The appropriateness of a Northern Ireland Climate Change Act – December 2015 Update

In October 2015 the Northern Ireland Executive Minister asked the UK Committee on Climate Change (CCC) to provide an update on the paper produced by the CCC in 2011 on '*The appropriateness of a Northern Ireland Climate Change Act'*.[1] The intention is that the report will be included in an evidence paper to be submitted in January 2016 on the case for bringing forward Northern Ireland climate change legislation in the next Assembly term.

To determine whether a Northern Ireland Act would be appropriate we have considered where the pattern of emissions in Northern Ireland differ to that in the UK as a whole, as well as other areas such as fuel poverty and the individual circumstances of the Northern Ireland energy market. We have also considered the administrative and associated costs of putting in place new legislation.

We conclude that the range of circumstances that are unique to Northern Ireland suggest local legislation is appropriate. However, the benefits of specific legislation only outweigh the costs if it is possible to pass local legislation without adding undue additional costs on to the Northern Ireland Executive, ministries or the wider economy.

The report is structured in six brief sections:

1. Overview of emissions
2. Current Northern Ireland legislation
3. Devolved levers
4. Local circumstances
5. Costs and benefits
6. Summary and recommendations

1. Overview of emissions

In 2013[2], Northern Ireland's emissions were 22 $MtCO_2e$ and represented about 4% of the UK's total greenhouse gas emissions,[3] above its share of UK population (2.8%) and GDP (2.1%).

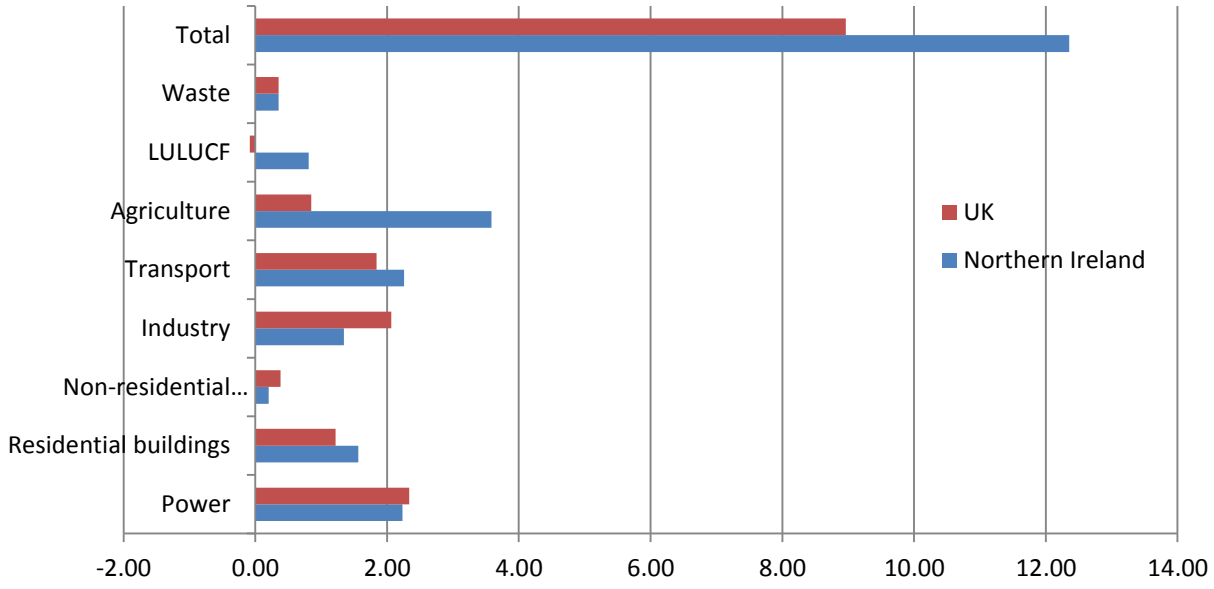
Northern Ireland has relatively high shares of emissions from agriculture and land use, land use change and forestry (LULUCF), and relatively high per capita emissions in agriculture, transport, residential and LULUCF sector compared to the UK as a whole (Figure 1, 2).

