



## Introduction and key messages

1. Emission trends
2. Progress reducing power sector emissions
3. Progress reducing emissions from buildings and industry
4. Progress reducing transport emissions
5. Progress reducing emissions from agriculture and land use
6. Future work of the Committee with the devolved administrations



# Chapter 6: Progress reducing emissions in the devolved administrations

## Introduction and key messages

Emissions in the devolved administrations account for around 20% of total UK greenhouse gas emissions. Our previous reports have identified significant abatement opportunities in the devolved administrations. Realising this potential will be required in the context of meeting UK carbon budgets, and ambitious national emission reduction targets.

In this chapter we assess the latest emissions, energy and macroeconomic data for the devolved administrations. We provide an overview of emission trends, both at the national level and, within this, at the sectoral level. We consider progress reducing emissions through the implementation of abatement measures, subject to data limitations. We also set out at a high level some of the policy interventions to drive emission reductions going forward, given the balance between reserved and devolved powers.

The evidence base for the devolved administrations is less well developed than for the UK as a whole. This is the case for emission data, abatement opportunities, implementation of measures, and policy incentives. However, based on a high level assessment of the available evidence, some clear messages emerge:

- Emissions fell in Scotland and Northern Ireland and increased in Wales in 2008, the last year for which economy-wide emission data is available. In 2009, data on energy consumption and production, as well as EU ETS data suggests that there was a significant reduction in emissions in each of the devolved administrations, mainly due to the impact of the recession. In 2010, temperature and macroeconomic data suggests that emissions are likely to have increased in each of the devolved administrations.
- The underlying trend is likely to be one of broadly flat or slightly falling emissions. This is less than will be required to achieve carbon budgets and national emission reduction targets. It reflects relatively low implementation of energy efficiency measures, investment in renewable heat, and measures to encourage transport consumer behaviour change. Therefore a step change in the pace of emission reduction is still required. Given the balance of reserved and devolved powers, there is an important role for the devolved administrations in driving this step change.
- Specific areas where there is scope for improved performance include:
  - Further implementation of area based approaches to encourage residential energy efficiency improvement.
  - Trialling of renewable heat technologies in the residential sector.
  - Roll out of Energy Performance Certificates and Display Energy Certificates, and possible regulation of minimum standards, to support energy efficiency improvement in the non-residential sector. In Scotland, energy based assessment (i.e. DEC)s should be introduced.

- Roll out of Smarter Choices initiatives, and increased eco-driving training.
- Reducing planning approval times for renewables projects in Scotland.
- Ensuring policies fully address significant agriculture and land use abatement potential in the devolved administrations.

We set out the analysis that underpins these messages in 6 parts:

1. Emission trends
2. Progress reducing power sector emissions
3. Progress reducing emissions from buildings and industry
4. Progress reducing surface transport emissions
5. Progress reducing emissions from agriculture and land use
6. Future work of the Committee with the devolved administrations

## 1. Emission trends

Whereas there is data available for 2010 emissions at the UK level, the most recent emission data for the devolved administrations is for 2008. For 2009, energy consumption data is available, together with data for emissions from the EU ETS sectors. For 2010, preliminary data is available for EU ETS emissions, and inferences can be made based on UK level emission data and regional economic and temperature data.

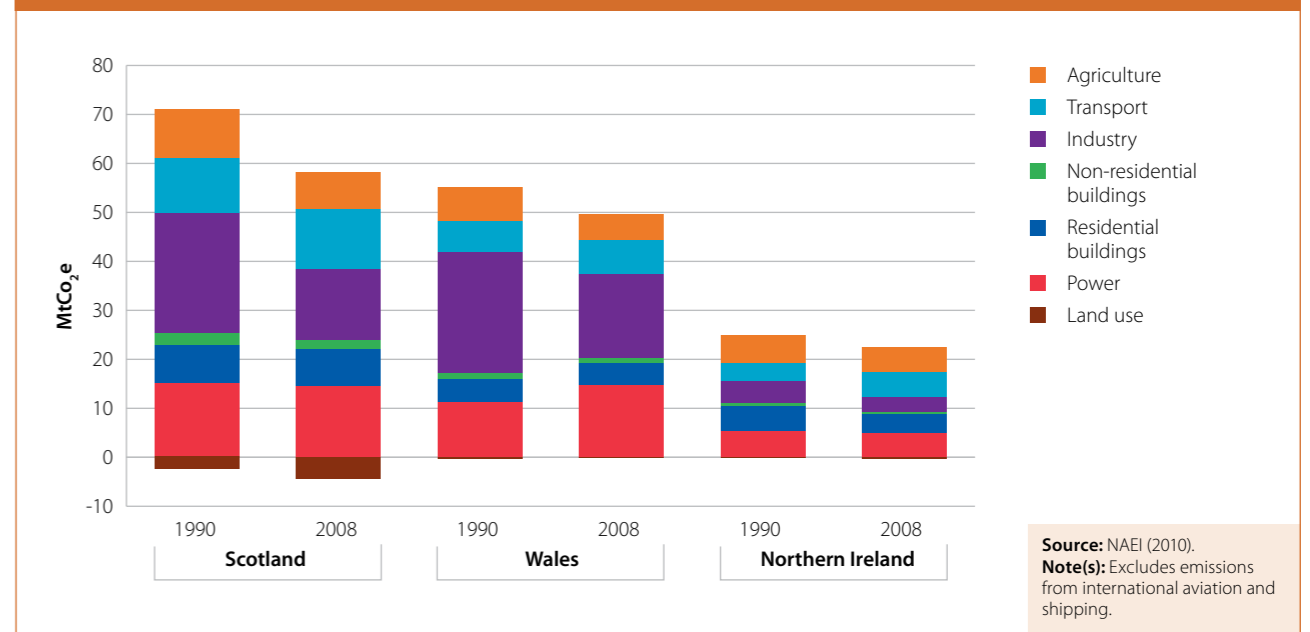
Final emission data for 2008 shows a fall in Scotland and Northern Ireland but an increase in Wales:

- Emissions fell 2.9% in Scotland in 2008 to 53.7 MtCO<sub>2</sub>e, mainly from a fall in power sector emissions. Over the last five years to 2008, emissions fell by an average of 1.2% per year.
- Emissions fell 0.4% in Northern Ireland in 2008 to 22.2 MtCO<sub>2</sub>e. On average, emissions have risen by 0.5% each year over the five years to 2008.
- Emissions rose 4.7% in Wales in 2008 to 49.5 MtCO<sub>2</sub>e, primarily as a result of a coal-fired power station coming back on to the system. On average emissions fell 0.5% each year over the five years to 2008.

Over the longer period since 1990 emissions have fallen, though not in all sectors (Exhibit 6.1):

- In Scotland, emissions were 21% lower than 1990 levels in 2008. Emissions fell in all sectors except transport, which increased 7%.
- In Wales, emissions were 10% lower in 2008 than in 1990. Emissions in power and transport were above 1990 levels in 2008 (by 30% and 6% respectively).

Figure 6.1: Greenhouse gas emissions in devolved administrations by sector (1990 and 2008)



- In Northern Ireland emissions were 11% lower than 1990 levels. Emissions fell in all sectors except transport, which rose almost 40%.

Energy data for 2009, together with EU ETS data, suggests that emissions fell significantly across the devolved administrations, mainly due to the recession (Figure 6.2 and 6.3):

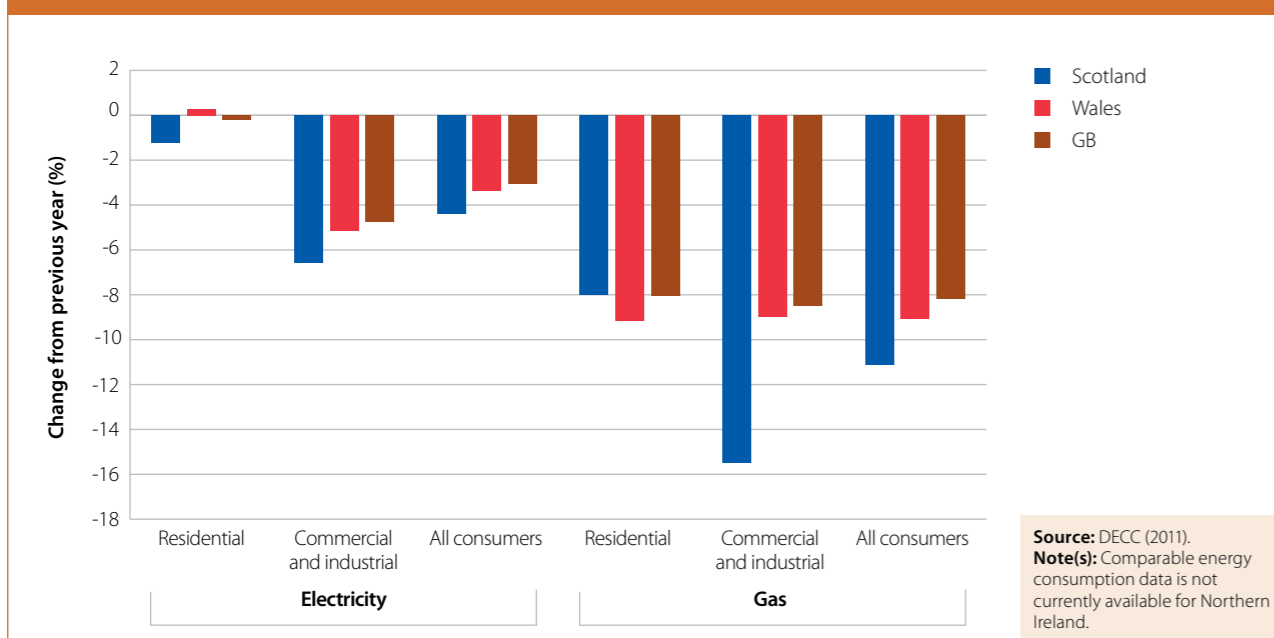
- In Scotland, GVA fell by 4.2% in 2009, compared to the 4.7% reduction for the UK. Output reductions were particularly marked in manufacturing (-8%) and construction (-10.5%). Energy consumption generally fell in line with output reductions 2009, as did EU ETS emissions.
  - Electricity consumption of residential and industrial and commercial users fell 1% and 7% respectively in 2009, more or less in line with the GB average (residential consumption was broadly flat and industrial and commercial users fell 5%).
  - Gas consumption of domestic consumers fell 8%; industrial and commercial consumption dropped 15%. The GB average was falls of 8% for both.
  - In the EU ETS gross verified emissions fell 8% overall, compared to a UK reduction of 12%.
- In Wales, manufacturing output fell by 16% and construction by 13%. This was reflected in reduced energy consumption for the non-residential and industry sectors, and in EU ETS emissions.
  - Electricity consumption in the residential sector remained broadly flat, whilst falling 5% across industrial and commercial customers.
  - Gas consumption fell by 9% in both the residential and industrial and commercial sectors.
  - EU ETS emissions were down 18% compared to 2008.

