Northern Ireland Carbon Intensity Indicators 2019

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Department of
Agriculture, Environment and Rural Affairs

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INVESTORS IN PEOPLE

Contents

Note

Intensity Indicators are highlighted in blue, and the relevant workbook tabs are also marked in blue.

The remaining indicators are **proxy indicators**, which whilst not intensity indicators as such, are logically linked to emissions and/or emissions intensity levels.

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	Introduction
	Summary of changes to indicators since previous publication
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Cross-cutting	Greenhouse gas emissions per capita (Intensity Indicator)
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Buildings	Penetration of renewable heat
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Industry	CO_2 emissions from participants in the Carbon Reduction Commitment Energy Efficiency Scheme
Transport	Average CO2 of licensed cars
Transport	Road transport emissions per vehicle kilometre travelled (Intensity Indicator)
Transport	Average distance travelled per person per year by mode of transport (inc. cycling & walking)
Transport	Mode of transport
Transport	Bus passenger journeys
Transport	NI Rail service passengers, number of journeys and distance travelled
Transport	Plug-in cars, vans and quadricycles licensed
Agriculture	Emissions intensity of milk production
Agriculture	Area of new forest and woodland plantings
Agriculture	Soil nitrogen balance
Agriculture	Average daily carcase gain of beef cattle
Agriculture	Metabolic energy from grass silage
Waste	Greenhouse gas emissions from waste management per capita (Intensity Indicator)
Waste	Local authority collected municipal waste

Key Points

The key points are:

- Greenhouse gas emissions per capita decreased 30% from 15.2 tonnes CO_2 equivalent per person in 1990 to 10.7 tCO2e per person in 2017. The population increased by 17% over this period, while greenhouse gas emissions decreased by 18%.

- The ratio of total greenhouse gas emissions to gross value added (GVA) in Northern Ireland decreased 59% from 1.24 kgCO2e/£ in 1998 to 0.50kg CO2e/£ in 2017. GVA is used here to measure NI's economic output, and over the 19 years shown it has grown substantially, while greenhouse gas emissions have been in decline.

- Greenhouse gas emissions per unit of electricity generated decreased 36% from 631gCO2/kWh in 2004 to 406gCO2/kWh in 2017. This has been driven by the growth of renewable generation in Northern Ireland, a shift away from coal use towards gas for electricity generation, and improvements in energy efficiency.

- Residential greenhouse gas emissions per household decreased 20% over the past seven years from a peak of 4.21 tonnes of CO2 equivalent per household in 2010 to 3.38 tonnes of CO2e in 2016. Fuel switching to natural gas from more carbon-intensive fuels such as coal and oil has reduced emissions, but more households creates greater demand for energy.

- Average CO2 emissions from licenced cars decreased 7% from 149.8 CO2 (g/km) in 2014 to 138.6 CO2 (g/km) in 2018. The change was driven by improvements in average fuel efficiency of vehicles.

- Total emissions (excluding sequestration) related to milk production decreased from a population average of 1,927 (CO2e/kg ECM) in 1990 to 1,272 (CO2e/kg ECM) in 2017. Whilst milk production in the dairy sector has expanded by 73% since 1990, the total number of dairy cows over this period has increased by only 14%, meaning this improvement in carbon footprint has been driven by substantial increases in milk yield per cow.

- Waste management emissions per capita have decreased 63% from 1,166kgCO$_2$e per person in 1990 to 430 kgCO2e per person in 2017. The population increased by 17% over this period while greenhouse gas emissions from waste management have fallen by 57%, due in a large part to the introduction of methane capture and oxidation systems at landfill sites.

Introduction - Carbon Intensity Indicators for Northern Ireland

In order to complement the emissions data available from the historic GHG Inventory and the NI GHG Projection Tool, and to help Government track the effectiveness of their carbon reduction policies, a set of local Carbon Intensity (CI) indicators has been developed. The indicators were agreed by the Mitigation Sub-Group of the Cross-Departmental Working Group on Climate Change (CDWGCC) and populated by DAERA's Statistics and Analytical Services Branch, taking advice as appropriate, from the CDWGCC Analysts' Sub-Group.

Rather than measuring absolute emissions levels, emissions intensity is concerned with capturing the amount of CO_2 equivalent generated per unit of output or per capita, e.g., power sector emissions per unit of electricity generated or total NI emissions per head of population.

The value of taking such an approach is that, whilst overall emissions might be seen to be increasing for a particular sector in line with an expanding economy, the carbon intensity might actually be decreasing which could still be viewed as a positive outcome. The CI indicators are therefore another way of measuring the progress being made in NI towards reducing GHG emissions in terms of intensity as opposed to absolute emissions. Estimated absolute emissions for Northern Ireland can seen in the Northern Ireland greenhouse gas inventory 1990-2017 statistical bulletin - https://www.daera-ni.gov.uk/sites/default/files/publications/daera/ghg-inventory-statistical-bulletin-2017.pdf

The CIs themselves are further supplemented by a set of associated proxy indicators which, whilst not intensity indicators as such, are logically linked to emissions and/or emissions intensity levels. Consideration of proxy indicators allows a greater range of indicators to be monitored as the data constraints tend to be less restrictive. It can also be easier to see how they are linked to various policy initiatives. Examples here could be the proportion of travelling being undertaken by sustainable means such as walking or cycling, or the energy efficiency of the building stock.

This report presents a series of indicators, for each of the key emission sectors, with each section generally beginning with an intensity indicator (where available) and supplemented by a set of proxy indicators. For ease of reference the intensity indicators have been highlighted (in blue) in order to distinguish them from the supporting proxy indicators.

Trend data have been presented, in both tabular and graphical format, from as far back as practically available to collect up to the latest year available. For some indicators, data may only recently have become available. In such cases, the current year will be the base year with the trend building from that point onwards. It is intended to update the indicators on an annual basis and develop commentary over time.

The change in recent and long term trend is also highlighted via the use of colour coded arrows with green signifying movement in a positive direction, red - negative, and amber - no change or unclear (e.g. an increase in total kilometres travelled may not necessarily be viewed as negative from a carbon reduction perspective if a greater proportion of the travel is being undertaken by walking/cycling or public transport rather than by car).

A User Guidance document has been produced to support this report which will develop over time. Users are strongly encouraged to consult this when considering particular indicators in order to properly understand what the indicator is measuring, its relevance from an emissions/intensity perspective and any significant limitations. It is published on the DAERA website along with these indicators.

## Summary of changes to indicators since previous publication

When the report is reviewed, some additional indicators may be added and in some instances indicators may need to be removed. Details of such changes this year can be seen in the tables below.

Indicator		Figure Number	Details
Buildings	Indicator modified	3.3	Standard Assessment Procedure (SAP) rating amended from annual statistic to show mean SAP rating over time.
Transport	New indicator	5.1	Indicator 5.1 - Licensed cars by CO2 emissions replaced the Age of fleet indictor. Whilst the age of fleet indicator implied that an aging fleet would mean a less efficient fleet in terms of emissions, indicator 5.1 provides actual emissions estimates for the fleet.
Transport	Indicator removed	4.7 (2018 publication)	See above. Indicator 4.7 (2018 publication) - Age of vehicle fleet removed in effort to rationalise the number of proxy indicators. Replaced with indicator 5.1.
Transport	Indicator removed	4.2 (2018 publication)	Indicator 4.2 (2018 publication) - vehicle kilometres traveled by car removed in a effort to rationalise the amount of proxy indicators in the report. Similar statistics used for the production of indicator 5.2.
Agriculture	Indicator removed	5.3 (2018 publication)	Indicator 5.3 (2018 publication) - nitrogen use efficiency for arable crops removed in a effort to rationalise the amount of proxy indicators in the report. Indicator 6.3 provides alternative information on nitrogen balance.
Agriculture	Indicator removed	5.5 (2018 publication)	Indicator 5.5 (2018 publication) - Electricity from on-farm anaerobic digestion reviewed and removed. Uncertainties exist in the designation of AD electricity production to farm level.
Agriculture	Indicator removed	5.6 (2018 publication)	Indicator 5.6 (2018 publication) - carcase confirmation for beef cattle removed in a effort to rationalise the amount of proxy indicators in the report. Indicator 6.4 provides alternative information on carcase gain of beef cattle.
All	Indicators moved and renumbered	Multiple	Cross-cutting indicators have been moved to the start of the report, resulting in all indicators being renumbered.

1.1 - Cross-cutting indicator - ratio of emissions to gross value added

Ratio of greenhouse gas emissions to gross value added
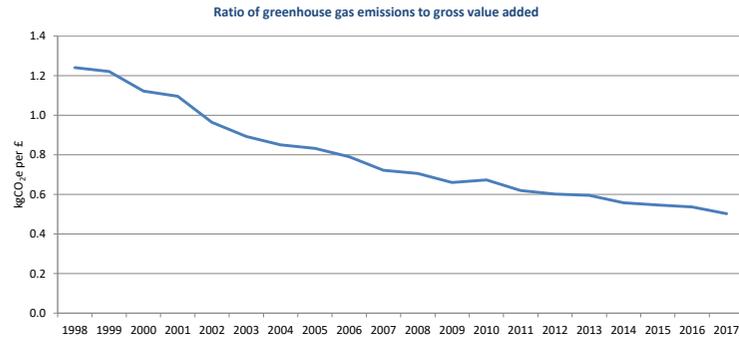
Ratio of emissions to gross value added
Longer term trend

59%

1998 to 2017

Recent change

6%

2016 to 2017

Greenhouse gas emissions
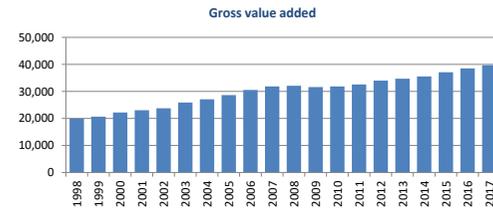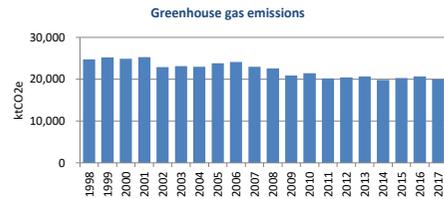
Gross value added

Ratio of greenhouse gas emissions to gross value added (GVA)
Northern Ireland, 1998 to 2017

	Units	1998	1999	2000	2001	2002	2003	2004	2005
Greenhouse gas (GHG) emissions	ktCO$_2$e	24,697	25,192	24,892	25,250	22,879	23,092	22,974	23,803
Gross value added	£ million	19,912	20,649	22,207	23,050	23,712	25,849	27,030	28,618
Ratio of GHG emissions to GVA	kgCO$_2$e per £	1.24	1.22	1.12	1.10	0.96	0.89	0.85	0.83

continued...