[1] https://www.theccc.org.uk/archive/aws2/Northern%20Ireland%20-%20Annex%20-%20advice%20on%20CC%20Act.pdf

[2] Emissions data for Northern Ireland and the other devolved administrations are produced with a delay compared to the UK as a whole and comprehensive data is only available for 2013. To ensure the same data set is used for comparison we use emissions data from the regional 2013 inventory for Northern Ireland and the UK within this report.

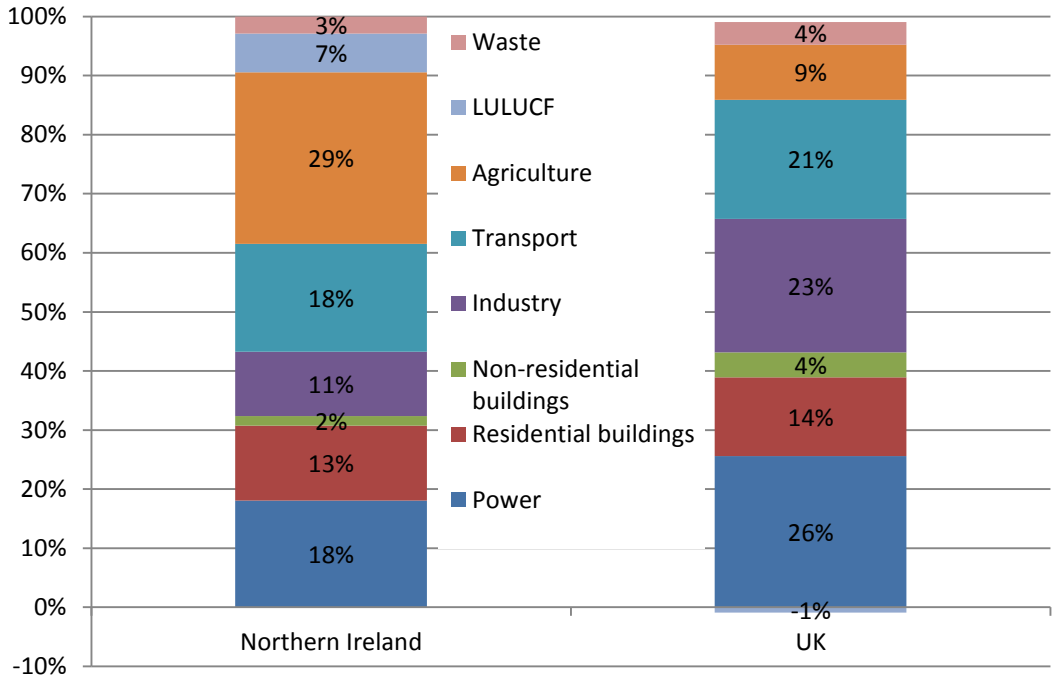
[3] Excluding emissions from international aviation and shipping

Figure 1: Total and sectoral emissions (tCO_2e) per capita – Northern Ireland and UK (2013)



Source: NAEI (2015)

Figure 2: Sector shares of total GHG emissions – Northern Ireland and UK (2013)