- In Northern Ireland, output fell significantly during the recession (e.g. by 12% in manufacturing), as did power generation and EU ETS emissions.
  - Electricity and gas consumption data for Northern Ireland are not available, but overall power generation fell 17% in 2009. Within this, renewable generation increased whilst generation from the two main sources (coal and gas) fell significantly (by 33% and 14% respectively);
  - EU ETS data shows a fall of 26% in emissions in 2009.

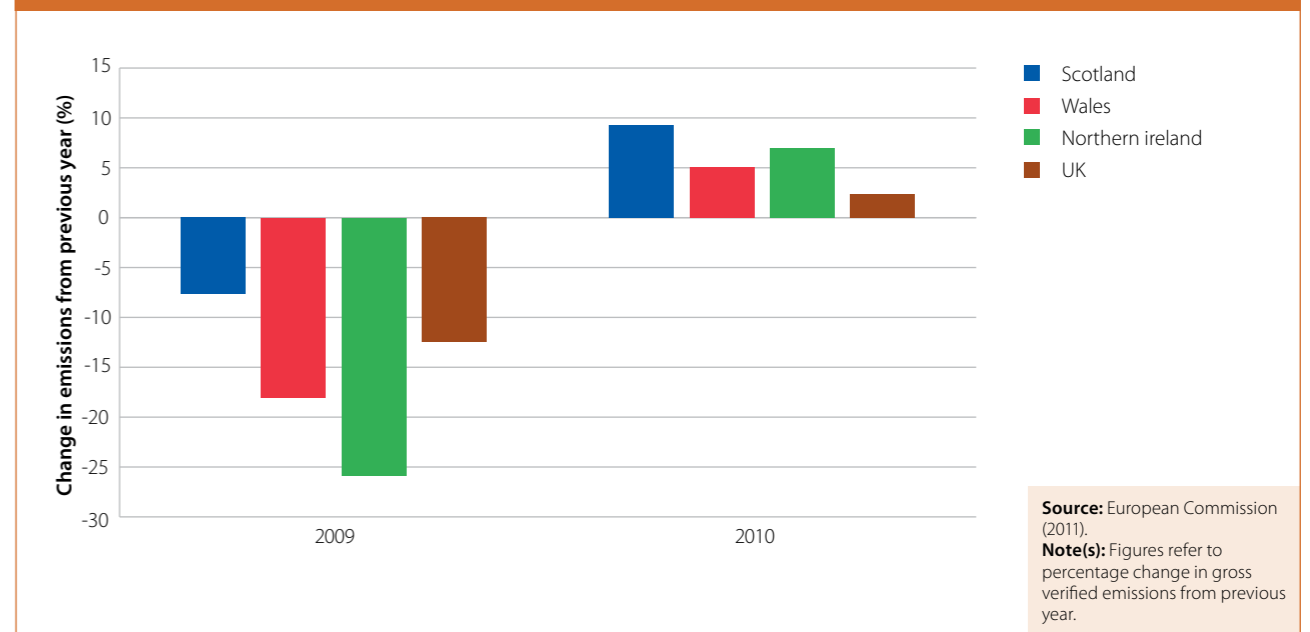
Preliminary EU ETS data (Figure 6.3) along with regional economic and temperature data (Figure 6.4) suggest that emissions are likely to have increased across the devolved administrations in 2010 due to the cold weather and economic recovery:

- The particularly cold weather in the winter months of 2010 was the main driver of increased residential emissions in the UK as a whole in 2010. The devolved administrations also experienced temperatures significantly below the long run average, particularly in Scotland and Northern Ireland. To the extent that householders responded by increasing heating use, this is likely to have caused a corresponding increase in residential emissions.
- Overall, positive growth returned to most sectors of the UK and devolved economies in 2010, though output levels remain much below pre-recession peaks in most cases.
- EU ETS data show that emissions in the traded sector rose 9%, 5% and 7% in Scotland, Wales and Northern Ireland respectively, compared to an increase of 2% across the UK as a whole.

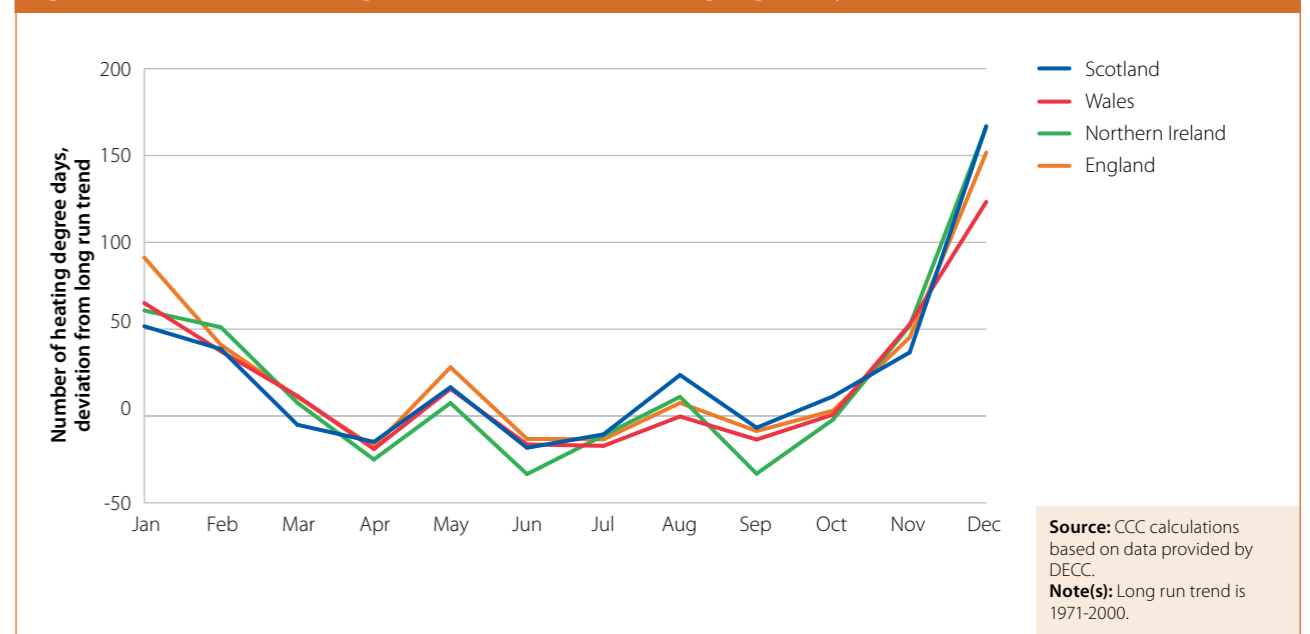
**Figure 6.2: Electricity and gas consumption – Scotland, Wales and GB: Percentage change in 2009 consumption from 2008**



**Figure 6.3: Percentage change in emissions – EU ETS (2009 and 2010)**



**Figure 6.4: Deviation from long run trend – number of heating degree days in 2010**



Given limited progress on the implementation of abatement measures (see below), the underlying trend in the devolved administrations in 2010 is likely to have been broadly flat emissions. This suggests that a step change in the implementation of abatement measures is still required to meet ambitious emission targets (Box 6.1) particularly as the economy recovers in 2011 and beyond.

### Box 6.1: Devolved administration strategies and targets

In **Scotland**, legally binding targets for emission reductions over 2010-2022 were passed by the Scottish Parliament in October 2010. The levels of emissions allowed from 2010 represent annual reductions of 0.5% in 2011, 0.3% in 2012, 9.9% in 2013 (due to change in EU ETS cap) and between 2.1% and 3.0% each year thereafter. This amounts to a 42% reduction in 2020 relative to 1990. The Scottish Government's plans for how targets can be met suggest that current policies (at Scottish, UK and EU level) will deliver a 38% reduction on 1990 emissions by 2020.

If the EU moves to a 30% reduction target for 2020 and traded sector caps tighten accordingly, the Scottish Government estimate the 42% reduction could be met with current policies, although some new policies may be required to meet targets in individual years.

The **Welsh Government's** Climate Change Strategy (October 2010) sets emission reductions of 3% each year from 2011 to 2020, against a baseline of average emissions over 2006 – 2010. The target covers all direct emissions in Wales except those covered by the EU ETS. However it does include the 'indirect' emissions from electricity consumption by end-users in Wales, attributed with a UK-wide carbon intensity factor. Meeting the target requires an estimated 9 MtCO<sub>2</sub>e annual savings by 2020.

Of those savings, the strategy estimates that EU or UK Government policies will achieve 40% of the target reductions by 2020, and specific Welsh policies 30%. The remainder of the target is to be met by wider actions by business, the public sector and communities across Wales.

The strategy also outlines a target to reduce all emissions, including those from the traded sector, by 40% by 2020 from 1990 levels.