	Units	2006	2007	2008	2009	2010	2011	2012	2013
Greenhouse gas (GHG) emissions	ktCO$_2$e	24,109	22,980	22,596	20,868	21,433	20,192	20,413	20,612
Gross value added	£ million	30,479	31,840	32,037	31,572	31,862	32,608	33,921	34,668
Ratio of GHG emissions to GVA	kgCO$_2$e per £	0.79	0.72	0.71	0.66	0.67	0.62	0.60	0.59

continued...

	Units	2014	2015	2016	2017
Greenhouse gas (GHG) emissions	ktCO$_2$e	19,829	20,277	20,656	19,969
Gross value added	£ million	35,534	37,086	38,532	39,731
Ratio of GHG emissions to GVA	kgCO$_2$e per £	0.56	0.55	0.54	0.50

Source:
https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgrossvalueaddedincomeapproach
Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
https://naei.beis.gov.uk/reports/reports?section_id=4

Notes:
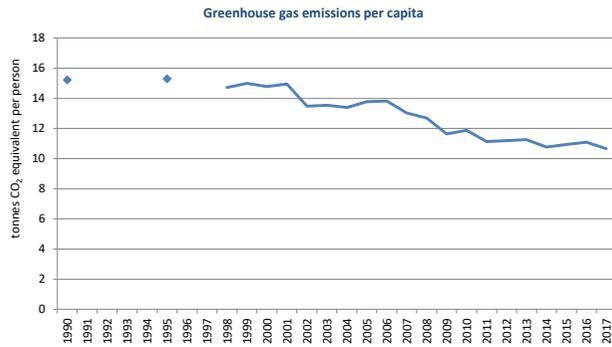GVA (Income Approach) at current basic prices.
Figures for greenhouse gas emissions and gross value added are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for cross-cutting sector

1.2 - Cross-cutting indicator - greenhouse gas emissions per capita

Greenhouse gas emissions per capita

Greenhouse gas emissions per capita
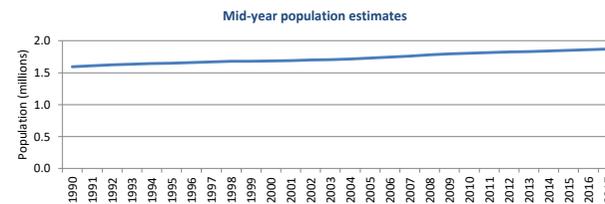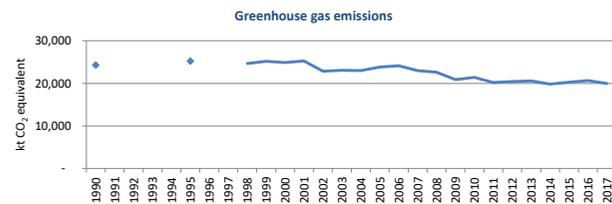*Longer term trend*

30%

1990 to 2017

Recent change

4%

2016 to 2017

Greenhouse gas emissions

Mid-year population estimates

Greenhouse gas emissions per capita
Northern Ireland, 1990 to 2017

	Units	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Greenhouse gas emissions	ktCO$_2$e	24,283					25,218			24,697	25,192	24,892	25,250
Mid-year population estimate	persons	1,595,595	1,607,295	1,623,263	1,635,552	1,643,707	1,649,131	1,661,751	1,671,261	1,677,769	1,679,006	1,682,944	1,688,838
NI GHG emissions per capita	**tCO$_2$e / person**	**15.2**					**15.3**			**14.7**	**15.0**	**14.8**	**15.0**

continued...

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Greenhouse gas emissions	ktCO$_2$e	22,879	23,092	22,974	23,803	24,109	22,980	22,596	20,868	21,433	20,192	20,413	20,612
Mid-year population estimate	persons	1,697,534	1,704,924	1,714,042	1,727,733	1,743,113	1,761,683	1,779,152	1,793,333	1,804,833	1,814,318	1,823,634	1,829,725
NI GHG emissions per capita	**tCO$_2$e / person**	**13.5**	**13.5**	**13.4**	**13.8**	**13.8**	**13.0**	**12.7**	**11.6**	**11.9**	**11.1**	**11.2**	**11.3**

continued...

	Units	2014	2015	2016	2017
Greenhouse gas emissions	ktCO$_2$e	19,829	20,277	20,656	19,969
Mid-year population estimate	persons	1,840,498	1,851,621	1,862,137	1,870,834
NI GHG emissions per capita	**tCO$_2$e / person**	**10.8**	**11.0**	**11.1**	**10.7**

Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
https://naei.beis.gov.uk/reports/reports?section_id=4
NISRA mid year population estimates
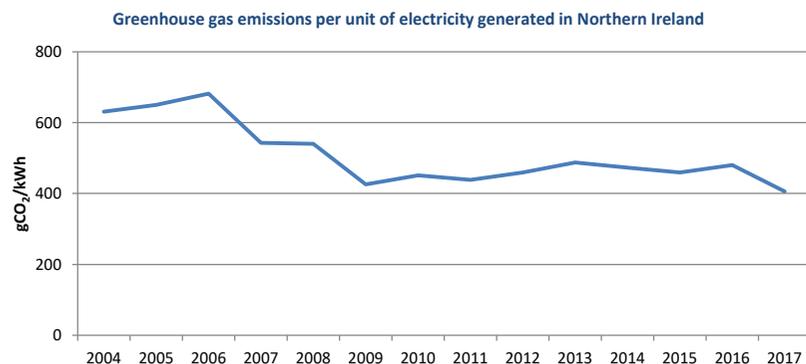https://www.nisra.gov.uk/publications/2018-mid-year-population-estimates-northern-ireland

Note: Figures for greenhouse gas emissions are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for cross-cutting sector

2.1 - Power sector - emissions per unit of electricity generated, gCO_2/kWh

Greenhouse gas emissions per unit of electricity generated in Northern Ireland

Longer term trend

36%

2004 to 2017

Recent change

15%

2016 to 2017

Electricity consumption

Greenhouse gas emissions from energy supply sector

Greenhouse gas emissions per unit of electricity generated

Northern Ireland, 2004 - 2017

	Units	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Power sector emissions	$ktCO_2e$	4,879	5,379	5,708	4,642	4,827	3,684	3,955	3,742	3,872	4,069	3,834	3,836	4,021	3,414
Electricity consumption	GWh	7,727	8,265	8,374	8,543	8,938	8,644	8,769	8,530	8,434	8,348	8,097	8,344	8,376	8,410
Emissions intensity	**gCO_2/kWh**	**631**	**651**	**682**	**543**	**540**	**426**	**451**	**439**	**459**	**487**	**474**	**460**	**480**	**406**

Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
https://naei.beis.gov.uk/reports/reports?section_id=4
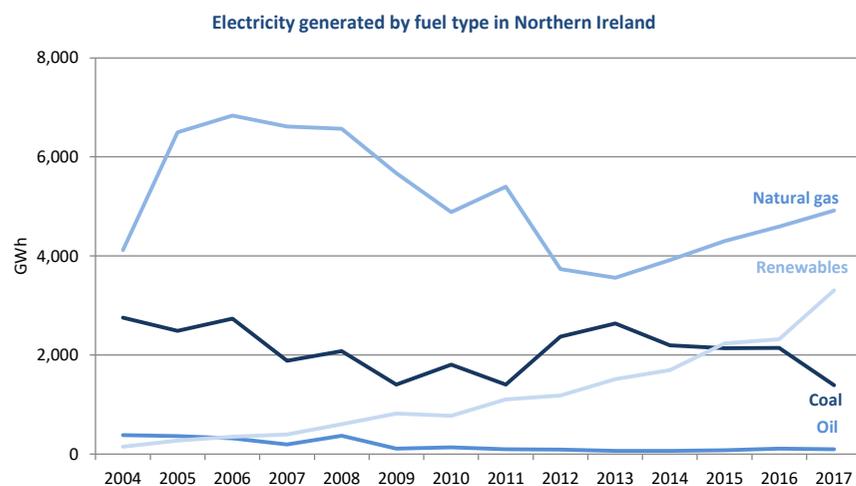Source: BEIS Energy Trends Special Feature
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770766/Regional_Electricity_Generation_and_Supply.pdf

Note: Figures for greenhouse gas emissions are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for power sector

2.2 - Power sector - electricity generation[1] by fuel type

Electricity generated by fuel type in Northern Ireland

Coal	Oil	Gas	Renewables
Longer term trends 2004 to 2017			
50% ↓	75% ↓	19% ↑	2066% ↑
Recent changes 2016 to 2017			
35% ↓	12% ↓	7% ↑	42% ↑

Electricity generated by fuel type

Northern Ireland, 2004 to 2017

Fuel type	Units	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coal	GWh	2,753	2,488	2,737	1,887	2,077	1,402	1,808	1,407	2,370	2,635	2,199	2,140	2,143	1,390
Oil	GWh	388	367	322	197	370	112	138	96	95	64	63	82	111	98
Natural gas	GWh	4,119	6,494	6,837	6,611	6,568	5,674	4,884	5,397	3,733	3,559	3,918	4,302	4,595	4,921
Renewables	GWh	153	271	352	400	606	818	776	1,105	1,184	1,517	1,699	2,237	2,321	3,306
Total	**GWh**	**7,412**	**9,620**	**10,248**	**9,095**	**9,621**	**8,006**	**7,606**	**8,005**	**7,382**	**7,775**	**7,879**	**8,761**	**9,170**	**9,715**

Source: BEIS Energy Trends Special Feature

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770766/Regional_Electricity_Generation_and_Supply.pdf

Note: Whether an increase/decrease in gas use is good or bad with respect to greenhouse gas emissions will depend on the electricity source in the absence of the gas.

