK

Parliament. Departments are also required to provide input to the development and laying of Northern Ireland Climate Change Adaptation programmes under the UK Climate Change Act 2008 which includes, but not limited to, providing an assessment of the progress made towards implementing the objectives, proposals and policies set out in earlier Adaptation programmes. Currently DAERA leads on delivering reporting requirements, and the development and laying of Adaptation Programmes, under the UK Climate Change Act 2008 on behalf of all other Northern Ireland departments with input and on agreement from the other departments.

Statutory monitoring and reporting arrangements existing under the UK Climate Change Act 2008 will continue to be required after implementation of the Climate Change Act (Northern Ireland) 2022. However, there is additional statutory monitoring and reporting required by all Northern Ireland departments under this new legislation, although DAERA will lead on the high-level co-ordination of reporting and laying of reports in the Assembly on behalf of the Northern Ireland Executive in relation to requirements.

Costs:

There are numerous review and monitoring processes to be followed and reported on. These duties will require a large staff resource to fulfil all of these requirements set out in the Act and may also require DAERA or other departments, on occasions, to procure external expertise in order to fulfil their duties. The actual staff resources required to meet the Act's requirements cannot be quantified at this stage and therefore the cost associated cannot be fully assessed.

Benefits: Monitoring is an essential and integral part of climate change legislation and, in particular, plays a key role in assessing progress and our trajectory towards meeting climate change objectives and targets set by that legislation. It also helps us to assess if targets and objectives are the highest achievable, and it assesses to ascertain whether we can be realistically more ambitious as we move forward, allowing us then to inform decisions. Reporting and monitoring set out in the Act is also a mechanism for greater transparency and accountability of government in relation to climate change action and progress in tackling both the causes of climate change and addressing its impacts.

ADVISORY BODIES

The Climate Change Act (Northern Ireland) 2022 requires the Northern Ireland government, through secondary legislation, to establish two new independent bodies, known as the Just Transition Commission and the Northern Ireland Climate Commissioner as well as to seek and obtain further advisory and independent progress review from the CCC in regard to climate change. The CCC currently fulfils an independent expert climate change advisory body role for the UK Government and UK Devolved Administrations as set by the UK Climate Change Act 2008. Further information on these advisory and review duties are discussed in section 8 of this impact analysis.

Costs: The cost of establishing a Just Transition Commission and a Northern Ireland Climate Commissioner cannot be determined at this time as they will depend on the regulations brought in under this new legislation. Additional advice, and review reporting by the CCC required by new climate change legislation beyond what is currently sought under the UK Climate Change Act 2008 as part of 'core costs'⁶⁶ under the UK Climate Change Act 2008, will incur additional costs to Northern Ireland. At the time of drafting of this RIA, Northern Ireland pays a £112,983k

⁶⁶ 'Core costs' refers to reporting duties to the UK government, as specified in the Climate Change Act 2008, has been calculated using the population model agreed with the UK devolved administrations (i.e. BEIS 83.8%, Scotland 8.4%, Wales 4.9% and Northern Ireland 2.9%).

share of the UK £4,390,955 million annual 'core costs' calculated using the population model agreed with the UK Devolved Administrations. However, to inform this impact assessment a best estimate was made on indicative average yearly costs to Northern Ireland on the basis of what Scotland and Wales have paid previously for similar reports and advice to what would be required in the Act associated with this impact assessment. The best estimate was calculated on averaging the estimated costs up to the year 2050 for the CCC's additional advice and review reporting required under this Act. It was estimated that additional annual fees (to the CCC's core costs Northern Ireland currently and will continue to pay) would be averaging at approximately £8,700 per year on the basis of fees charged to other UK devolved administrations for similar advice and reports. However, this indicative additional cost would vary year on year, and it may be a higher cost figure some years compared to others due to the timing and frequency of reporting and advice requirements within the new legislation. Any additional costs incurred however, is expected to be hugely outweighed by the benefits listed below.

Benefits: Increased climate change expert, independent and impartial review of climate change progress in Northern Ireland, provision of evidence and advice in setting and review of progress targets, budgets and also additional review of adaptation programmes. This will increase government transparency and accountability, help inform government (Northern Ireland departments) in a timely manner of progress and required action going forward. It will aid the Northern Ireland government to keep up-to-date and informed on any new and emerging climate related and relevant science and evidence and help them remain focused on achieving the long-term 2050 GHG net emissions reduction target with the view if it becoming more ambitious when evidence presents itself, and it will ensure that this aim is separate from any negative effects from political fluctuations.