Over 2010, the **Northern Ireland Executive (NIE)** convened a cross-departmental working group on greenhouse gases and agreed an action plan setting out how all departments will contribute to the current non-statutory target to reduce greenhouse gases by 25% relative to 1990 by 2025.

The plan estimates that if all proposed policies are enacted and deliver expected reductions, emissions could be reduced by 33% by 2025, which would overachieve the 2025 target.

Meeting these targets would result in emissions in 2020 of:

Scotland: 40.7 MtCO<sub>2</sub>e (this includes emissions from IA&S, which is outside UK targets and carbon budgets).

Wales: 33 MtCO<sub>2</sub>e

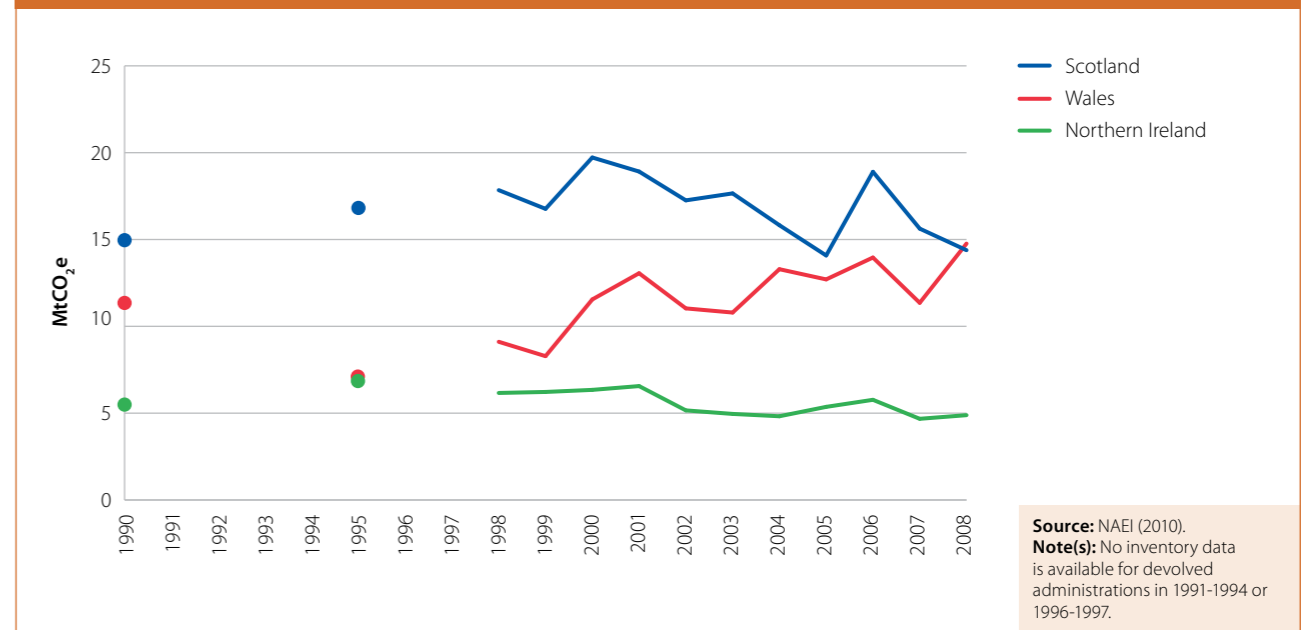
Northern Ireland: 20 MtCO<sub>2</sub>e (assuming an equal annual percentage path to the 2025 target).

## 2. Progress reducing power sector emissions

On a gross basis, trends in power sector emissions in the devolved administrations tend to be fairly sensitive to the operation of one or two individual power plants (Figure 6.5). As at 2008:

- In **Scotland**, emissions were 4% lower in 2008 than in 1990 and accounted for 27% of total emissions.
- In **Wales**, power sector emissions were 30% higher in 2008 than in 1990, and accounted for 30% of total emissions. This reflects, in the main, a rise in coal generation in 2008, though this fell sharply in 2009.
- In **Northern Ireland** emissions were 11% lower in 2008 than in 1990, and accounted for 22% of total emissions.

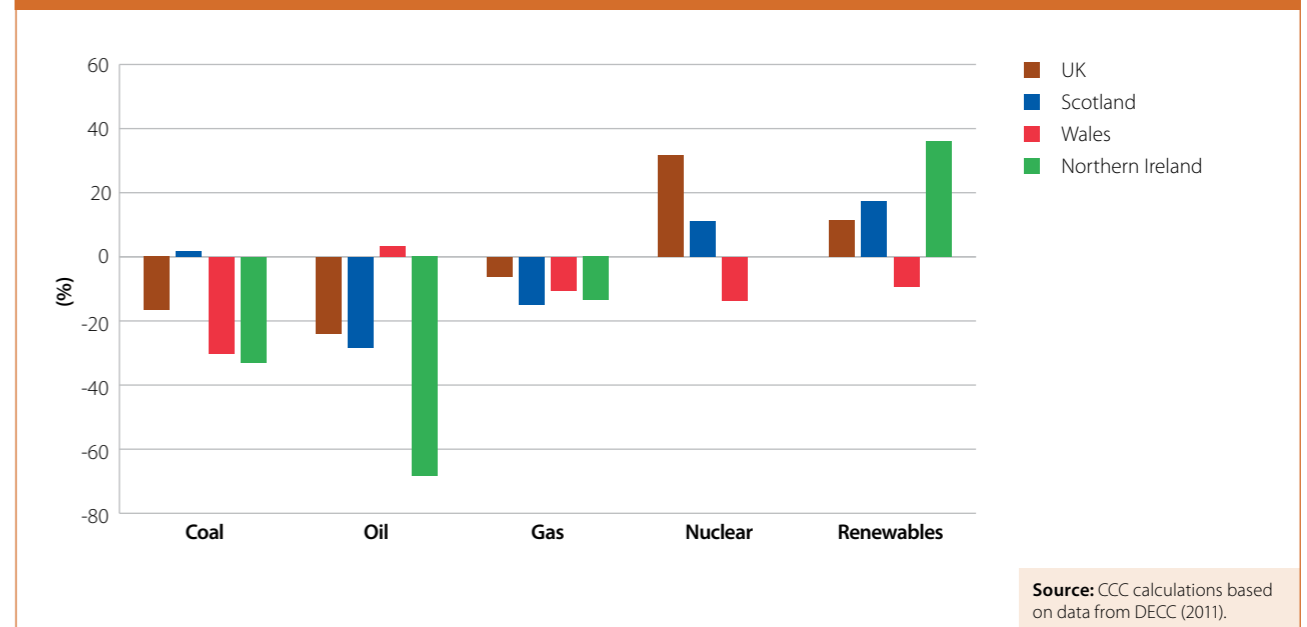
Figure 6.5: Power sector emissions in devolved administrations (1990-2008)



Power sector emissions are likely to have been broadly flat in Scotland in 2009, with reduced emissions in Northern Ireland and Wales (Figure 6.6):

- Although overall generation increased in **Scotland** (by 3% relative to 2008), the majority of additional generation was from nuclear and renewables. Generation from coal rose very slightly, while oil and gas fuelled generation fell (by 28% and 15% respectively). The overall impact is likely to have been broadly flat or slightly reduced emissions.
- In **Wales**, total generation fell 16%, including a particularly large fall in coal generation (30%). This is likely to have had a significant impact on Welsh emissions.

Figure 6.6: Electricity generation by source – percentage change from previous year (2008-2009)



- In **Northern Ireland** total generation fell 17%, including falls of 33%, 68% and 14% from coal, oil and gas respectively. Renewable generation increased 36% in 2009. The overall impact is likely to have been a significant reduction in emissions.

There has been some progress in recent years moving towards a decarbonised power system through investment in renewable power generation (Figures 6.7, 6.8 and 6.9):

- In 2009, renewables accounted for 21% of generation in Scotland, and 27% of gross consumption. Between 2003 and 2009, renewables capacity increased over 130% from 1.7 GW to 3.8 GW, including 1.8 GW of wind. In 2009, Scotland accounted for half of the UK's wind generation and over 40% of total generation from renewables.
- The most recent data (from Scottish Renewables) show as at April 2011, installed capacity of 4.4 GW, including 2.6 GW of wind. A further 4.4 GW is in the planning system, with 15 GW, including 1.6 GW of wave and tidal, at the scoping stage.
- In 2009, renewable generation accounted for 5% of the electricity produced in Wales. Installed capacity of renewables increased over 75% from 0.4 GW in 2003 to 0.75 GW in 2009, most of which was wind power. Wales accounted for 6% of the UK's renewable generation in 2009 and 10% of wind.
- Renewables accounted for 10% of generation in Northern Ireland in 2009. Installed capacity increased almost 6-fold between 2003 and 2009 from 48 MW to 330 MW, again mostly wind. Northern Ireland generated 3% of UK renewable power in 2009 and 8% of wind power.

However, significant acceleration in the pace of investment will be required in order that stretching renewable generation targets are achieved (Box 6.2).

#### Box 6.2: Devolved administration targets on renewables

**The Scottish Government** has again revised upwards its renewable target, most recently to generate the equivalent of 100% of Scotland's gross electricity consumption from renewables by 2020. It is likely the majority of this will be wind (on and offshore), however, hydro, wave, tidal and biomass are also part of the potential resource. The renewable power target sits within the wider context of targets for 20% of total energy from renewables (11% heat and 10% transport) and to reduce total energy use by 12% by 2020.

**The Welsh Government** aims to realise estimates of the potential renewable resource in Wales (44TWh per year), which is more than twice Wales' current electricity demand. Offshore wind is the single biggest estimated potential resource (21TWh/year), though tidal range has been estimated at 18TWh.

**Northern Ireland** has recently agreed a target to generate the equivalent of 40% of power consumption from renewables by 2020. Onshore sources currently account for almost all NI's renewables but actions are underway to increase the contribution of offshore sources.