For example, burning less coal and more natural gas would help reduce emissions because natural gas results in lesser emissions than coal.
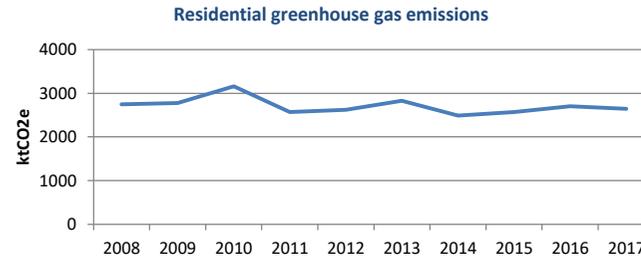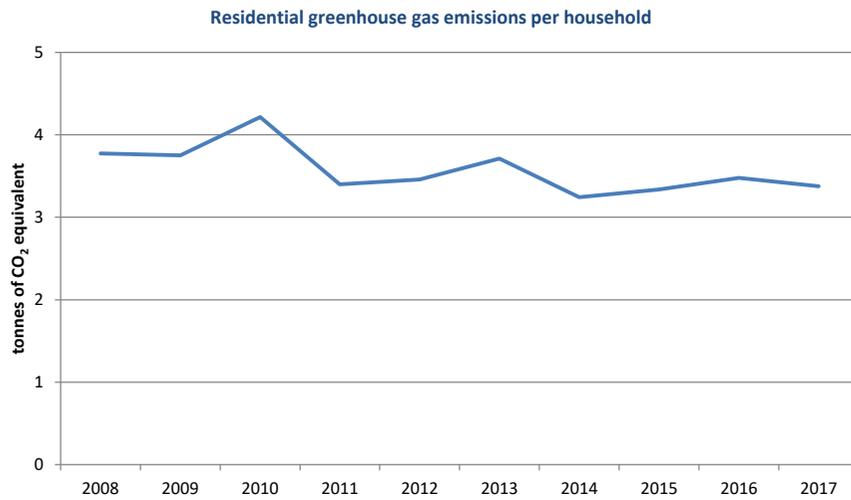
[1] Includes generation from both Major Power Producers (MPP) and other generators.

Link to user guidance for power sector

Intensity Indicator
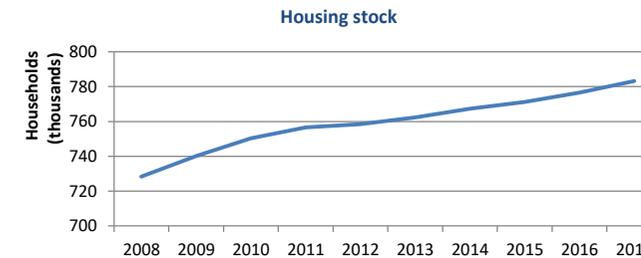
3.1 - Buildings indicator - residential greenhouse gas emissions per household

Residential greenhouse gas emissions per household

Residential greenhouse gas emissions

Housing stock

Longer term trend
Residential greenhouse gas emissions per household

11%

2008 to 2017

Recent change
Residential greenhouse gas emissions per household

3%

2016 to 2017

Residential greenhouse gas emissions per household
Northern Ireland, 2008 - 2017

	Units	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential emissions	ktCO$_2$e	2,750	2,776	3,162	2,573	2,623	2,829	2,489	2,574	2,700	2,645
Housing stock		728,341	740,098	750,349	756,647	758,520	762,345	767,378	771,133	776,526	783,272
Emissions per household	**tCO$_2$e**	**3.78**	**3.75**	**4.21**	**3.40**	**3.46**	**3.71**	**3.24**	**3.34**	**3.48**	**3.38**

Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
https://naei.beis.gov.uk/reports/reports?section_id=4
NI housing stock statistics
https://www.finance-ni.gov.uk/publications/annual-housing-stock-statistics

Note: Housing stock figures include vacant properties.
Note: Figures for greenhouse gas emissions are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for buildings sector

3.2 - Buildings indicator - housing stock with energy efficiency measure
(i.e. cavity wall insulation, loft insulation, double glazing)

Proportion of housing stock with energy efficiency measure
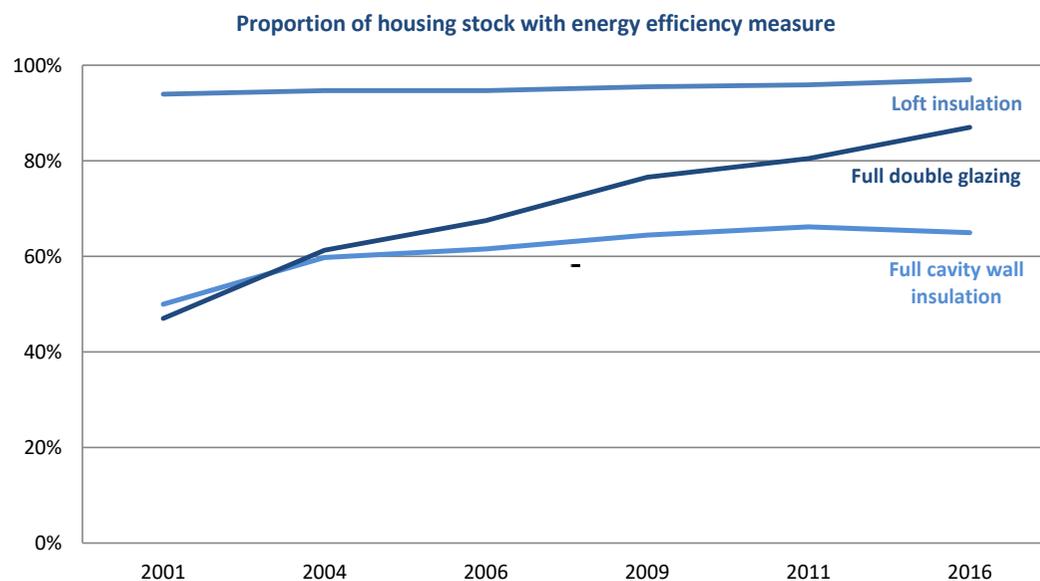
Full cavity wall insulation
Longer term trends
2001 to 2016

Loft insulation

Full double glazing

Recent changes
2011 to 2016

Proportion of housing stock with energy efficiency measure
Northern Ireland, 2001 to 2016

Energy efficiency measure	2001	2004	2006	2009	2011	2016
Full Cavity Wall Insulation	50%	60%	62%	65%	66%	65%
Loft Insulation	94%	95%	95%	96%	96%	97%
Full Double Glazing	47%	61%	68%	77%	81%	87%

Source: House Condition Survey
https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey

3.3 - Buildings indicator - Mean Standard Assessment Procedure rating for dwelling stock

Mean Standard Assessment Procedure rating for dwelling stock
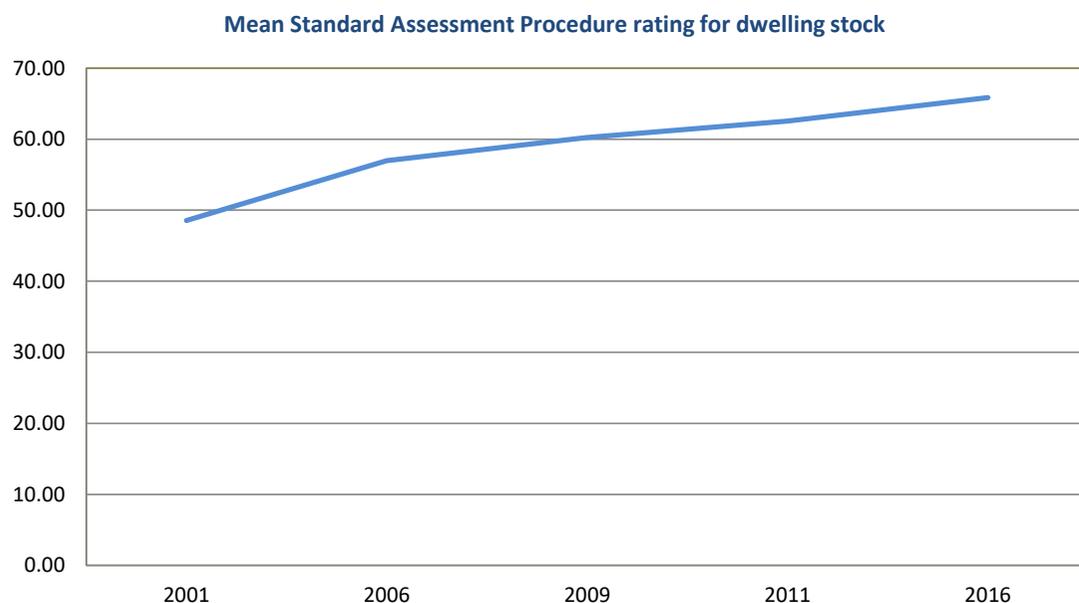
Longer term trend
Mean Standard Assessment Procedure rating for dwelling stock

36%

2001 to 2016

Recent change
Mean Standard Assessment Procedure rating for dwelling stock

5%

2011 to 2016

Mean Standard Assessment Procedure rating for dwelling stock
Northern Ireland, 2001 to 2016

	2001	2006	2009	2011	2016
Mean SAP rating	48.55	56.96	60.22	62.55	65.83
Number of dwellings	**701,000**	**705,000**	**740,000**	**760,000**	**780,000**

Source: House Condition Survey

https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey

Link to user guidance for buildings sector

3.4 - Buildings indicator - grants processed for energy efficiency measures

Number of grants processed

The Warm Homes Scheme ended on the 31st March 2015

The Affordable Warmth Scheme began on the 1st September 2014 *

Total grants processed

Insulation measures

Heating measures

Total grants processed

Heating measures

Insulation measures

— Warm Homes Scheme   – – Affordable Warmth Scheme

Longer term trend
Total grants processed under Affordable Warmth Scheme

18%

2015/16 to 2018/19

Recent change
Total grants processed under Affordable Warmth Scheme

22%

2017/18 to 2018/19

Warm Homes Scheme grants processed
Northern Ireland, 2009/10 to 2014/15

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Insulation measures	6,847	9,063	9,997	9,095	7,904	6,243
Heating measures	576	1,318	978	907	814	742
Total grants processed	**7,423**	**10,381**	**10,975**	**10,002**	**8,718**	**6,985**

Affordable Warmth Scheme grants processed
Northern Ireland, 2014/15 to 2018/19

	2014/15	2015/16	2016/17	2017/18	2018/19
Insulation measures	*	1,658	2,687	2,310	1,650
Heating measures	*	2,058	3,649	3,359	2,745
Total grants processed	*****	**3,716**	**6,336**	**5,669**	**4,395**

Source: DfC Strategic Planning & Resources Branch

Note The Warm Homes Scheme ended on 31 March 2015 and has been replaced by the Affordable Warmth Scheme. The heating options for these schemes are quite different, so they cannot be directly compared.
Note: * The Affordable Warmth Scheme started in September 2014, however the numbers between then and March 2015 are too small to report.