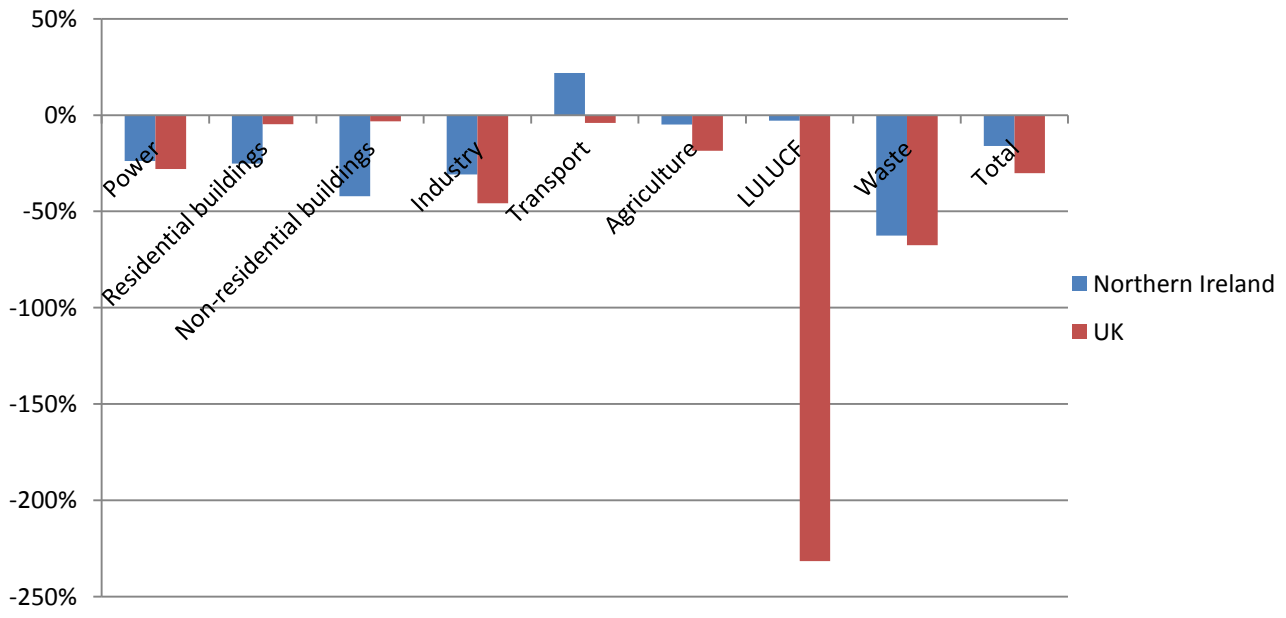
Source: NAEI (2015)

The latest emissions data shows an overall reduction in Northern Ireland emissions of 16% compared to 1990 levels, compared to a reduction of 30% in the UK as a whole over the same period. The difference can be largely explained in terms of relatively low agriculture emission reductions in Northern Ireland, the LULUCF sector being a net emitter compared to net sink in UK, and increased emissions from transport (figure 3). In 2013 emissions remained largely unchanged from 2012.

Agriculture emissions in 2013 were 5% below 1990 levels, compared to 18%, 15% and 18% reductions in the UK, Scotland and Wales respectively.

Transport emissions in Northern Ireland rose due to an increase in car ownership rates, which are now comparable with the UK average. Northern Ireland has the highest share of emissions from rural driving at 63%, compared with 55% in Wales, 50% in Scotland and 40% across the UK as a whole in 2013.

Figure 3: Percentage change in emissions from 1990 - 2013 – Northern Ireland and UK



Source: NAEI (2015)

2. Current Northern Ireland legislation

A mix of Executive, UK and EU policies and legislation covers greenhouse gas emissions in Northern Ireland.

In **Northern Ireland:**

- The Northern Ireland Executive in May 2010 approved a proposal by the Minister for the Environment to establish what was then known as the Cross Departmental Working Group on Greenhouse Gas Emissions. The group has since been reconstituted as the Cross Departmental Working Group on Climate Change
- The Northern Ireland Executive, in its Programme for Government (2011-2015) has set a target of continuing to work towards a reduction in greenhouse gas emission by at least 35% on 1990 levels by 2025. This is a lower target than those set for Scotland and Wales, reflecting the larger share of emissions from difficult to reduce sectors such as agriculture.

In the **UK:**

- The 2008 Climate Change Act extends to Northern Ireland following consent by the Northern Ireland Executive and Assembly. The Act requires the UK to cut emissions by at least 80% by 2050 and also introduced legally-binding five year carbon budgets, which set a ceiling on the level of greenhouse gases the UK can emit on course to the longer-term target.
- Although the Act sets no targets for Northern Ireland, England, Scotland or Wales it's implicit that all the countries contribute to the required reductions.

At the **EU** level**:**

- The main policy for reducing emissions in the EU is the EU Emissions Trading System (ETS). The cap and trade system covers emissions from the power sector and energy-intensive industries across the EU.

- Phase III of the scheme will run from 2013-2020. It is estimated that the current cap in 2020 will deliver a 21% reduction compared to 2005 verified emissions across the EU.
- Emissions reduction in other sectors is also affected by EU legislation and regulation. One of the most prominent is in transport where new vehicle efficiency is driven by EU legislation, including a target of 95 gCO_2/km by 2020 for new cars.