However, while these are stretching targets they are consumption based, and actual emissions, as well as emissions intensity of generation will reflect the full generation mix in each nation. If current levels of fossil fuel generation prevail through the 2020s unabated (though see Box 6.4 on CCS) it will have a significant implication for the level of gross emissions.

Figure 6.7: Electricity generation in Scotland by source (2009)

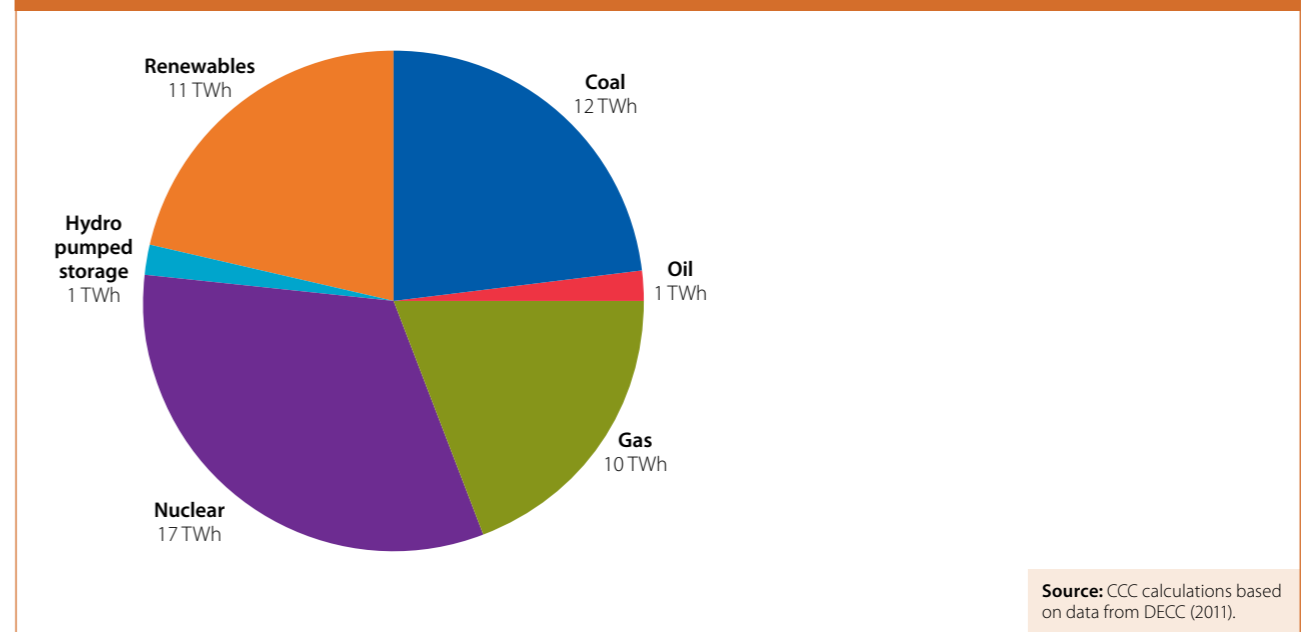
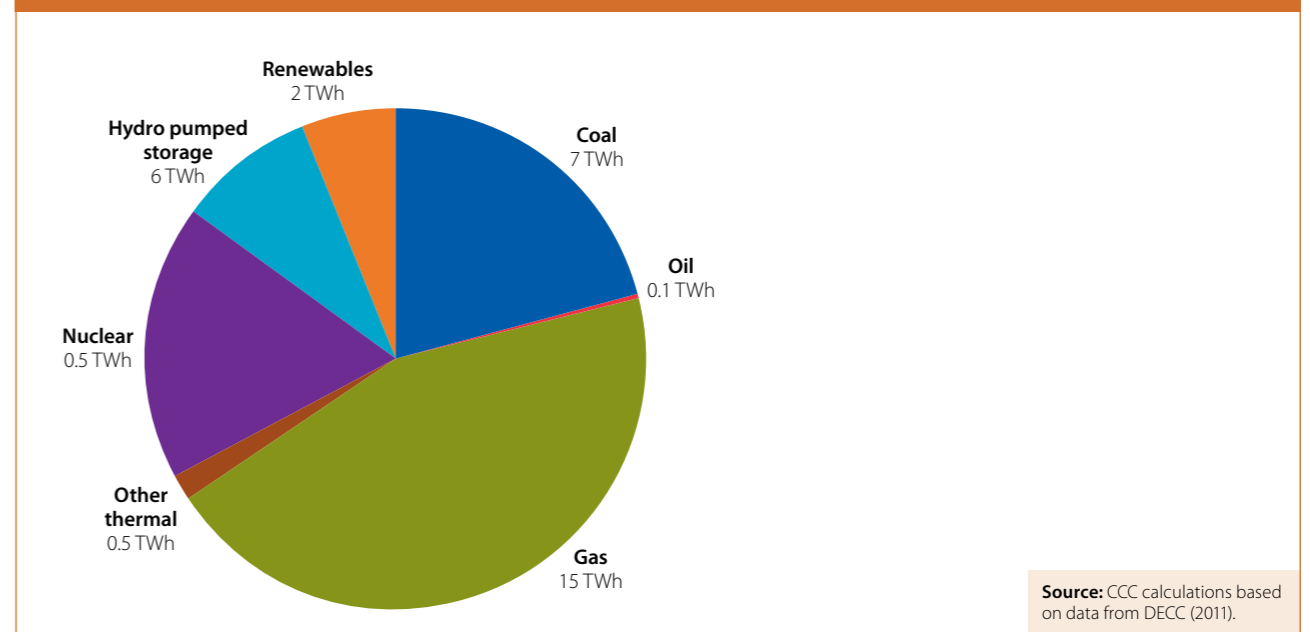


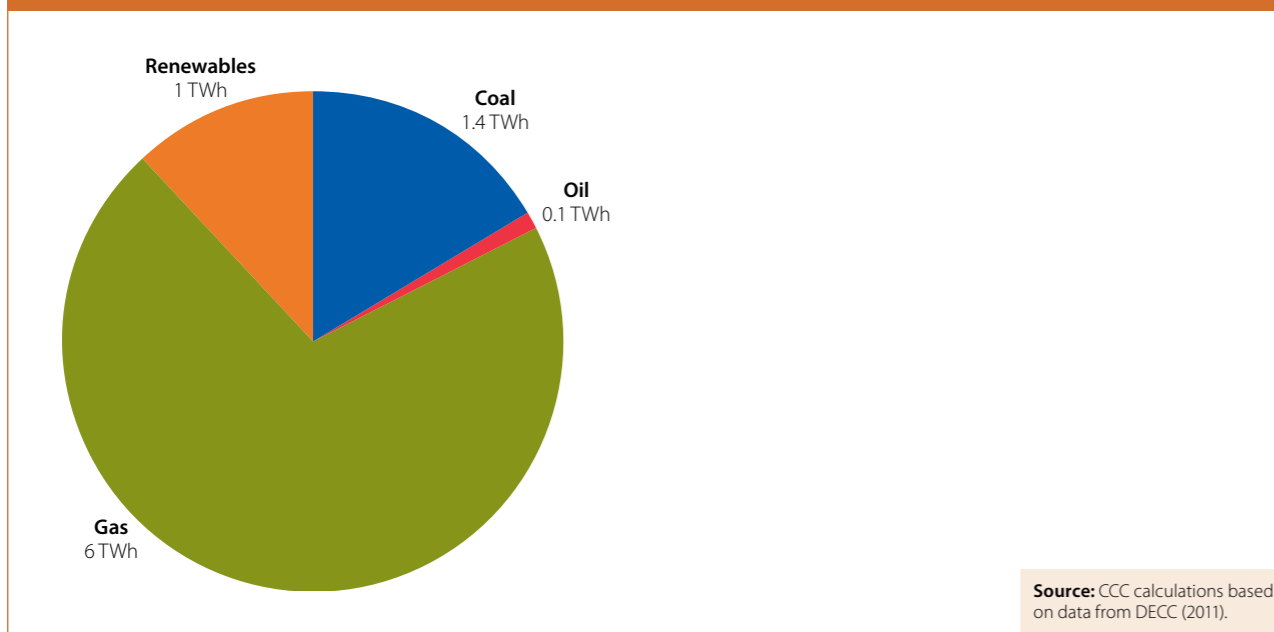
Figure 6.8: Electricity generation in Wales by source (2009)



Given the balance of reserved and devolved powers, devolved administrations have a key role to play in facilitating renewable generation investment:

- **Identifying resource.** For example
  - The additional ad hoc leasing round agreed between the Scottish Government and Crown Estate for offshore wind in Scottish Territorial Waters (STWs). Following a strategic environmental assessment (SEA) and consultation on the options, the final offshore wind plan for STWs sets out the 6 sites Scottish Ministers are recommending for short term development (2020) and a further 25 medium term (2030) sites.

Figure 6.9: Electricity generation in Northern Ireland by source (2009)



- The **Welsh Government's** Strategic Framework for marine renewable energy is the outcome of investigation of the potential marine energy resource and associated constraints to assist appropriate development of the resource. Building on this is further work to identify specific sites for development and work with the Crown Estate towards a leasing round for commercial wave and tidal developments.
- Following the completion of an SEA of the **Northern Ireland Executive's** draft offshore renewable energy plan, the Crown Estate has set out the timetable for a programme of leasing and development for offshore wind and tidal energy in Northern Ireland's waters. The NIE is finalising its plan to exploit the 900MW of offshore wind potential and 300MW tidal potential outlined in the SEA.
- **Approving planning:** There is an important role for the devolved administrations approving both renewable generation and transmissions projects:
  - Scottish ministers are responsible for approving planning applications for energy infrastructure – whether that is power generation or transmission (see Box 6.3 for latest developments on the Beaulieu to Denny transmission line). Scotland tends to have higher approval rates than the UK average, although average decision times are longer. Reductions in the planning period would therefore help to ensure faster throughput of projects for the very significant investments required over the next decade.
  - Authorities within Wales can consent smaller developments (<50MW onshore and <1MW offshore), but consent for large power developments is reserved to Westminster.
  - Within the devolved energy market, Northern Ireland has powers of consent over energy infrastructure.