3.5 - Buildings indicator - primary energy source for heating of residential buildings

Primary energy source for heating of residential buildings
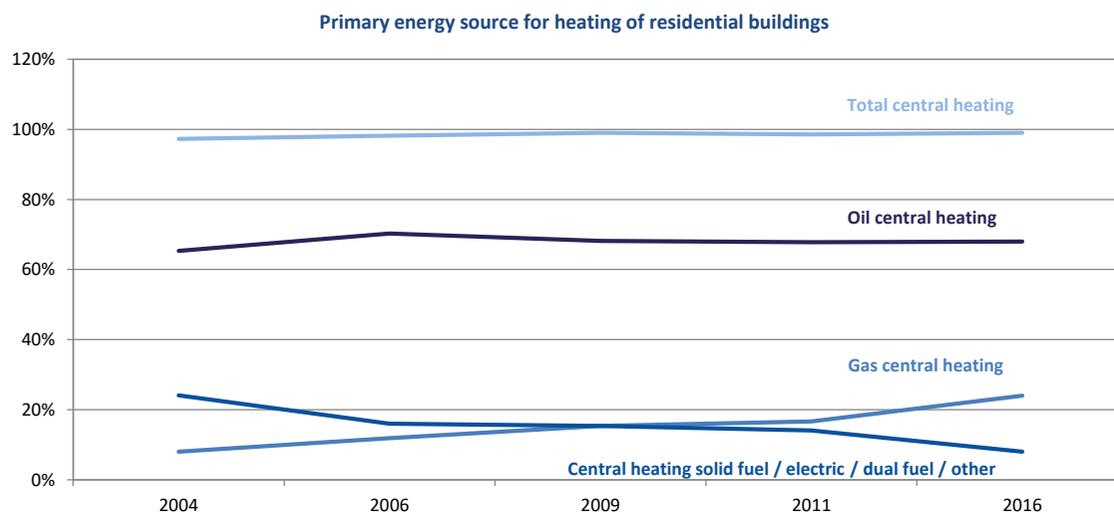
Proportion of dwellings by primary energy source
Northern Ireland, 2004 to 2016

Heating Type	2004	2006	2009	2011	2016
Central heating oil	65%	70%	68%	68%	68%
Central heating gas	8%	12%	15%	17%	24%
Central heating solid fuel/electric/dual/other	24%	16%	15%	14%	8%
Total central heating	**97%**	**98%**	**99%**	**99%**	**99%**
Total non central heating	**3%**	**2%**	**1%**	**1%**	**1%**
Number of dwellings	**680,000**	**705,000**	**740,000**	**760,000**	**780,000**

Source: House Condition Survey

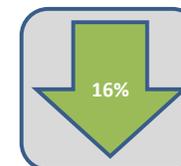https://www.nihe.gov.uk/Working-With-Us/Research/House-Condition-Survey

Link to user guidance for buildings sector

Central heating oil   *Central heating gas*   *Central heating solid fuel / electric / dual fuel / other*
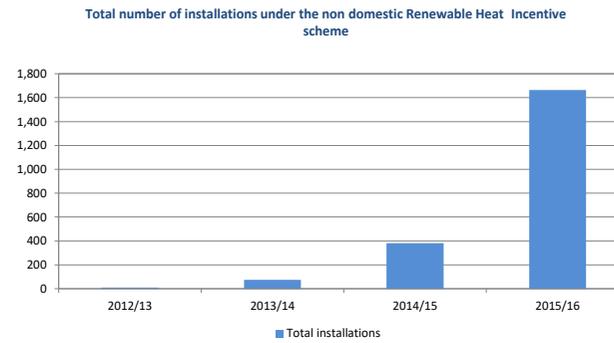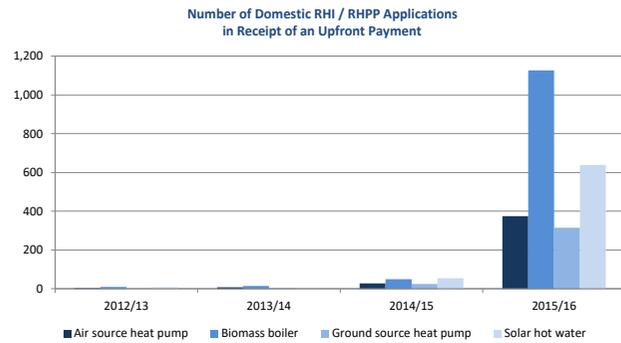
Longer term trends
2004 to 2016

3%   16%   16%

Recent changes
2011 to 2016

0%   7%   6%

3.6 - Buildings indicator - penetration of renewable heat

Number of Domestic RHI / RHPP Applications in Receipt of an Upfront Payment

Legend: Air source heat pump, Biomass boiler, Ground source heat pump, Solar hot water

Total number of installations under the non domestic Renewable Heat Incentive scheme

Legend: Total installations

Number of Domestic RHI / RHPP Applications in Receipt of an Upfront Payment
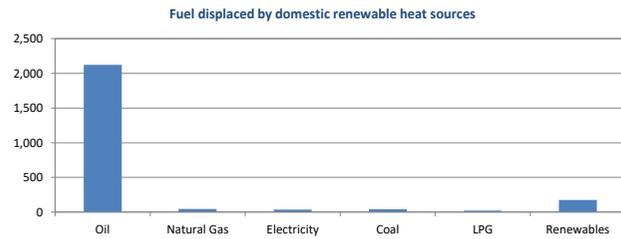Northern Ireland, 2012/13 to 2015/16

	2012/13	2013/14	2014/15	2015/16
Air source heat pump	3	7	28	374
Biomass boiler	10	15	49	1,126
Ground source heat pump	0	4	24	315
Solar hot water	7	1	55	638
Total	**20**	**27**	**156**	**2,453**

Number of installations non domestic Renewable Heat Incentive scheme
Northern Ireland, 2012/13 to 2015/16

	2012/13	2013/14	2014/15	2015/16
Biomass boiler	9	75	376	1,642
Ground source heat pump	0	0	4	15
Solar thermal	0	0	1	5
Water source heat pump	0	0	0	1
Total installations	**9**	**75**	**381**	**1,663**

Source: Energy Efficiency Branch, DfE

Fuel displaced by domestic renewable heat sources

Categories: Oil, Natural Gas, Electricity, Coal, LPG, Renewables

Number of...

domestic RHI scheme applications	non domestic RHI scheme installations
1472%	336%
2014/15 to 2015/16	2014/15 to 2015/16

Fuel displaced by renewable heat sources under domestic RHI scheme
Northern Ireland, 2015/16

	Oil	Natural Gas	Electricity	Coal	LPG	Renewables	Not Obtained	Total
Fuel displaced	2,125	45	37	39	21	175	11	2,453

Source: Energy Efficiency Branch, DfE
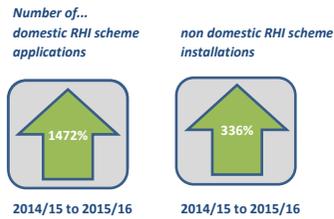
Notes: Figures for the Domestic RHI / RHPP are reported as applications rather than installations as they were in 2016.
Due to differences in the way each scheme is run, it is deemed most appropriate to report the domestic scheme in applications and the non domestic scheme in installations.

4.1 - Industry indicator - number of participants in the Carbon Reduction Commitment Energy Efficiency Scheme

Participants in Carbon Reduction Commitment Energy Efficiency Scheme

Longer term trend

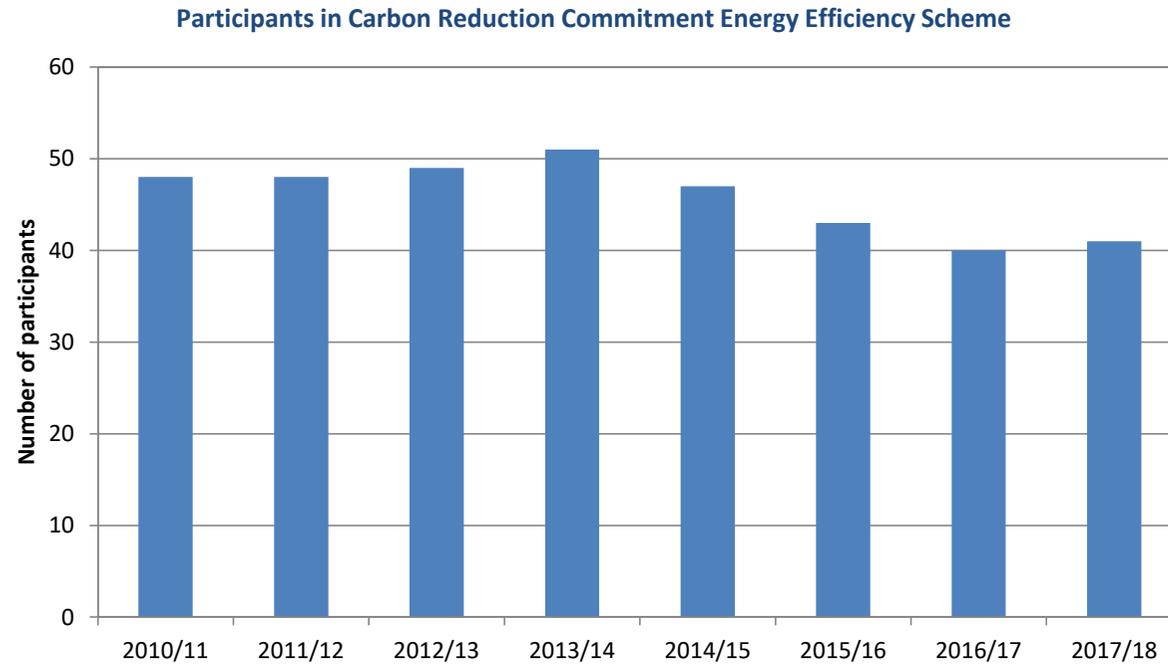**15%**
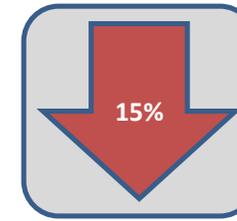
2010/11 to 2017/18

Recent change

3%

2016/17 to 2017/18

Number of participants in Carbon Reduction Commitment Energy Efficiency Scheme

Northern Ireland, 2010/11 to 2017/18

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Number of participants	48	48	49	51	47	43	40	41