3. Devolved levers

The Northern Ireland Executive has a number of powers under their control; more so than have been devolved to Scotland and Wales at present. These include:

- Energy (except nuclear)[4].
- Planning
- Local government and housing
- Transport demand side measures
- Agriculture and land use
- Waste

Areas which are mostly reserved to Westminster include economic and fiscal, trade and industry and other areas of transport.

In 2013, 21% of Northern Ireland's emissions were in the traded sector, compared to 40% of total emissions in the UK. This reflects a relatively small industrial sector. There is therefore less potential in Northern Ireland for economy-wide emission reductions to be delivered through the EU ETS.

In 2013 areas within the non-traded sector in Northern Ireland Executive's control (those listed above) account for 76% of total emissions. The Executive therefore has a high share of overall emissions within Northern Ireland's direct competence, including agriculture, heat and transport.

Despite the high share of non-traded emissions however, power sector decarbonisation is central to reducing emissions in the wider economy, both because of significant opportunities for cost-effective investment in low carbon generation, and for extending the use of low carbon electricity in other sectors (i.e. surface transport and heat).

4. Local circumstances

Northern Ireland has some unique local circumstances. The main differences to the UK as a whole are from the relatively high shares of agriculture and LULUCF emissions, and relatively high per capita emissions in agriculture, transport, residential and LULUCF sector compared to the UK as a whole (Figure 1 and 2).

Agriculture

Agriculture accounts for the largest source of emissions in Northern Ireland, at around 29% (6.5 $MtCO_2e$), compared to 9% in the UK as a whole, with per capita emissions in Northern Ireland of 3.6 tCO_2e compared to 0.9 in the UK. With around one third of the population of Northern Ireland living in rural areas and over 24,000 farms it is a key sector of the Northern Irish economy. It underpins a food and drink export industry which accounts for 23% of export earnings for the economy.

LULUCF is a net emitter (1.5 $MtCO_2e$) in Northern Ireland and accounts for 7% of emissions in 2013. In the UK however, the sector is a net sink, although projections show it will become a net emitter. The largest source of emissions in the sector is grassland drainage which is unchanged since 1990, land converted to cropland which has been decreasing since 1995, and land converted to settlements which is increasing.

[4] Northern Ireland's electricity market is part of the Single Energy Market, shared with the Republic of Ireland.

An important policy lever is the Greenhouse Gas Implementation Partnership (GHGIP), a collaborative strategy between stakeholders and the Executive. GHGIP encourages voluntary implementation of on farm efficiency measures which will reduce the carbon intensity of local food production. There is also a Rural Development Plan for 2014-2020 which aims to improve competitiveness in agriculture and forestry, improve the environment and the quality of life in rural area and diversification of the rural economy.

There are concerns in Northern Ireland about the potential negative economic impact that Northern Ireland specific targets would bring. We have previously reported on the competiveness impacts on agriculture from pursuing climate change policies in the UK[5] and concluded that the risks to UK farmers were small. Specific Northern Ireland legislation may help to develop analysis more specific to circumstances in Northern Ireland. Agriculture is a sector where it could be beneficial for the Executive to encourage focus of research and development resources. Targets could drive cost-effective abatement with efficiency savings for farmers.

There is abatement potential of up to 1 $MtCO_2e$ (17% of projected baseline emissions) by 2030 for agriculture in Northern Ireland identified in our fifth carbon budget advice.[6] This reflects the fact that agriculture will reduce its emissions more slowly than other sectors (such as power and transport) as abatement options require more development:

- 80% of measures identified are those which improve efficiency, have associated cost savings and can deliver efficiency savings to farmer.
- 20% of measures are cost-effective compared to the Government's projected central carbon values.

There is considerable uncertainty over emission reductions in agriculture reflecting scientific uncertainties over agriculture emissions and farming practices. Work at a UK level is expected to reduce that uncertainty over the coming years with the introduction of the Smart inventory in 2017. The level of uncertainty reduces the scope for significant new initiatives at this stage.