- **Supporting technology innovation.**

- **The Scottish Government** continues to fund various research centres (e.g. European Marine Energy Centre where installation and testing of a number of wave and tidal projects has commenced) and innovation schemes (e.g. Saltire Prize)
- **The Welsh Government** has outlined its commitment to assist with technology development and cost reduction for less developed technologies such as tidal stream and wave. The 1.2 MW tidal demonstration project being developed for deployment off the coast of Wales was recently supported with Welsh European funding.
- The Welsh Government has committed to continue to support the study of the Severn estuary and consider the applicability of tidal range technologies elsewhere in Wales as appropriate.
- **Northern Ireland's** innovation strategy outlines commitments to support renewable development policies with further funding from the innovation budget, including for example, the Department for Agriculture and Rural Development's plans to exploit renewable opportunities in the rural economy

**Box 6.3: Beaulieu-Denny**

In our 2010 progress report we noted that the Beaulieu to Denny transmission line upgrade was approved in January 2010, marking an important milestone in providing greater and more reliable capacity for the transmission of Scotland's renewable potential. The consent by Scottish ministers was subject to a range of conditions, including mitigation of the impact of the line on the surrounding areas.

In addition to the 5 rationalisation scheme areas recommended in the public inquiry, 3 mitigation schemes were required in the consent. For each area, the applicants are required to submit proposals to rationalise/mitigate the visual impact of the line. Neither the overhead transmission lines, nor the towers carrying the lines, can be installed or constructed until Scottish ministers, in consultation with the relevant local authority in the scheme area, have approved the proposals.

To date, 4 rationalisation schemes have been approved. However the proposals submitted for visual impact mitigation in the Stirling area have been deemed unsatisfactory. Scottish ministers have asked the applicant and the council to work jointly on further mitigation options, including possible undergrounding of the line, and submit revised proposals by the end of June 2011, after which Ministers will enter into a formal consultation with Stirling Council for at least 30 days.

In the case of Scotland, there is also an important role to support development of CCS technology in the context of the UK and EU level demonstration programme (Box 6.4).

#### Box 6.4: Carbon capture and storage

The Committee's Extended Ambition scenario for 2020 includes four demonstration CCS plants by 2020. Following the withdrawal of Kingsnorth from the UK CCS demonstration programme, the Longannet station in Fife remains the sole entrant. Longannet is also one of the three applicants within Scotland for the EU NER300 funding for CCS.

Consent for new thermal coal and gas stations lies with Scottish ministers. They have set out similar requirements for CCS as in the UK as a whole, meaning that no new unabated coal stations can be built and those that are proposed must demonstrate CCS on a minimum of 300 MWe from their first day of operation.

Following from the high level screening of potential CO<sub>2</sub> storage sites around Scotland (2009), the consortium of industry, academic institutions, Scottish Centre for Carbon Storage and the Scottish Government have published a second study investigating the potential of one of the 10 saline aquifer sandstones shortlisted in the 2009 study.

Due to its proximity to onshore CO<sub>2</sub> sources, existing offshore pipelines and availability of data for the entire sandstone, the potential of the Moray Firth site was assessed. Modelling the characteristics of the sandstone and the activity of 15 MtCO<sub>2</sub> injected each year for 30 years, the study found this likely to remain stable and contained under the sea bed 5,000 years forward.

The study concludes by setting out the next steps required towards proving there is a viable, large, long term source of CO<sub>2</sub> storage in the UK.

### 3. Progress reducing emissions from buildings and industry

#### Residential buildings

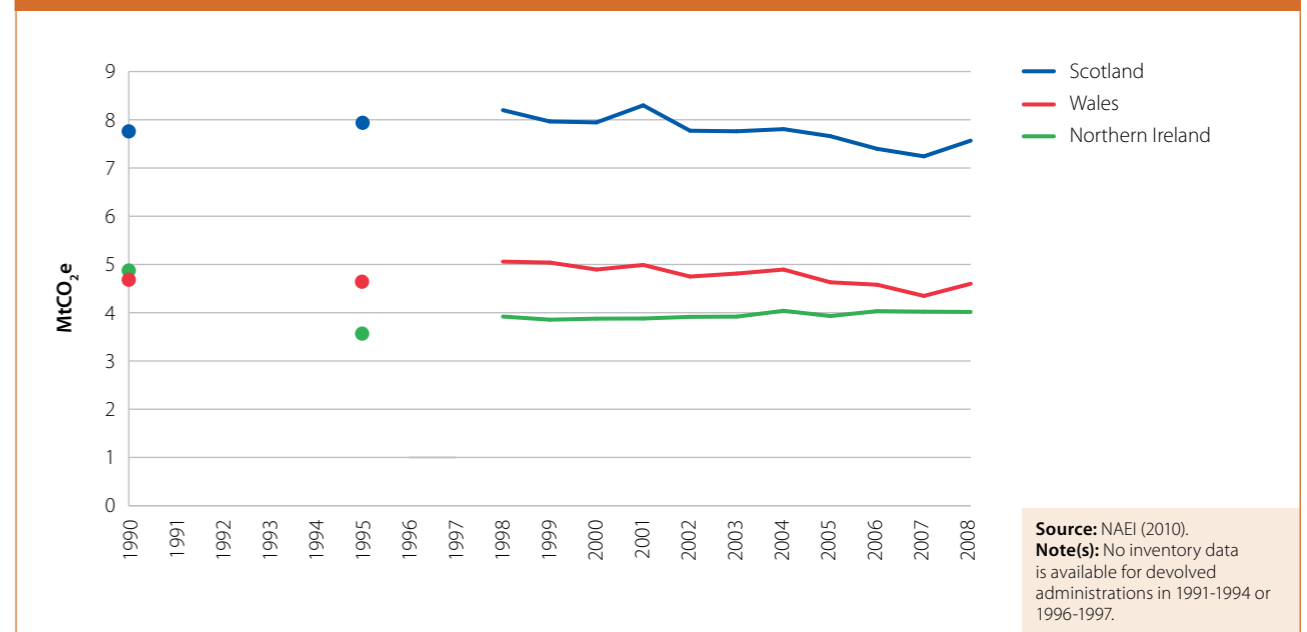
Since 1990, residential emissions have been broadly flat in the devolved administrations (Figure 6.10). The latest emission data for 2008 shows:

- In **Scotland** residential emissions account for 14% of total emissions and were 3% lower than 1990, despite a 14% increase in households over that time. A more than halving of coal use since 1990 in favour of gas for heating has helped to drive down emissions.
- In **Wales** residential emissions were 1% lower than 1990 and accounted for 9% of Wales' emissions. This is against a 15% rise in the number of households in Wales over the same period.
- **Northern Ireland's** residential sector emissions were 18% lower than 1990. This largely reflects a steep fall of 26% between 1990 and 1995; emissions have increased 11% since then and now account for almost a fifth of total GHG emissions. Although the introduction of gas in the 1990s helped drive down emissions, the network is currently only available to a small proportion of households and the relatively higher reliance on oil for heating means residential sector per capita emissions are higher than the UK average.

In 2009 there was little change in electricity consumption of residential customers in Scotland and Wales, but gas consumption fell substantially (see Figure 6.2. This information is currently not available for Northern Ireland).

In 2010, emissions from residential buildings are likely to have increased due to the particularly cold weather towards the end of the year (see Figure 6.4).

Figure 6.10: Residential sector emissions in devolved administrations (1990-2008)



To April 2010, CERT-funded loft and cavity wall insulations in Scotland and Wales were broadly in line with what has been achieved at the GB level (Table 6.1). This data is not as recent as available for GB<sup>1</sup> as a whole (Chapter 3) and therefore we cannot say whether the later slow down in the rate of measures observed in GB also occurred in Scotland and Wales.

Table 6.1: CERT measures years 1 and 2, GB, Scotland and Wales

	Cavity wall insulation			Loft Insulation		
	CERT Yr 1	CERT Yr 2	Total	CERT Yr 1	CERT Yr 2	Total
GB	523,702	485,696	1,009,398	672,745	553,240	1,225,985
Scotland: 2.5m households (9% UK total)	39,231	44,277	83,508	38,689	48,764	87,453
% of total	7%	9%	8%	6%	9%	7%
Wales: 1.3m households (5% UK total)	34,498	26,632	61,130	49,317	41,758	91,075
% of total	7%	5%	6%	7%	8%	7%

Source: Energy Saving Trust HEED database. Note: CERT year 1 runs from April 2008-March 2009; CERT year 2 runs from April 2009-March 2010. The HEED database currently contains a number of data gaps which are much larger for Year 2 than Year 1. These should be filled as the data is transferred to HEED (estimated date for revised data is July 2011), but in the meantime comparisons should not be drawn between the two years.

- In **Scotland** over 80,000 cavity wall insulations were carried out in the first two years of CERT, and almost 90,000 lofts were insulated. Further, the Scottish Government's residential energy efficiency schemes have funded a number of additional measures (see Box 6.6).

<sup>1</sup> CERT does not apply in Northern Ireland.