Source: UK Environment Agency

https://www.gov.uk/government/publications/crc-annual-report-publications-phases-1-and-2/crc-annual-report-publication-2017-to-2018

Link to user guidance for industry sector

4.2 - Industry indicator - CO_2 emissions from participants in the Carbon Reduction Commitment Energy Efficiency Scheme

CO_2 emissions from participants of the Carbon Reduction Commitment energy efficiency scheme
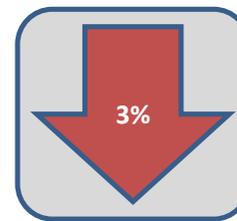

Longer term trend

30%

2014/15 to 2017/18

Recent change

10%

2016/17 to 2017/18

Number of participants in Carbon Reduction Commitment Energy Efficiency Scheme

Northern Ireland, 2010/11 to 2017/18

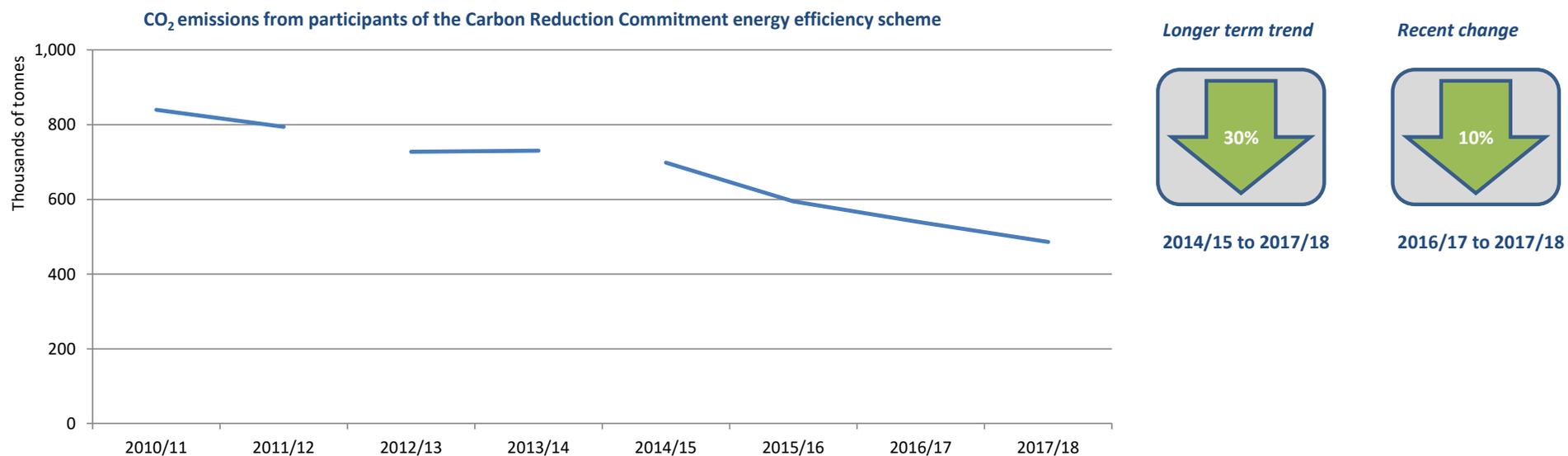|	Units	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
CO_2 emissions from participants	Tonnes	839,790	794,498	727,244	730,165	698,345	594,937	538,297	486,134

Source: The Environment Agency

https://www.gov.uk/government/publications/crc-annual-report-publications-phases-1-and-2/crc-annual-report-publication-2017-to-2018

Note: Due to changes to the Carbon Reduction Commitment energy efficiency scheme, it is not possible to directly compare 2010/11 - 2011/12 with 2012/13 - 2013/14 or 2014/15 - 2017/18.
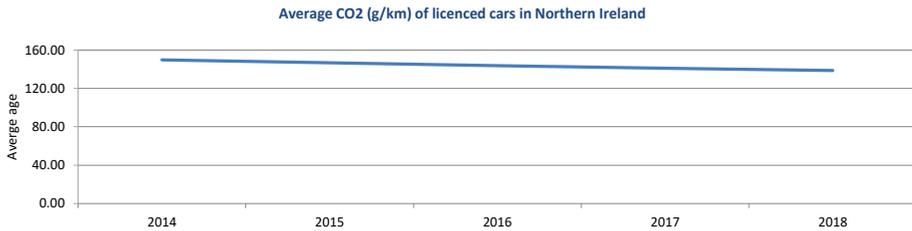
Reductions in emissions should be treated with caution due to the loss of participants because of mergers, site closures and the economic downturn.

Link to user guidance for industry sector

5.1 - Transport indicator - Average CO2 of licenced cars

Average CO2 (g/km) of licenced cars in Northern Ireland

**Average CO2 (g/km)
Long term trend**

7%

2014 to 2018

Licensed cars by CO2 emissions (Thousands)
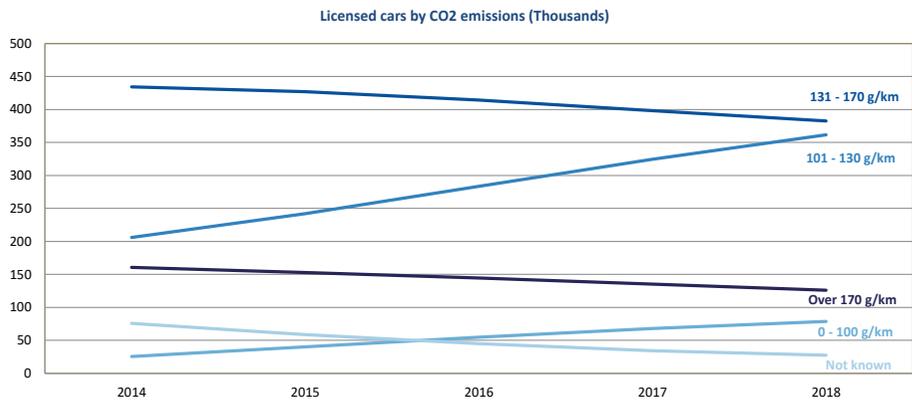
**0 - 100 g/km
Long term trend**

208%

2014 to 2018

**Over 170 g/km
Long term trend**

22%

2014 to 2018

Average CO2 emissions from licensed cars

Northern Ireland

	Units	2014	2015	2016	2017	2018
Average emissions	(g/km)	149.8	146.8	143.8	141.0	138.6

Licensed cars by CO2 emissions

Northern Ireland

	Units	2014	2015	2016	2017	2018
0 - 100 g/km	Number of	25.4	40.0	55.0	68.0	78.4
101 - 130 g/km	vehicles	206.0	242.0	283.3	324.4	361.5
131 - 170 g/km	(Thousands)	434.2	427.2	414.1	398.1	382.4
Over 170 g/km		160.6	152.8	144.6	135.2	126.0
Not known		75.6	58.5	44.8	34.1	27.3
Total		**901.8**	**920.4**	**941.8**	**959.8**	**975.7**

Source: Department for Transport

https://www.gov.uk/government/statistical-data-sets/veh02-licensed-cars

Notes:

1. For vehicles registered from September 2018 onwards, the CO2 figures reported here will be a mix of NEDC and NEDC correlated figures. As a result, caution is advised when comparing 2018 with previous years.

2. Data are presented where over half of licensed cars have available CO2 emissions data.

Link to user guidance for transport sector

Intensity Indicator

5.2 - Transport indicator - road transport emissions per vehicle kilometre travelled

Road transport emissions per vehicle kilometre travelled

Longer term trend

2%

2008 to 2017

Recent change

1%
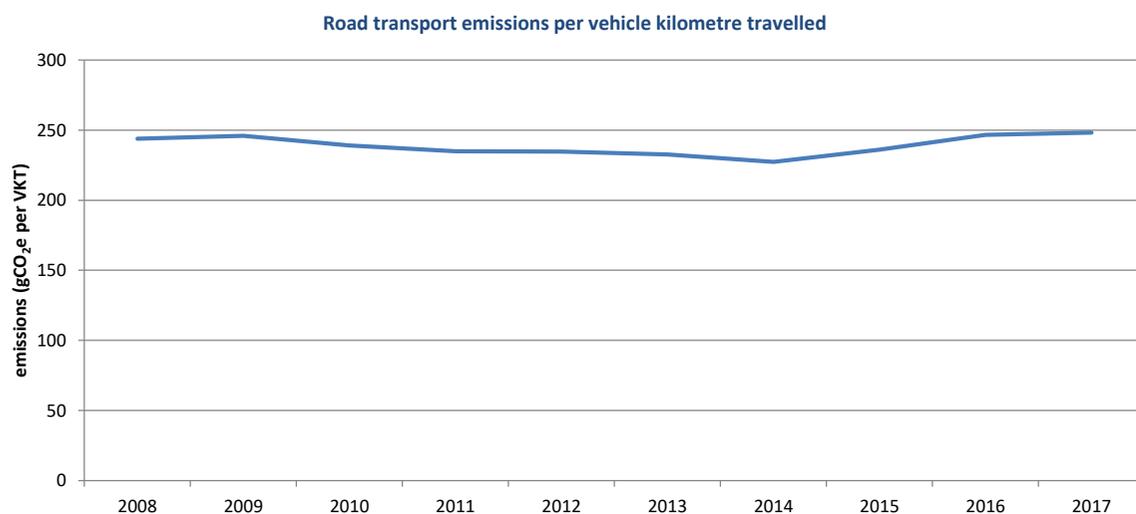
2016 to 2017

Emissions per vehicle kilometre travelled (VKT)
Northern Ireland, 2008 to 2017

	Unit	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Road transportation emissions	ktCO$_2$e	4,046	4,094	3,992	3,870	3,857	3,866	3,808	3,874	3,973	3,985
Vehicle kilometres travelled	billion km	16.6	16.6	16.7	16.5	16.4	16.6	16.7	16.4	16.1	16.1
Emissions per VKT	**gCO$_2$e per VKT**	**244**	**246**	**239**	**235**	**235**	**233**	**227**	**236**	**247**	**248**

Source: Northern Ireland Road Safety Strategy to 2020 Annual Statistical Report 2018
https://www.infrastructure-ni.gov.uk/publications/northern-ireland-road-safety-strategy-2020-annual-statistical-report-2018
Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
https://naei.beis.gov.uk/reports/reports?section_id=4