14. SMALL AND MICRO BUSINESS ASSESSMENT (SAMBIT)

Climate change is an issue that affects all sectors and all parts of society, so legislated levels of long-term climate change targets including GHG net emission reduction targets, whether through the UK Climate Change Act 2008 or via the Climate Change (Northern Ireland) Act 2022 associated with this impact assessment has the potential to affect all sectors and groups. However, at this stage, it is not possible to assess the exact impacts of measures on micro, small and medium businesses (Small to Medium Sized Enterprises (SMEs)⁶⁷), though the overall impacts are thought to be either initially minimal, and/or are currently unknown in the long term. This is due to costs on SMEs being impacted by those relevant policies chosen to drive down net GHG emissions in order to meet any new statutory emission reduction targets set within the Act. Such policies will be subject accordingly, and when appropriate, to their own SAMBIT, associated consultations and other impact assessments by the relevant Northern Ireland departments who will consider impacts of their policy on SMEs as necessary. The Act requires that particular consideration is made by Northern Ireland departments to small businesses when explaining how the proposed policies and proposals within the climate action plans are expected to affect the workforce, employers and communities, and when setting carbon budgets, the economic impact on small and medium-sized enterprises must be taken into account.

By way of example, SMEs could be impacted by policy chosen and regulatory issues to support green low carbon investment decisions. Other impacts may be their ability themselves to harness emerging green business opportunities and investments, e.g. in terms of resource efficiency and green technology. SMEs may also face challenges in terms of lack of information and/or awareness about climate change impacts related to their particular business, and also in preparedness for managing increases in energy costs. Policies and actions by relevant departments may assist in offsetting or mitigating these challenges. Other impacts may affect businesses such as consumer behavioural change, national and

⁶⁷ SME' - Small to Medium Sized Enterprises, businesses with no more than 500 employees.

international factors (such as markets and policies or climate change impact events at a national and international level impacting raw material prices and supply chains e.g. drought event in breadbasket areas leading to crop failure). A raise in energy costs may have subsequent risks to productivity output and employment however, there are savings to be had with uptake on the promotion of greater resource efficiency for example which can contribute to reducing GHG net emissions overall.

It should be noted that the Act requires each department to consider the just transition principle when developing policies and proposals to reduce GHG emissions with the aim of facilitating a just transition for all sectors including the business sector.

15. WIDER IMPACTS - RURAL

A Rural Needs Impact Assessment has been carried out on the Climate Change (Northern Ireland) Act 2022 associated with this impact assessment. The assessment found that the Act will impact on the rural sector and in particular the agri-food sector. There are likely to be a range of impacts arising from focussed efforts to reduce emissions in that sector. This may lead to a requirement for some behavioural changes in terms of farming practices, changes in land-use and/or a need to reduce or refocus outputs from the sector e.g. in terms of livestock numbers. It is not possible to assess the exact impacts of the measures as they will depend on the relevant policies chosen, for driving down GHG emissions, in the agri-food and rural sector in order to meet any new statutory emissions reduction targets set within the Act. Such policies will be subject accordingly, and when appropriate, to their own Rural Needs Impact Assessment, associated consultations and other impact assessments by the relevant Northern Ireland departments who will consider impacts of their policy on rural and agri-food sector as necessary.

However, the potential impacts, have to some extent, been minimised as the level of reductions in methane emissions are not required to be more than 46% lower than the baseline (1990) by 2050. This methane level represents a fair contribution towards UK net zero as it is consistent with the IPCC and the CCC evidence and advice in regard to reducing methane to achieve long term temperature goals in the Paris Agreement. The CCC, have recognised the needs of the rural sector in Northern Ireland and that Northern Ireland is a significant net exporter of agri-food products with nearly 50% of all agri-food products produced in Northern Ireland consumed in the rest of the UK. In addition, the targets in the Climate Change Act 2022 reflect other factors in terms of Northern Ireland's agricultural sector compared to other parts of the UK including the differences in land use (higher proportion of grassland, less forest coverage, need for more tree planting, and peatland restoration), less developing heating infrastructure, more limited access to CO₂ storage, etc. The Act in addition, also requires departments to consider specified just transition principles when developing their proposals, strategies, plans and policies, and it also requires the establishment of a Just Transition Commission, to oversee and provide advice to Northern Ireland departments on how to ensure their compliance with the principles. This requirement will likely also cover the needs of people in rural areas and the agri-sector in regard to a just transition. The Act will also bring forward further legislation that will help minimise the potential impacts, by establishing a scheme for the administration of a "Just Transition Fund for Agriculture" for the purpose of providing advice and financial assistance to the agriculture sector.

The targets in the Act have been developed partly on the basis of including an overall emissions reduction target which, considers the social and economic needs of (and the contribution made by) people in rural areas in Northern Ireland and reduces the potential negative impacts on the rural sector. There should also be some positive impacts in terms of

broader efforts made to reduce emissions from transport, energy and housing provided that the particular challenges faced by people living in rural areas are recognised and built into policies and pathways which are adopted. Achieving the targets within the Act, should therefore have positive broad societal impacts for Northern Ireland, with people in both rural and urban areas benefitting from a lower carbon, more sustainable economy and environment.

Each Northern Ireland department, in bringing forward policies to contribute to achieving emission reductions, will be required to give further consideration to the social and economic needs of people in rural areas as part of that process although people living in rural areas face particular challenges in terms of some of these aspects. Improvements to the environment and efforts to reduce the impacts of climate change should also largely benefit the rural sector. |