- However, there remains a large number of households still to be treated. The latest Household Condition Survey in Scotland shows that in 2009 although only 5% of households that are suitable for loft insulation had no loft insulation, a further 46% of these households (833,000) had loft insulation but of less than 150mm thickness. The majority of solid walled properties had no insulation (530,000 properties), while over a million cavity walls remained uninsulated (though the survey found up to half of these were unsuitable for insulation).
- In **Wales** CERT delivered over 60,000 cavity wall insulations over years 1 and 2, and over 90,000 loft insulations. Additional Welsh Assembly Government programmes have delivered further measures (Box 6.6).
- **Northern Ireland** accounts for 3% of the UK building stock (730,000 households). As energy is devolved to NI, CERT does not apply, and instead a voluntary supplier scheme operates whereby energy suppliers bid for funding raised by a levy on energy customers (£7.35 per electricity customer in 2009-10). The scheme covers both residential and commercial energy efficiency schemes. In the residential sector in 2009-10 the scheme delivered: 3,400 insulation measures; almost 700 heating packages; over 600 whole house measures.
- However, the latest house condition survey (for 2009) finds that over 153,000 homes (21% of stock) have no wall insulation and although 96% of homes that are suitable for loft insulation have some installed (600,000), the latest fuel poverty report in Northern Ireland notes that over 400,000 dwellings could still benefit from loft insulation top ups.

Therefore further policy effort will be required to encourage the uptake of insulation measures (cavity and solid walls, lofts) if ambitious targets for residential emission reductions are to be achieved, (Box 6.5).

#### Box 6.5: Residential emission reductions

Each devolved administration has made residential emission reductions a key part of their overall emission reduction strategies:

The **Scottish Government** has estimated that the contribution to the 2020 42% reduction in emissions could be up to 0.7MtCO<sub>2</sub>e from current policies. Further proposals (including post-2012 supplier obligations, Green Deal and ECO, and more stringent new-build domestic energy standards from 2013) could achieve abatement of up to 1.1 MtCO<sub>2</sub>e in 2020, which is in line with the potential identified for Scotland in the Extended Ambition scenario for 2020.

The **Welsh Government** has estimated that the residential sector accounts for around a fifth of the emissions covered by the 3% annual reduction target. To deliver the emission reductions required by 2020, the climate change strategy outlines reductions of 1.5 MtCO<sub>2</sub>e from the residential sector. This is slightly higher than the abatement potential identified in the Extended Ambition for Wales.

The main priority of **Northern Ireland's** residential sector policy is to tackle the high levels of fuel poverty, though this will have GHG benefits through reductions in household energy consumption.

Within the new Green Deal and ECO (see Chapter 3), there will be an important role for Scottish and Welsh governments in supporting uptake of measures. In particular, there is likely to be scope for national and local authority participation in scaling up the area based approach to home insulation recently trialled in both Scotland and Wales (Box 6.6).

There may also be opportunities for Scotland and Wales to lead on trialling renewable heat technologies in the residential sector, in conjunction with both the Green Deal and the Renewable Heat Incentive (see Chapter 3). Significantly increased investment in residential renewable heat is required, given current low levels of penetration, and the need for deep cuts in residential heat emissions through the 2020s.

#### Box 6.6: Area-based insulation/residential energy efficiency programmes

The Home Insulation Scheme is the Scottish Government's area based residential energy efficiency scheme. The first phase was launched in November 2009 with funding of £15m to support ten local authorities covering 100,000 households. In addition to providing extra funding, the scheme also aims to encourage greater uptake of CERT measures. The scheme was extended in April and September 2010 and now covers almost 400,000 households.

Collectively, 2009-10 provided 11,502 heating systems and 26,110 insulation measures.

The approach was noted (Home Energy Schemes Annual report 2009-10) to be particularly helpful in tackling 'hard to treat' (due to requirement for co-operation amongst occupiers) blocks of flats particularly prevalent in Glasgow and Edinburgh, with rates of referral and installations comparable to other housing types.

However, there was little uptake of more expensive measures (internal or external wall insulation and under-floor heating), mainly due to customer concerns about upheaval and disruption. Further, where both heating and these types of insulation were required, costs exceeded grant limits, so requiring a customer contribution.

**Arbed** is the Welsh Government's energy performance investment programme. This aims to take a whole house and community/street by street approach. The programme does not fund basic measures (such as gas boilers, loft and cavity wall insulation) as these are covered by Welsh Housing Quality Standard and CERT. These basic measures are integrated into arbed projects by the social housing providers delivering them from other sources of funding.

The measures and technologies that arbed funds include, solid wall insulation, solar photo voltaics, solar hot water, heat pumps, fuel switching and bespoke solutions.

Arbed opened in November 2009 with a budget of £30m. The first phase of projects was announced in May 2010 and due to complete by 31st March 2011.

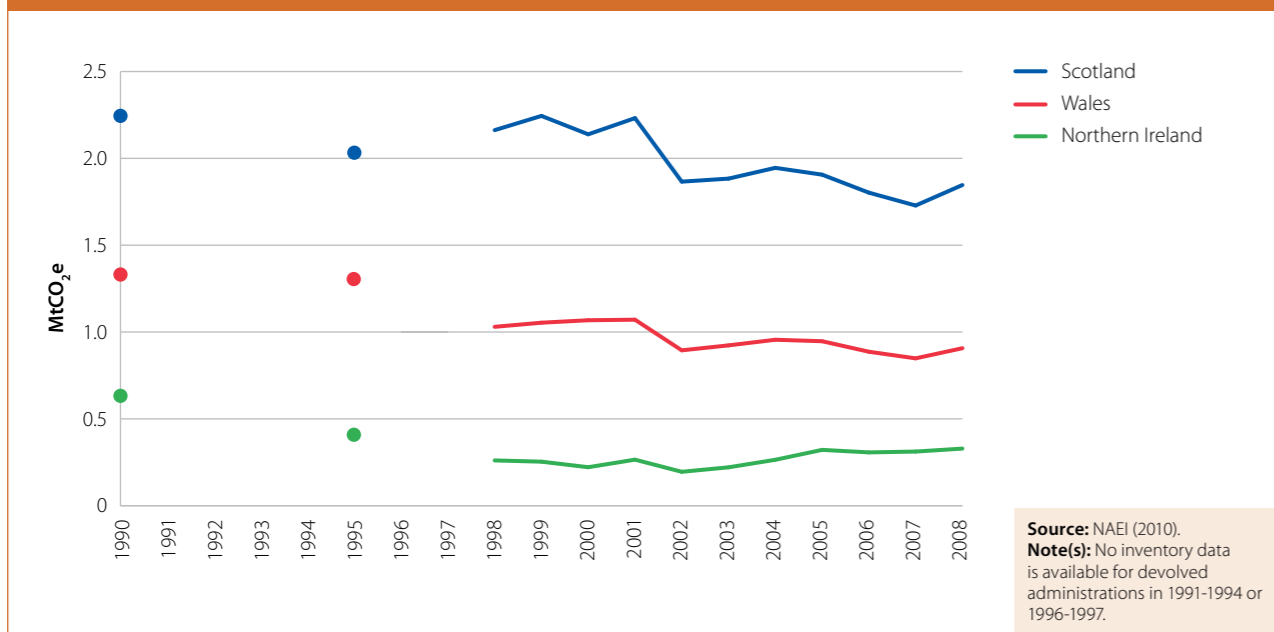
The Welsh Government is aiming to use £34m of European funding to continue the scheme for a second phase.

### Non-residential buildings and industry

Emissions from non-residential buildings account for up to 3% of total emissions in the devolved administrations, compared to 4% in the UK as a whole (Figure 6.11):

- In **Scotland** non-residential emissions fell 18% between 1990 and 2008. In 2008 emissions of 1.8 MtCO<sub>2</sub>e accounted for 3% of Scotland's total emissions
- In **Wales**, emissions fell 32% between 1990 and 2008. In 2008, emissions of 0.9 MtCO<sub>2</sub>e accounted for 2% of Wales' total emissions
- In **Northern Ireland**, emissions in the non-residential sector fell 48% from 1990 to 2008. In 2008 emissions of 0.3 MtCO<sub>2</sub>e accounted for 1% of total emissions.

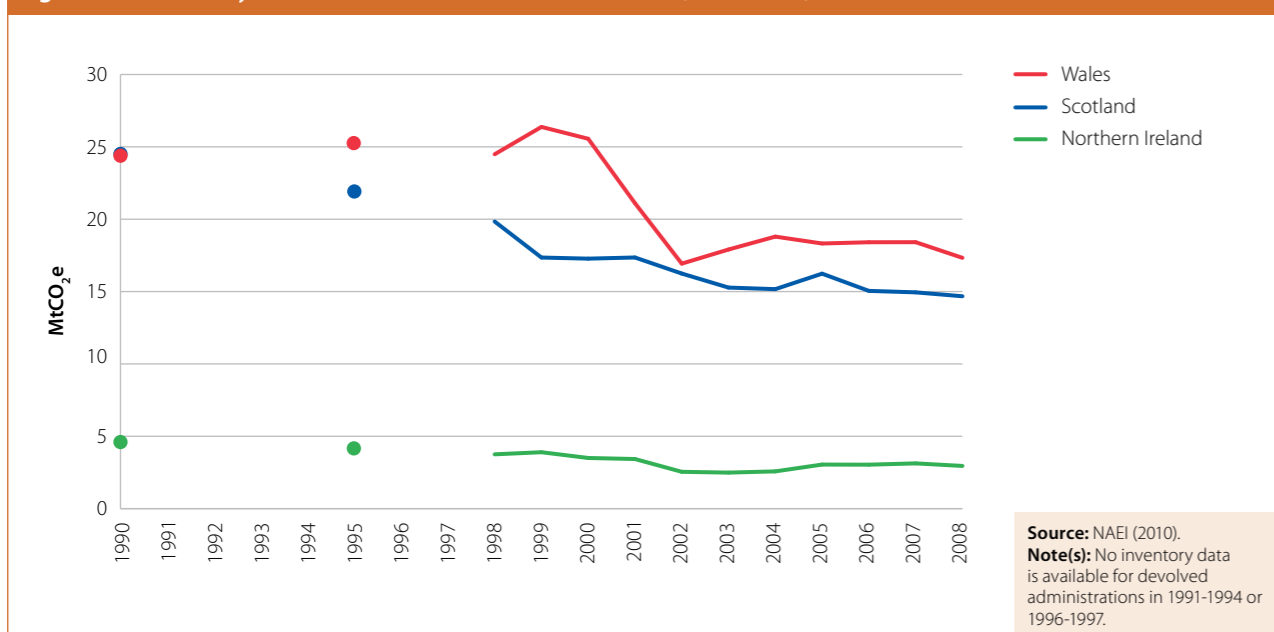
**Figure 6.11: Non-residential sector emissions in devolved administrations (1990-2008)**



In 2008 industry emissions accounted for up to 35% of total emissions compared to 27% in the UK (Figure 6.12). As with the UK as a whole, emissions have fallen significantly since 1990, driven by similar factors, including a shift in economic activity away from 'heavy' industries towards a more service-sector based economy and fuel switching towards less carbon-intensive fuels.