Notes: Figures for greenhouse gas emissions are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for transport sector

5.3 - Transport indicator - average distance travelled per person per year by mode of transport (including cycling & walking)

Average distance travelled per person per year by mode of transport

Car — Other private — — Public transport — Walking/cycling
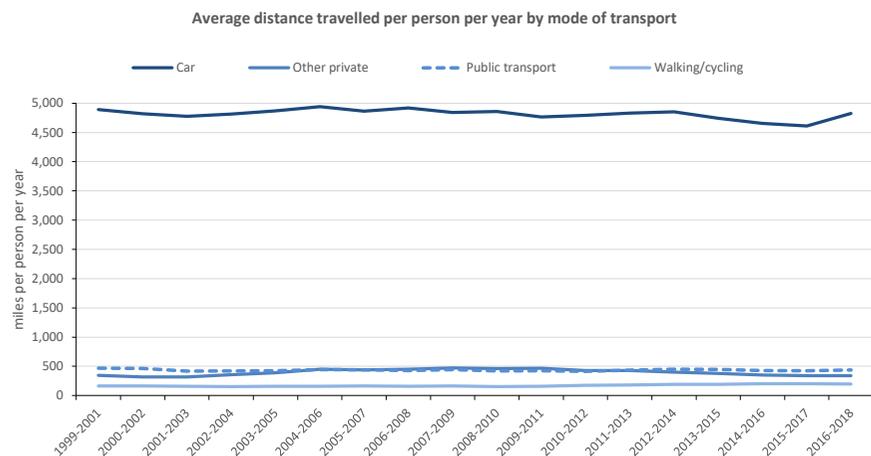
All modes of transport

Longer term trend

2%

1999-2001 to 2016-2018

Recent change

4%

2015-2017 to 2016-2018

Walking/cycling

Longer term trend

19%

1999-2001 to 2016-2018

Recent change

2%

2015-2017 to 2016-2018

Average distance travelled by travel mode (miles per person per year)
Northern Ireland, 1999 - 2001 to 2016 - 2018

Transport mode	1999-2001	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009
Car	4,891	4,819	4,777	4,816	4,870	4,943	4,864	4,916	4,840
Motorcycle	20	26	25	31	31	30	20	11	14
Other private	345	320	319	358	389	448	437	451	470
Public transport	468	464	419	422	425	442	440	428	445
Black taxis	7	6	7	7	6	4	3	3	3
Private taxis	66	70	71	70	68	69	70	64	65
Walking/cycling	165	162	156	154	159	156	163	159	164
Undefined mode	25	19	12	1	1	2	2	1	1
All modes	**5,987**	**5,886**	**5,786**	**5,859**	**5,949**	**6,094**	**5,999**	**6,033**	**6,002**

continued...

Transport mode	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018
Car	4,859	4,762	4,791	4,829	4,853	4,745	4,652	4,611	4,824
Motorcycle	14	13	8	6	11	14	14	14	11
Other private	460	467	426	426	399	380	353	342	342
Public transport	422	423	414	435	449	446	428	425	437
Black taxis	3	4	3	2	..	..	..	..	..
Private taxis	62	58	52	51	50	50	53	56	52
Walking/cycling	155	159	177	183	192	189	200	200	197
Undefined mode	1	1	1	0	..	..	..	..	..
All modes	**5,976**	**5,887**	**5,872**	**5,932**	**5,958**	**5,827**	**5,704**	**5,653**	**5,868**

Source: Travel Survey for Northern Ireland
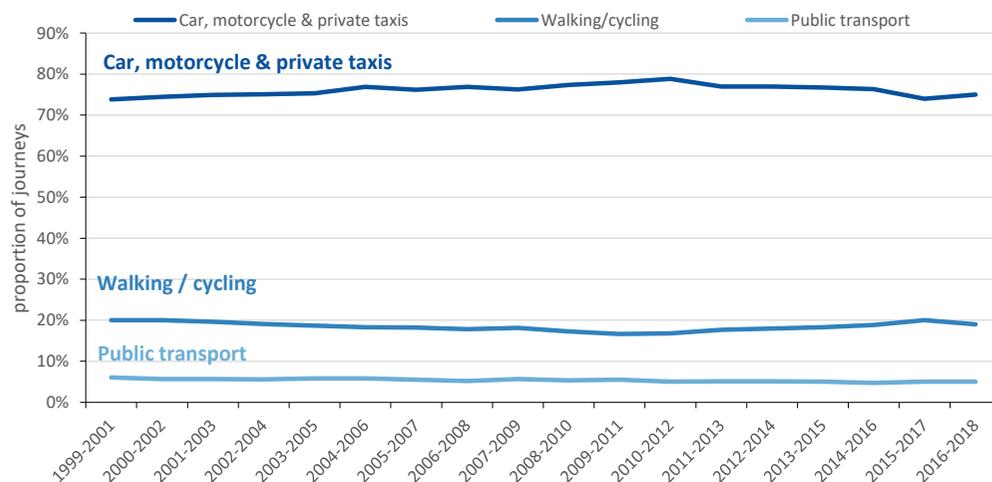https://www.infrastructure-ni.gov.uk/publications/travel-survey-northern-ireland-tsni-headline-report-2016-2018

Note: '..' symbol denotes data not available or insufficient number of cases in the sample.
Link to user guidance for transport sector

5.4 - Transport indicator - mode of transport
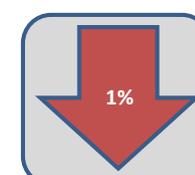
Proportion of journeys per year by mode of transport

Car, motorcycle & private taxis *Walking / cycling* *Public transport*

Longer term trends
1990-2001 to 2016-2018
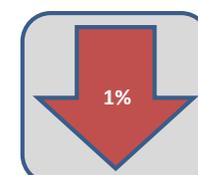
Recent changes
2015-17 to 2016-18

Proportion of journeys per person by mode of transport

Northern Ireland, 1999-2001 to 2016-2018

	1999-2001	2000-2002	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009
Car, motorcycle & private taxis	74%	74%	75%	75%	75%	77%	76%	77%	76%
Walking/cycling	20%	20%	20%	19%	19%	18%	18%	18%	18%
Public transport	6%	6%	6%	6%	6%	6%	5%	5%	6%

continued...

	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018
Car, motorcycle & private taxis	77%	78%	79%	77%	77%	77%	76%	74%	75%
Walking/cycling	17%	17%	17%	18%	18%	18%	19%	20%	19%
Public transport	5%	5%	5%	5%	5%	5%	5%	5%	5%

Source: Travel Survey for Northern Ireland

https://www.infrastructure-ni.gov.uk/publications/travel-survey-northern-ireland-tsni-headline-report-2016-2018

Link to user guidance for transport sector

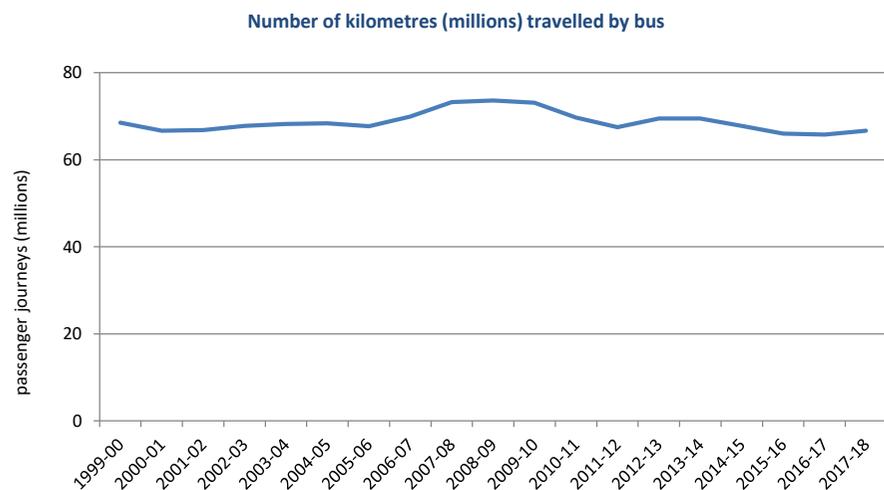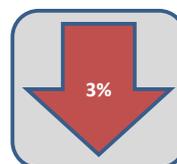## 5.5 - Transport indicator - bus passenger journeys

Number of kilometres (millions) travelled by bus

*Passenger kilometres
Longer term trend*

3%

1999-00 to 2017-2018

Recent change

1%

2016-17 to 2017-2018

Number of bus passenger journeys (Ulsterbus/Citybus/Metro)
Northern Ireland, 1999-00 to 2017-18

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Passenger journeys (millions)	69.5	67.1	65.0	65.9	65.4	65.1	66.9	67.5	69.9	70.5
Passenger kilometres (millions)	68.5	66.7	66.8	67.8	68.2	68.4	67.7	69.9	73.3	73.6

continued...

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger journeys (millions)	68.2	66.6	66.5	66.9	66.9	66.6	65.2	65.7	66.1
Passenger kilometres (millions)	73.1	69.7	67.5	69.5	69.5	67.8	66.0	65.8	66.7

Source: Northern Ireland Transport Statistics
https://www.infrastructure-ni.gov.uk/publications/northern-ireland-transport-statistics-2017-2018

Notes:
This data is supplied by Translink and should be viewed as management information rather than Official Statistics.
CityBus became Metro with effect from 2005.
Whether a decrease in passenger journeys by bus is good or bad for greenhouse gas emissions will depend on why the journeys have decreased.
For example, if it is a result of more car journeys then this would mean higher greenhouse gas emissions, whereas cycling would result in lower emissions.
Link to user guidance for transport sector

5.6 - Transport indicator - NI Rail service passengers, number of journeys and distance travelled

Distance travelled by NI Rail passengers

Passenger kilometres
Longer term trend

118%

1999-00 to 2017-18

Recent change

6%

2016-17 to 2017-18

NI Rail service passenger journeys and kilometres

Northern Ireland, 1999-00 to 2017-18

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Passenger journeys (millions)	5.9	5.9	6.2	6.3	6.9	6.9	7.7	8.6	9.5	10.2
Passenger kilometres (millions)	221.7	227.1	239.7	236.3	233.0	225.2	240.5	261.8	293.0	303.9

continued...