Power

Power represents the second largest source of emissions in Northern Ireland, at 18% of the total in 2013, or 4.0 $MtCO_2e$. Emissions rose 5% from 2012 due to increased coal generated electricity, although the majority of emissions are due to the use of natural gas in power generation for the domestic market. Energy policy is devolved in Northern Ireland so the country can choose to opt-in or opt-out of wider UK policy. In 2007 the Northern Ireland electricity network became part of the Single Electricity Market (SEM) with Ireland. The SEM has created a market where all electricity generated on or imported onto the island of Ireland must be sold, and from which all wholesale electricity for consumption on or export from the island of Ireland must be purchased.

The main opportunity for abatement in Northern Ireland is likely to be in renewable power generation, both as regards to wind and solar at present:

- Northern Ireland has a target for 40% generation from renewables by 2020 with an interim target of 20% in 2015, with 19% being generated from renewables in 2013/4.
- Northern Ireland is not part of the GB Feed in Tariff, but households can receive Renewable Obligation Certificates for domestic solar.
- The Northern Ireland Renewables Obligation (NIRO) has for the most part followed UK-wide RO policy; closing NIRO in April 2017, and also proposing to close it to onshore wind next year (as per DECC's recommendation).

The NIRO could be replaced by Contracts for Difference (CfDs) for large-scale renewable power generation. The CfD is a competitive scheme and it cannot be known in advance what proportion of contacts will be allocated to each nation. DECC concluded a consultation earlier this year about the changes that would need to be made to Contracts for Difference (CfDs) to be implemented in Northern Ireland. Since then Northern Ireland has suggested that it might not be optimal to go with CfDs, as unlike the NIRO there is no guarantee that projects in Northern Ireland would win contracts in the allocation process. The Department of

[5] https://d2kjx2p8nxa8ft.cloudfront.net/wp-content/uploads/2013/04/Competitiveness-report.pdf
[6] https://www.theccc.org.uk/publication/the-fifth-carbon-budget-the-next-step-towards-a-low-carbon-economy/

Enterprise, Trade and Investment (DETI) who take lead responsibility for energy policy, is yet to decide whether to opt-in or opt-out, but acknowledges that there is currently nothing in place for renewables developers beyond the RO (April 2017). It's also possible that some of the proposed modifications to the CfD regime for Northern Ireland may require state aid approval, which could delay any implementation.

There is also scope to develop policies or funding which further encourage community and locally-owned energy. The Scottish Government for example have introduced a target to have 500 MW of community owned renewable energy installed by 2020, and have a scheme to provide support, advice and loans to community groups and rural businesses who want to generate renewable energy.

There are a range of issues in the power sector specific to Northern Ireland that may make local climate change legislation appropriate and it could help to focus attention on these issues.

Transport

The share of transport in the overall emissions profile is similar in Northern Ireland and the UK (18% compared to 21%), with 4.1 $MtCO_2e$ emissions in 2013. However, emissions per capita are higher in Northern Ireland than in the UK as a whole (2.3 compared to 1.8 tCO_2e respectively), reflecting relatively dispersed population and reliance on private rather than public transport. Car ownership rates in Northern Ireland have increased in recent years but are now on par with the GB average (at 476 cars per 1,000 population[7]).

In our fifth carbon budget advice we identified potential cost-effective abatement from road transport in Northern Ireland of 3.1 $MtCO_2$ (56% of projected baseline emissions). A large part of reduction potential is through EU standards for new vehicle efficiency and not within Northern Ireland control. However, demand side measures such as use of public transport, eco-driving and development of cycling infrastructure, plus preparing for electric vehicles are important. Changing travel behaviour is one of the main levers to influence emission reductions from transport available to Northern Ireland.

Residential

The emissions per capita are higher in Northern Ireland than in the UK as a whole (1.6 compared to 1.2 tCO_2e respectively), reflecting widespread reliance on oil and coal for heating in the domestic sector, with limited availability of natural gas. The residential sector accounts for 13% of emissions in Northern Ireland, or 2.8 $MtCO_2e$ in 2013.