- In **Scotland**, 15 MtCO<sub>2</sub>e accounted for 27% of Scotland's total emissions, having fallen 40% since 1990.
- In **Wales**, 17 MtCO<sub>2</sub>e accounted for 35% of total emissions, having fallen 29% since 1990.

**Figure 6.12: Industry emissions in devolved administrations (1990-2008)**



- In **Northern Ireland**, 3 MtCO<sub>2</sub>e accounted for 13% of Northern Ireland's total emissions, having fallen 36% since 1990.

The main policy levers to drive down emissions from non-residential buildings and industry are the Carbon Reduction Commitment, and the EU ETS, which operate at the UK level, and the Renewable Heat Incentive (which applies in GB only, given the devolved energy market in Northern Ireland). These are discussed in Chapter 3.

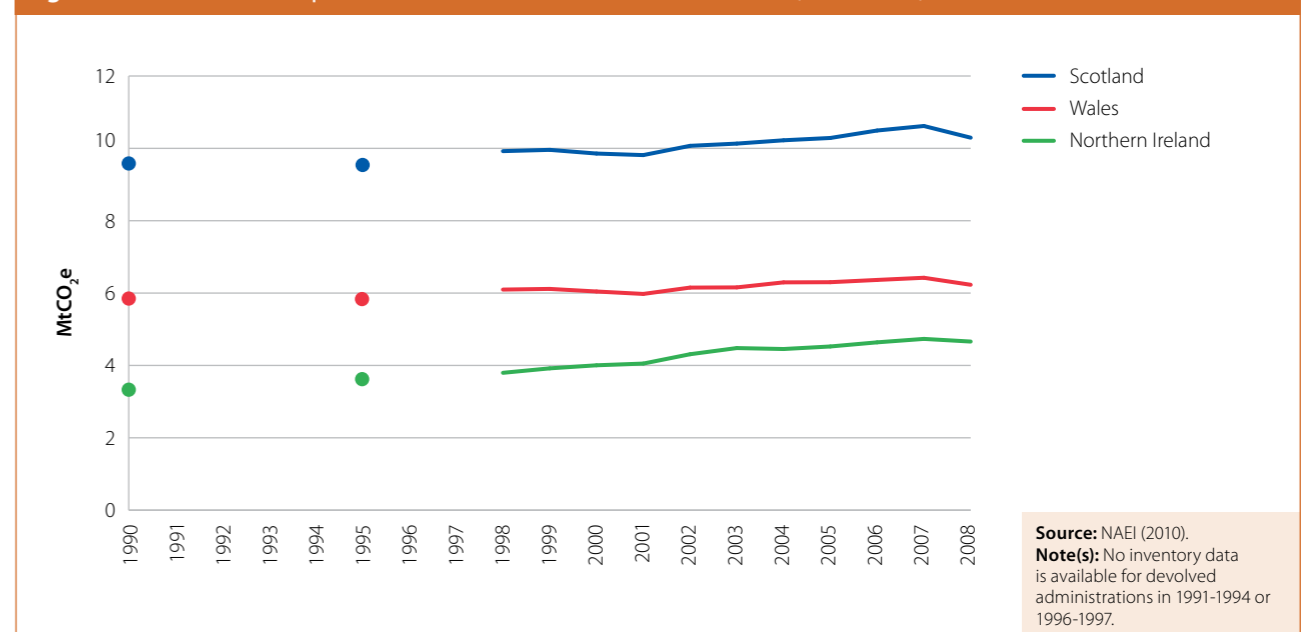
Given the devolved status of building regulations and certification to Northern Ireland and Scotland, our recommendation to roll out and mandate EPCs and DEC's (see Chapter 3) is applicable here also. There is also a specific issue in Scotland, where DEC's currently do not exist and EPCs are implemented in their place. The Scottish Government is currently undertaking work to scope options for possible introduction of operational ratings for non-domestic buildings, towards a public consultation later this year.

#### 4. Progress reducing transport emissions

Surface transport emissions in the devolved administrations follow a similar rising trend to the UK as a whole (UK emissions increased 7% between 1990 and 2008): (Figure 6.13).

- In **Scotland**, surface transport emissions increased 8% between 1990 and 2008 reaching 10 MtCO<sub>2</sub>e (19% of total emissions), reflecting a significant increase in car ownership levels and a notable increase in road traffic vehicle km over that time.
- In **Wales**, surface transport emissions increased 7% between 1990 and 2008, reaching 6 MtCO<sub>2</sub>e (13% of total emissions), again reflecting increasing car ownership and increased vehicle km.

**Figure 6.13: Surface transport emissions in devolved administrations (1990-2008)**



- In **Northern Ireland**, surface transport emissions rose 40% between 1990 and 2008, reaching 5 MtCO<sub>2</sub>e (21% of total emissions). This relatively steeper increase is mainly due to a low emissions base in 1990, where car ownership rates were much lower than elsewhere in the UK, but are now at parity.

In the UK as a whole, surface transport emissions fell in 2009 as a result of lower vehicle km travelled and improved fuel/carbon efficiency. For 2010, emission data is only available for transport as a whole (i.e. including domestic aviation and shipping), showing a decrease of 0.2% compared to a fall of 4.1% the previous year.

While we do not have 2009 or 2010 emissions or fuel consumption data for devolved administrations, information on new car efficiency for 2010 and traffic for 2009 suggests broadly level or falling emissions in devolved administrations relative to 2008:

- In **Scotland**, after rising steadily from 1999 to 2006, both car traffic and all road traffic has been broadly level across 2007-2009. There was no notable change in car vehicle km in 2009. As with the UK as a whole, all regions in Scotland outperformed our indicator level of new car CO<sub>2</sub>/km in 2010 (155.5gCO<sub>2</sub>/km).
- In **Wales**, total road traffic fell 1.4% in 2009 and car traffic by 1% compared to 2008. Again all of Wales outperformed the indicator on new car CO<sub>2</sub>.
- In **Northern Ireland**, road traffic km increased slightly in 2009, though new car CO<sub>2</sub> was again below our indicator level in 2010.

We have previously identified opportunities at the national level for supporting development of electric vehicle markets and rolling out Smarter Choices Initiatives. These opportunities are reflected in national transport plans in each of the devolved administrations:

- **Scottish Government's** actions include:
  - **Supporting the procurement of low carbon vehicles and developing infrastructure.** The Low Carbon Vehicle Procurement Support Scheme has committed £4.3m to this in 2010/11
  - Central Scotland is one of the 5 UK Plugged in Places projects providing match funding to install up to 375 charging points across the central belt.
  - The Scottish Green Bus Fund for 2010-11 provides £4.4m to cover difference between low carbon vehicle and diesel equivalent aiming to add 50 low carbon buses to fleet.
  - **Encouraging people to switch to more sustainable forms of transport and encouraging increased levels of cycling and walking.** The Smarter Choices Programme ran projects in seven areas from March 2008-March 2011. Measures included public transport improvements, upgrades in walking and cycling infrastructure, and marketing and awareness campaigns. Monitoring results are due in a full evaluation shortly.

- The **Welsh Government's** climate change strategy sets out a range of measures aimed at reducing the carbon intensity of transport and securing behaviour change. These include Sustainable Travel Centres, Smarter Choices, eco-driving, rail and bus service investment, and freight efficiency measures.
- The **Northern Ireland Executive** has scoped out the trends in emissions from road transport over 1990 – 2007 and analysed key social, economic and environmental drivers in relation to sustainable transport and implications for future policy. The Regional Transport Strategy is under consultation and is to be followed by an Active Travel Strategy. Belfast was also a successful bidder for Plugged in Places.

Active participation of national authorities will be required – both on the supply side (i.e. electric vehicles) and demand side (i.e. consumer behaviour change) – if transport emissions are to be reduced and targets achieved (Box 6.7).

#### Box 6.7: Reducing emissions from transport

The **Scottish Government's** plans for meeting the 2020 target include a significant reduction in transport emissions. This includes abatement of 1.4 MtCO<sub>2</sub>e from current policies and a further 1.1 MtCO<sub>2</sub>e from a range of proposals, not yet enacted but which collectively would deliver a reduction of 13% relative to 1990 levels by 2020.

Delivering the **Welsh Government's** climate change targets for 2020 also requires a substantial contribution from transport – a total of 1.4 MtCO<sub>2</sub>e emissions savings in 2020.

The Regional Transport Strategy currently under public consultation in **Northern Ireland** sets reducing emissions from transport as one of 12 strategic objectives, although a specific target for emission reduction from transport has not been set out.