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger journeys (millions)	10.0	10.4	10.7	11.5	12.5	13.4	13.5	14.2	15.0
Passenger kilometres (millions)	277.2	306.7	326.7	347.8	381.9	416.5	436.6	453.4	482.5

Source: Northern Ireland Transport Statistics

https://www.infrastructure-ni.gov.uk/publications/northern-ireland-transport-statistics-2017-2018

Notes:

This data is supplied by Translink and should be viewed as management information rather than Official Statistics.
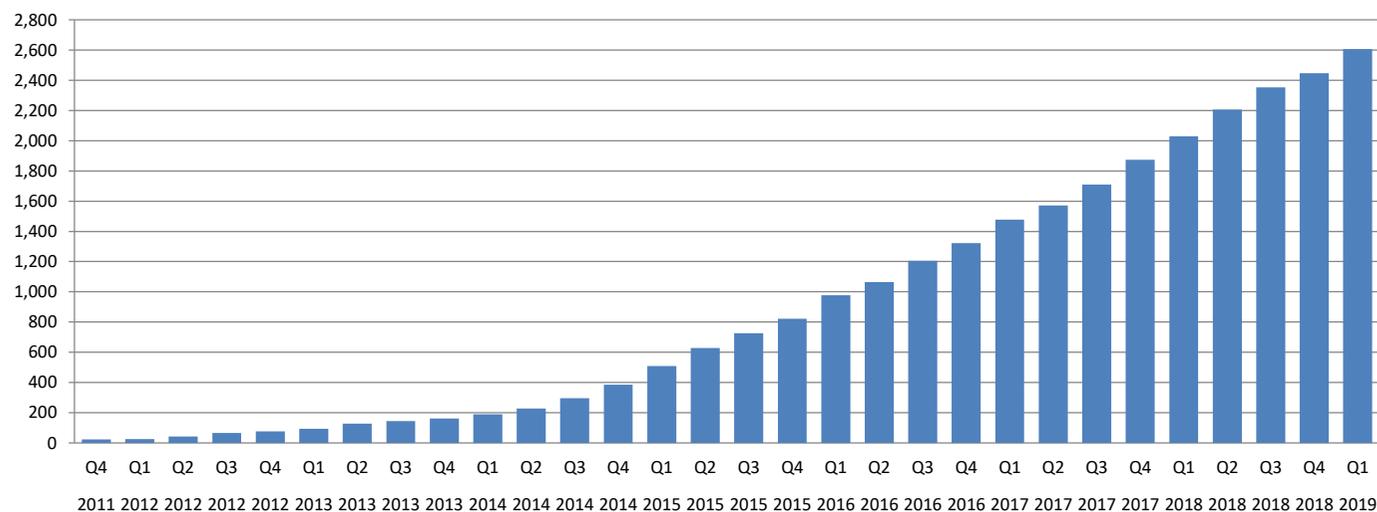
Note: There has been a discontinuity in this series due to a methodological change. Figures for 2013/14 and onwards cannot be compared with earlier years.

Link to user guidance for transport sector

5.7 - Transport indicator - plug-in cars, vans and quadricycles licensed

Number of plug-in cars, vans and quadricycles licensed by the end of quarter

Longer term trend

↑ 4224%

2012 to 2018

Recent change

↑ 28%

Q1 2018 to Q1 2019

Number of plug-in cars, vans and quadricycles licensed
Northern Ireland, Q4 2011 to Q1 2019

	2011 Q4	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2
Northern Ireland	22	26	42	65	76	94	127	145	162	189	227	296	385	508	627

continued...

	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1
Northern Ireland	726	821	977	1,065	1,205	1,323	1,477	1,571	1,710	1,874	2,030	2,207	2,353	2,447	2,606

Source: Department for Transport, Vehicle Licensing Statistics, Table VEH0131
https://www.gov.uk/government/statistics/vehicle-licensing-statistics-january-to-march-2019

Refers to electric or hybrid electric vehicles eligible for Department for Transport Plug-in Car or Vans grants. For more details, see:
https://www.gov.uk/plug-in-car-van-grants/eligibility
The location of the registered keeper is based on the contact address held by DVLA, and does not necessarily reflect where the vehicle is kept.
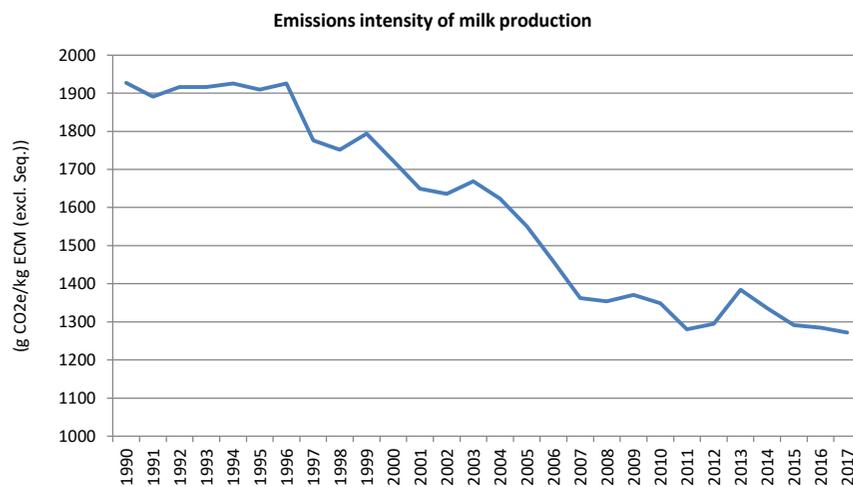Northern Ireland and Great Britain figures are provisional and may be revised for greater consistency with table veh0104.

Intensity Indicator

6.1 - Agriculture indicator - Emissions intensity of milk production

Emissions intensity of milk production

Emissions intensity of milk production Longer term trend

34%

1990 to 2017

Emissions intensity of milk production (g CO2e/kg ECM (excl. Sequestration))

Northern Ireland,1990 - 2017

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Emissions intensity of milk production	1927	1891	1916	1917	1925	1910	1925	1776	1752	1794	1723	1649	1636

continued...

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Emissions intensity of milk production	1669	1623	1551	1459	1363	1354	1371	1349	1280	1294	1384	1336	1291

continued...

	2016	2017
Emissions intensity of milk production	1285	1272

Source: Department of Agriculture and Rural Development Northern Ireland

https://www.daera-ni.gov.uk/publications/greenhouse-gas-emissions-northern-ireland-dairy-farms

Note: Chart only displays population average, Farm Business Survey average no longer shown.

Link to user guidance for agriculture sector

6.2 - Agriculture indicator - area of new forest and woodland plantings

Area of Forest Service planting

■ Broadleaf   ■ Conifer
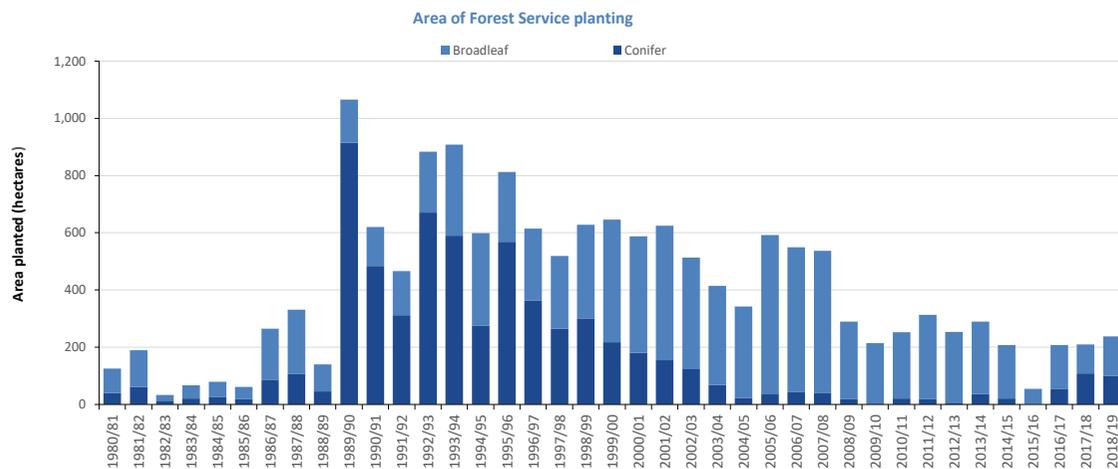
**Total new planting
10 year change**

18%

2008/09 to 2018/19

Forest Service new planting statistics (hectares)
Northern Ireland, 1980/81 to 2018/19

Year	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92
Conifer	40	61	11	21	25	19	85	106	45	915	484	312
Broadleaf	85	129	22	46	54	42	180	225	95	150	136	154
Total	**125**	**190**	**33**	**67**	**79**	**61**	**265**	**331**	**140**	**1,065**	**620**	**466**

continued...

Year	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Conifer	671	590	275	568	363	265	301	218	181	155	123	68
Broadleaf	212	318	324	244	252	254	327	428	407	470	390	346
Total	**883**	**908**	**599**	**812**	**615**	**519**	**628**	**646**	**588**	**625**	**513**	**414**

continued...

Year	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Conifer	23	35	44	41	20	3	21	20	6	37	21	2
Broadleaf	319	557	505	496	269	211	231	293	247	253	187	52
Total	**342**	**592**	**549**	**537**	**289**	**214**	**252**	**313**	**253**	**290**	**208**	**54**

continued...

Year	2016/17	2017/18	2018/19
Conifer	53	109	99
Broadleaf	155	101	139
Total	**208**	**210**	**238**

Source: Forest Service Northern Ireland

6.3 - Agriculture indicator - soil nitrogen balance (3 year average)

Nitrogen balance (kg/ha), 3 year rolling average
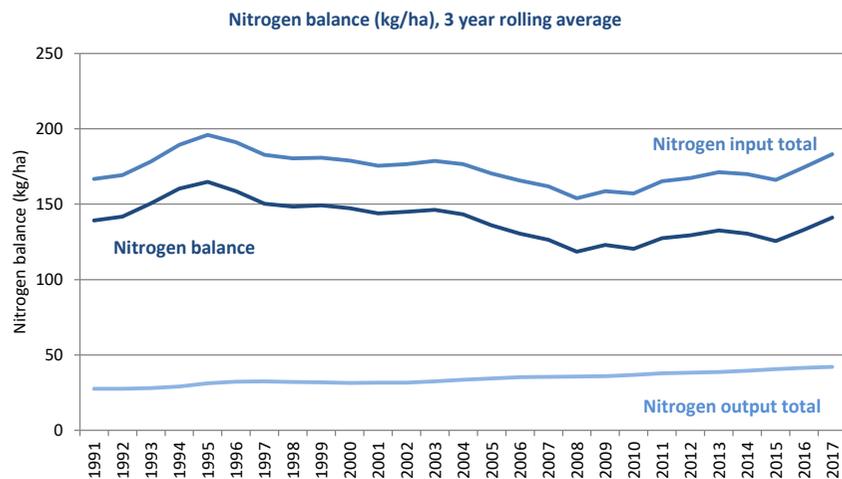
*Nitrogen balance
Longer term trend*

1991 to 2017

Recent change

2016 to 2017

Nitrogen balance (kg / ha) with livestock feeds at 17% protein level
Northern Ireland,1990 - 2017, 3 year averages

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Nitrogen input total	-	167	169	178	189	196	191	183	180	181	179	175
Nitrogen output total	-	28	28	28	29	31	32	33	32	32	31	32
Nitrogen balance	**-**	**139**	**142**	**150**	**160**	**165**	**159**	**150**	**148**	**149**	**147**	**144**

continued...