- The majority (68%, compared to 4% in the UK as a whole) of households are largely reliant on oil, especially in rural areas, as the main fuel source for heating. This is a factor in the extreme levels of fuel poverty in Northern Ireland (42% compared to 12% in UK[8]).
- There are plans to extend the grid in Northern Ireland to connect towns in the west to natural gas (approximately 4.5% of homes). Although gas is a cleaner more efficient fossil fuel than oil there could be a risk of locking into an unnecessary infrastructure. Low-carbon alternatives could also be possible. DETI have a target for 10% of heat demand from renewables by 2020 and identified in their Energy Strategy 2010[9] that this equates to 17% of the housing stock needing to be entirely heated by renewable technologies over 10 years, a lower figure than the rate of boiler replacements in social housing. Climate change legislation specific to Northern Ireland may help to clarify longer term ambition and so help guide local decisions about heating. We have previously advised that Northern Ireland consider further action to facilitate heat networks, for example obliging local authorities to connect to existing local networks and requiring consideration of network heat in new developments.

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7 http://www.iam.org.uk/images/stories/policy-research/NationsandRegionsv2011.pdf

8 A fuel poor household is defined here, in line with the devolved administrations, as one which needs to spend more than 10% of its income on fuel to maintain an adequate standard of warmth. In England, this is defined as 21°C in the living room and 18°C in other occupied rooms.

9 https://www.detini.gov.uk/sites/default/files/publications/deti/sef%202010.pdf

- Our fifth carbon budget analysis identified the potential of 0.1 $MtCO_2$ of abatement from low-carbon heat in 2030. Northern Ireland has its own programme to support renewable heat – the Northern Ireland Renewable Heat Incentive for domestic and non-domestic buildings.
- Increased energy efficiency measures such as cavity wall, loft and solid wall insulation measures could also reduce emissions by a further 0.3 $MtCO_2$ in 2030.

Northern Ireland has its own policies to support insulation measures that are similar to the GB-wide Energy Company Obligation– Sustainable Energy Programme as well as an Affordable Warmth area based scheme. The executive are also currently working to boost economic activity through the retro-fitting of energy efficiency measures into homes through the Household Energy and Thermal Efficiency (HEaT) initiative, although it has not been decided yet if the project will proceed.

Non – residential and Industry

Emissions from these sectors account for 13% of total Northern Ireland emissions, and comprise 0.4 $MtCO_2e$ buildings emissions and 2.4 $MtCO_2e$ industry emissions (accounting for 11% of emissions compared to 23% at UK). This reflects the absence of refineries, oil and gas terminals or coal mining activities in Northern Ireland, and a relatively smaller industrial base.

The main opportunities for reducing emissions are through energy efficiency improvement and investment in renewable heat. We estimate that there is scope for a 0.4 $MtCO_2$ emissions reduction by 2030.

The main policy levers to drive down emissions from non-residential buildings and industry are on a UK/EU level and include the EU ETS, CRC Energy Efficiency Scheme, Climate Change Levy and Climate Change Agreements. Some support is available through the Carbon Trust loans for energy saving equipment and Northern Ireland's Sustainable Energy Programme which also covers commercial buildings.

Waste

Emissions from waste account for 3% of Northern Ireland's emissions in 2013. We have identified 0.1 $MtCO_2e$ abatement potential in 2030 which includes diverting biodegradable waste stream from landfill. Northern Ireland has made good progress with targets for waste material recycling and recovery across the economy and a successful first year of the carrier bag levy. A report[10] from WRAP identified the possibility of 130,000 jobs being created if Northern Ireland moved towards a circular economy, recovering, reusing, repairing, remanufacturing and recycling natural resources for as long as possible, following the completion of the ReNEW EU project.

5. Costs and benefits of legislation

The Northern Ireland Executive have asked for independent advice about whether a climate change act and legislated emission reduction targets would be appropriate for Northern Ireland.

The appropriateness of legislation specific to Northern Ireland depends on whether there are sufficient unique circumstances in how Northern Ireland might go about reducing its local greenhouse gas emissions that additional legislation (over-and-above the UK Climate Change Act) is worthwhile:

- Legislation at a devolved level may provide the Executive with greater clarity about the longer term requirements for Northern Ireland and greater accountability to meet those longer term emission reductions and low carbon objectives. The analysis in the previous section suggests that such longer term clarity might help in areas where Northern Ireland is different to the rest of the UK (e.g. relative importance of agriculture, different predominant source of heating and decisions about new investment, link to the electricity market in the Republic of Ireland). It could help to ensure that decisions taken locally in those areas properly take climate objectives into account.