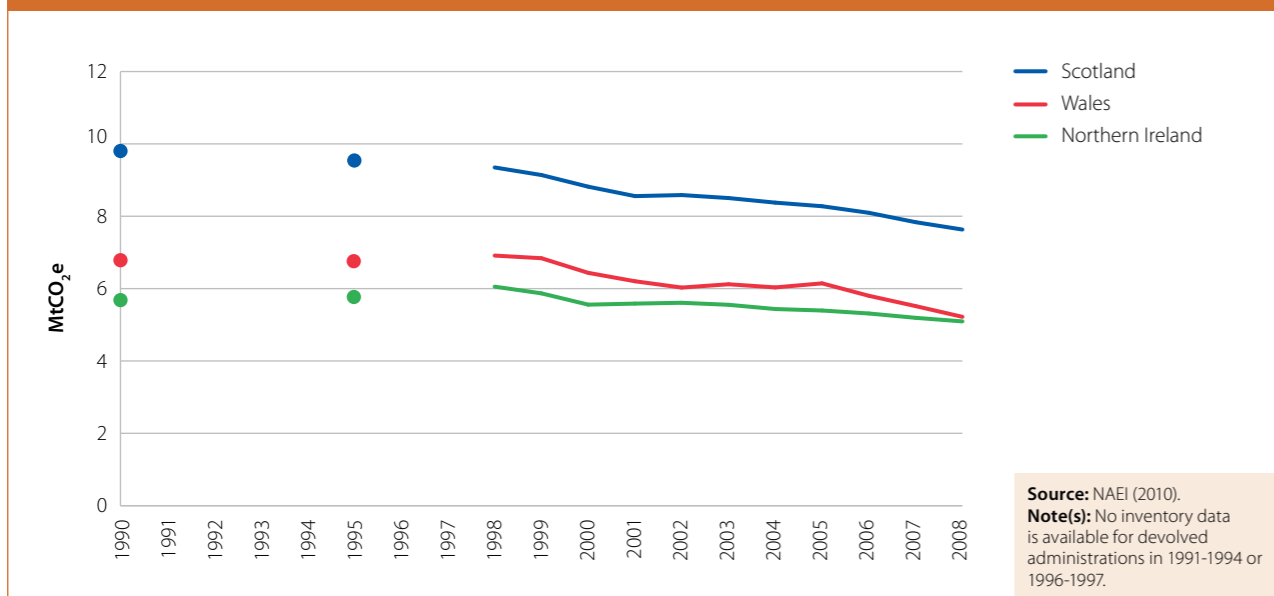
## 5. Progress reducing emissions from agriculture and land use

Emissions in agriculture have fallen by up to 23% in devolved administrations since 1990, compared to a fall of 21% in the UK as a whole (Figure 6.14):

- In **Scotland**, methane emissions decreased in line with a fall in livestock numbers, while N<sub>2</sub>O emissions fell by almost a third from 1990 to 2008. Overall, GHG emissions were down 22%, to 7.6 MtCO<sub>2</sub>e (14% of Scotland's emissions).
- Similar trends are shown in **Wales**, with overall emissions down 23% on 1990, to 5.2 MtCO<sub>2</sub>e in 2008 (11% of emissions).
- Although N<sub>2</sub>O emissions fell in **Northern Ireland** between 1990 and 2008, methane emissions increased slightly, with the overall effect being that agriculture sector emissions fell 10%, to 5 MtCO<sub>2</sub>e (around a quarter of emissions).

On a net basis LULUCF emissions are almost neutral in Wales and NI. In Scotland LULUCF is a net sink (Figure 6.15), the size of which has increased substantially since 1990 reflecting particularly high rates of tree planting in the 1970s and 80s.

Figure 6.14: Agriculture emissions in devolved administrations (1990-2008)



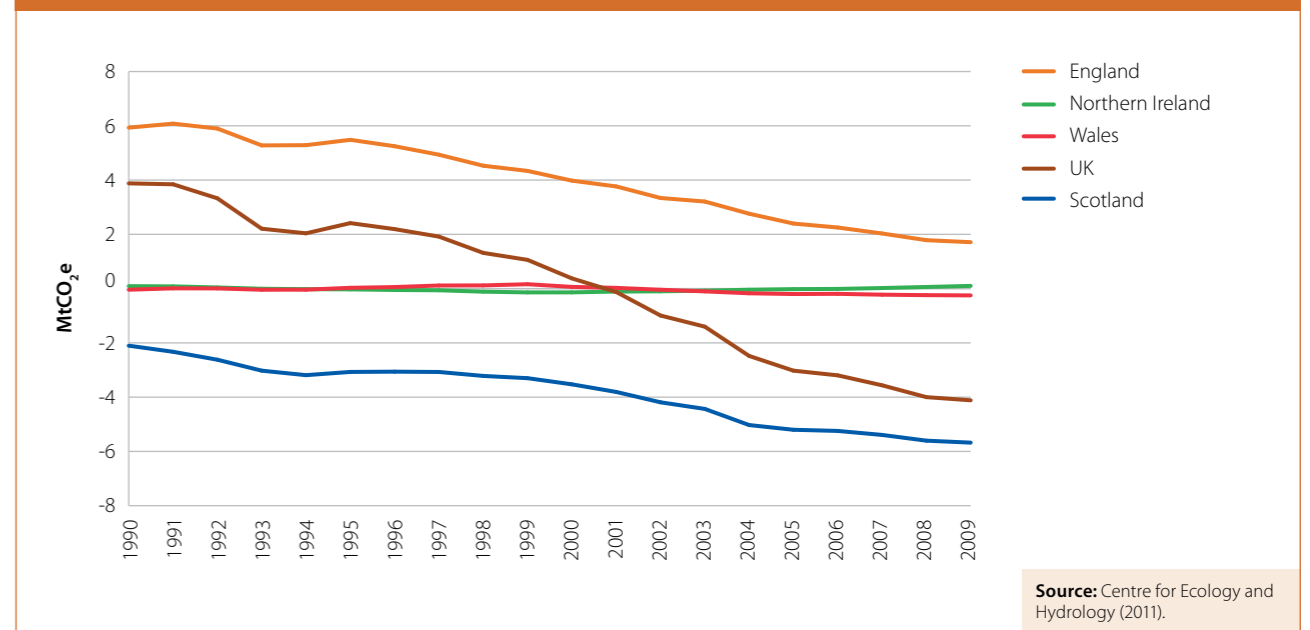
We have identified significant potential for emission reductions in each of the devolved administrations, which in part reflects the high share of agriculture in total emissions in devolved administrations:

- In **Scotland**, approximately 0.6 MtCO<sub>2</sub>e abatement potential in 2020;
- 0.46 MtCO<sub>2</sub>e in **Wales**;
- 0.46 MtCO<sub>2</sub>e in **Northern Ireland**.

A range of policies are in place to try to address these opportunities:

- The **Scottish Government's** 'Farming For a Better Climate' programme is aimed at encouraging farmers to adopt efficiency measures that reduce emissions, adapt to climate change while positively impacting business performance. Measures focus on using energy and fuels efficiently, developing renewable energy, locking carbon in soil, optimising use of fertilisers and optimising livestock management and storage of waste. The aim is to attain high uptake of Farming for a Better Climate voluntary measures; though regulation is not ruled out in the event of insufficient progress.
  - Together with support for AD through Scotland's Rural Development Programme (EU and SG funded) and increased woodland creation rates to 10,000 ha/year, the Scottish Government estimates 0.645 MtCO<sub>2</sub>e abatement could be achieved by 2020.
  - If further proposals were enacted (revisions to EU CAP and increased woodland by 15,000 ha/year) it is estimated this would provide an additional 0.7 MtCO<sub>2</sub>e taking the total to 1.3 MtCO<sub>2</sub>e by 2020.

Figure 6.15: Net emissions and removals, LULUCF (1990-2009)



- The **Welsh Government** is aiming to reduce emissions from agriculture and land use through: increased woodland creation and management of existing woodlands, the 'Glastir' programme which is targeted at supporting farmers to develop sustainable land management practices, provision of advice through the Farming Connect programme, and developing roadmaps for the dairy and red meat sectors. The Land Use and Climate Change group has recently reconvened with a new remit to monitor and report on progress against the 44 agreed recommendations (of the 49 their 2010 report recommended) which the Welsh Government has this year developed in to an implementation plan.
- **Northern Ireland's** Department of Agriculture and Rural Development (DARDNI) in partnership with key agri-food stakeholders in Northern Ireland agreed the themes of a GHG Reduction Framework in March this year. With the overarching theme that more efficient farming lowers emissions, voluntary mitigation measures spanning nutrient, livestock, renewable energy and carbon sequestration are being developed and will be communicated to primary producers later this year.

It will be important to review progress reducing agriculture emissions (Chapter 5), and to consider the full range of policy options in the event that current approaches do not sufficiently deliver.

## 6. Future work of the Committee with the devolved administrations

The Committee's indicator framework applies at the UK level and we have not disaggregated our trajectories to the devolved administrations. The GHG inventory is the basis for the legally binding targets in Scotland and non-statutory targets underpinning the climate change strategies in Wales and Northern Ireland. However, due to the time lag providing inventory figures it is important to measure progress through some key indicators.

In our future work with the devolved administrations we will develop our approach to measuring progress against emission reduction targets and consider the measures the devolved governments are putting in place to track progress:

- Scottish Ministers have asked the Committee for its first annual assessment of Scotland's progress in January 2012 as part of the reporting required under the Scottish Climate Change Act.
- The Welsh Government has commissioned the development of a set of policy indicators for each measure in the strategy. It has asked the Committee to review its progress against the commitments in the climate change strategy later this year.

## Key findings



Emissions in the devolved administrations account for **20% of total UK GHG emissions**, and all 3 authorities now have **strategies in place** to reduce emissions.



Emissions **fell by 2.9%** in **Scotland**, and by **0.4%** in **Northern Ireland** in 2008.



Emissions **rose by 4.7%** in **Wales**, primarily as a result of a coal-fired power station coming back on to the system.



**A step change** in the pace of emission reductions **is required** in the devolved administrations in order to meet carbon budgets.



There is **scope to reduce emissions further** by improving residential energy efficiency, trialling renewable heat technologies in homes and rolling out Energy Performance Certificates and Display Energy Certificates in the non-residential sectors.



Transport emissions could be reduced by **rolling out Smarter Choices** and through **increased eco-driving training**.



Power emissions could be reduced by **shortening planning times** for renewable projects.



Agriculture emissions could be reduced by **ensuring policies** fully address the abatement potential in the devolved administrations.