[10] http://www.wrap.org.uk/sites/files/wrap/ReNEW%20CE%20Employment%20Report.pdf

- Locally led and designed legislation may also be more appropriate to circumstances in Northern Ireland; it may be used to set out more specifically the process the Executive will use to decide on how to act. Targets that have specific local commitment could bring greater certainty to decision-makers and investors. For the UK fifth carbon budget we engaged with businesses and stakeholders on the value of carbon budgets. The message was that budgets are important in providing an overall point of reference, but that they need to be supported by sufficient degree of clarity over the policies to achieve them in order to provide the confidence to make investments.

Experience in emissions reduction legislation at a UK level and in Scotland has shown that:

- In the **UK** budgets are driving future change and policy. The first carbon budget for 2008-2012 was met and projections for the UK show that it is broadly on track to meet the second carbon budget. There is commitment to develop measures to meet future legislated budgets.
- The budgets have meant that action towards the 2050 target progresses at the right pace. It is neither continually postponed and then done too rapidly which would lead to costly scrappage of higher carbon investments before the end of their lives, nor is too much action done too early leading to more costly solutions than those that might be available at later dates. The targets have allowed the Government to plan for the replacement of high carbon capital as opportunities arise, and to undertake the appropriate degree of research, innovation and incremental change to prepare for larger future changes.
- In **Scotland** the ambitious annual and interim targets are driving the changes required for a transition to a low carbon economy. Emissions have reduced 35% since 1990 levels in 2013, the highest in the UK. Scotland is broadly on track to reduce emissions by 40% in 2020, while it continues to miss specific annual targets largely due to changes in how the inventory is calculated.

The benefits are, by their nature, qualitative. They rest in large part on whether a specific local commitment by the Executive would galvanise more local attention and action than the overarching UK target of which Northern Ireland is already a part. The experience from Scotland suggests this may be the case and the Welsh Assembly (in passing their Environmental Bill) has also taken the view that this may be the case.

This note has set out the range of circumstances that are unique to Northern Ireland which suggest local legislation may also be appropriate. However, those benefits only outweigh the costs if it is possible to pass local legislation without adding undue additional costs on to the Northern Ireland Executive, ministries or the wider economy. That would likely require drawing on the UK, Scottish and Welsh Acts to draft a Northern Ireland Act and to ensure that Act does not create additional institutions or regulatory burdens over-and-above those that already exist to deliver emission reduction. Instead, the focus of new work linked to a new Act would be on areas that are particularly important and unique to Northern Ireland (such as agriculture and heat) where local solutions may be required to allow Northern Ireland to contribute to the wider UK and global targets to reduce emissions.

6. Summary and recommendations

Our analysis has identified significant cost-effective opportunities for emissions reductions across key sectors in Northern Ireland. Unique local circumstances in Northern Ireland mean that it is not appropriate to take the relevant pro-rata proportion from a UK level target. The Executive have a high share of emissions under their control which mean that there is an advantage to having locally set targets. If targets are legislated the aim should be to address the opportunity to tailor them to their own specific circumstances, which would result in economic benefits in an increasingly carbon and resource constrained world by avoiding the higher costs of later action.

As previously advised, experience at the UK level and in Scotland suggests that legislation is helpful in underpinning low carbon objectives by making long term commitments to reduce emissions, including through providing certainty to business and policymakers.

Given current uncertainties over agriculture emissions, and the significant share of agriculture emissions in total, there would be questions of how this should be reflected in a legal framework. The most appropriate option would be to set targets now, but allow flexibility to revise these as uncertainties are resolved.

Whether or not legislation is introduced, approaches should be focused on government leadership to reduce emissions from agriculture, decarbonise the power sector by reducing fossil fuel consumption and increasing the use of renewables, low carbon heat and transport and increased energy efficiency of buildings. This will require new policies to encourage demand-side measures in transport, take up of further residential insulation and renewable heat, and possibly to go beyond voluntary approaches in agriculture. These and other measures may be aided by local climate change legislation.

Together with existing policies wider evidence suggests this would put Northern Ireland on a path to long term emissions reductions that will result in economic benefits compared to the alternative of continued use of and dependence on emission-intensive forms of production with later forced and rapid requirements to reduce emissions.