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Nitrogen input total	177	179	177	170	166	162	154	159	157	165	167	171
Nitrogen output total	32	32	33	34	35	35	36	36	37	38	38	39
Nitrogen balance	**145**	**146**	**143**	**136**	**130**	**126**	**118**	**123**	**120**	**128**	**129**	**133**

continued...

	2014	2015	2016	2017
Nitrogen input total	170	166	174	183
Nitrogen output total	40	41	41	42
Nitrogen balance	**130**	**125**	**133**	**141**

Source: Department of Agriculture, Environment and Rural Affairs Northern Ireland
Link to user guidance for agriculture sector

6.4 - Agriculture indicator - average daily carcase gain of beef cattle

Average daily carcase gain (kg/day) of steers and heifers slaughtered

— All steers   ••••• Beef origin steers   — All heifers   ••••• Beef origin heifers
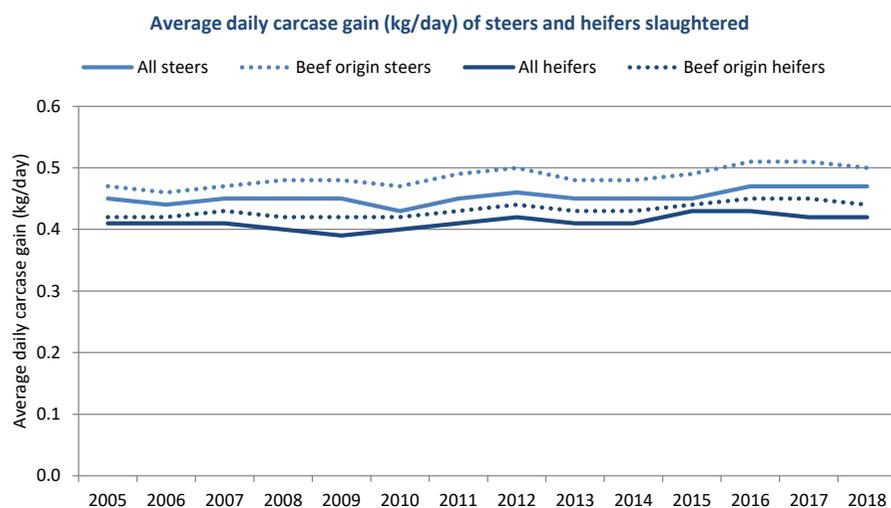
All steers   *All heifers*

Longer term trends
2005 to 2018

↑ 4%   ↑ 2%

Recent changes
2017 to 2018

↔ 0%   ↔ 0%

Average daily carcase gain (kg/day) of steers slaughtered
Northern Ireland, 2005 to 2018

|	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All steers	0.45	0.44	0.45	0.45	0.45	0.43	0.45	0.46	0.45	0.45	0.45	0.47	0.47	0.47
Dairy origin	0.43	0.42	0.42	0.42	0.42	0.41	0.43	0.43	0.42	0.42	0.44	0.45	0.45	0.43
Beef origin steers	0.47	0.46	0.47	0.48	0.48	0.47	0.49	0.50	0.48	0.48	0.49	0.51	0.51	0.5
Pure dairy	0.40	0.38	0.38	0.39	0.39	0.40	0.39	0.39	0.38	0.38	0.39	0.40	0.40	0.39

Average daily carcase gain (kg/day) of heifers slaughtered
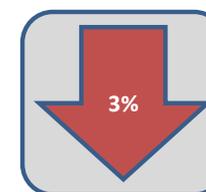Northern Ireland, 2005 to 2018

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
All heifers	0.41	0.41	0.41	0.40	0.39	0.40	0.41	0.42	0.41	0.41	0.43	0.43	0.42	0.42
Dairy origin	0.38	0.38	0.38	0.37	0.36	0.36	0.38	0.38	0.37	0.38	0.40	0.40	0.40	0.38
Beef origin heifers	0.42	0.42	0.43	0.42	0.42	0.42	0.43	0.44	0.43	0.43	0.44	0.45	0.45	0.44
Pure dairy	0.34	0.31	0.31	0.30	0.30	0.30	0.31	0.31	0.31	0.32	0.32	0.32	0.31	0.31

Source: Department of Agriculture, Environment and Rural Affairs Northern Ireland

6.5 - Agriculture indicator - metabolic energy from grass silage

Metabolic energy from grass silage, 3 year averages
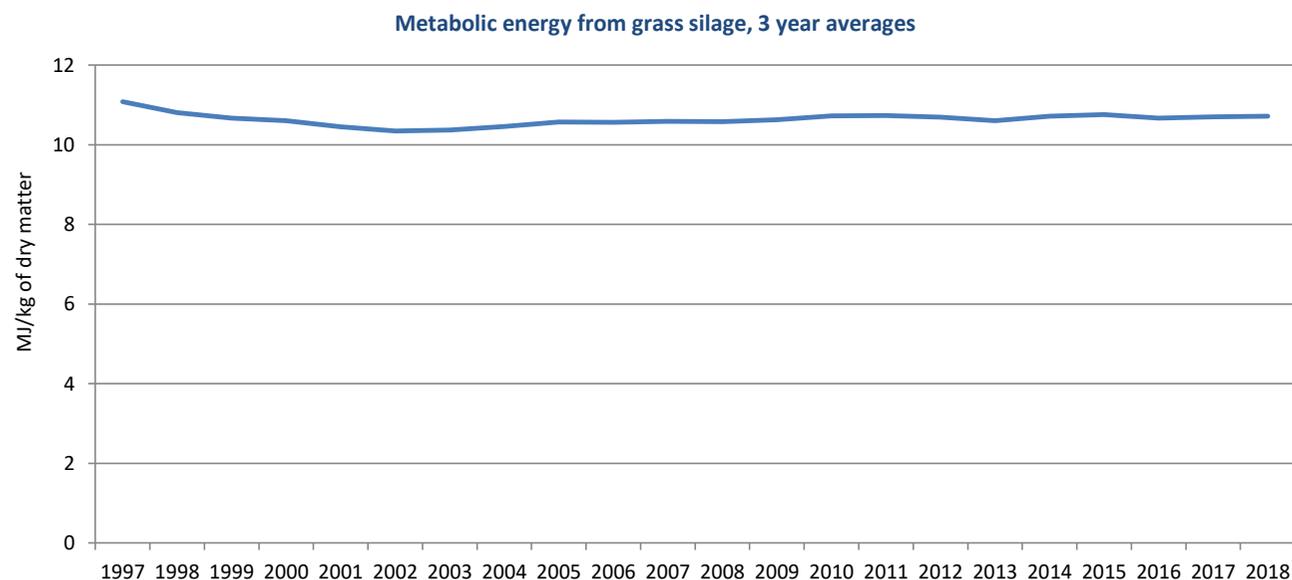
Longer term trend

1997 to 2018
3 year averages

Recent change

2017 to 2018
3 year averages

Metabolic energy from grass silage (MJ/kg of dry matter)
Northern Ireland, 1997 to 2018, 3 year averages

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Metabolic energy (MJ/kg dry matter)	11.08	10.81	10.67	10.61	10.45	10.34	10.37	10.46	10.57	10.56	10.59

continued…

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Metabolic energy (MJ/kg dry matter)	10.58	10.63	10.73	10.73	10.69	10.60	10.72	10.76	10.67	10.70	10.72

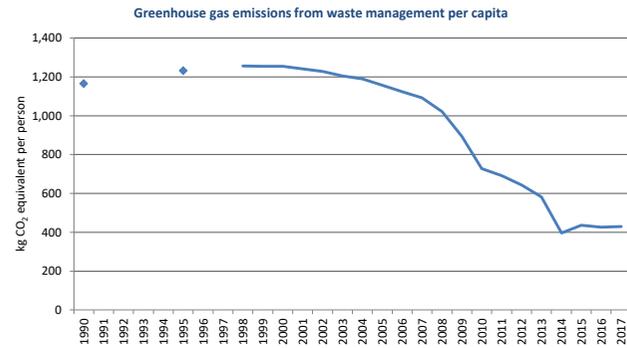Source: Department of Agriculture, Environment and Rural Affairs Northern Ireland

Link to user guidance for agriculture sector

7.1 - Waste indicator - greenhouse gas emissions from waste management per capita

Greenhouse gas emissions from waste management per capita

Waste emissions per capita
Longer term trend

63%

1990 to 2017

Recent change

1%

2016 to 2017

Greenhouse gas emissions for waste management sector in Northern Ireland
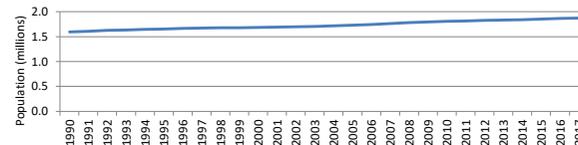

Mid-year population estimates

Greenhouse gas emissions from waste management per capita
Northern Ireland, 1990 to 2017

	Units	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Waste management emissions	ktCO$_2$e	1,860					2,032			2,109	2,106	2,111	2,097
Mid-year population estimate	persons	1,595,595	1,607,295	1,623,263	1,635,552	1,643,707	1,649,131	1,661,751	1,671,261	1,677,769	1,679,006	1,682,944	1,688,838
Waste emissions per capita	**kgCO$_2$e / person**	**1,166**					**1,232**			**1,257**	**1,255**	**1,255**	**1,242**

continued...

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Waste management emissions	ktCO$_2$e	2,084	2,054	2,039	2,001	1,960	1,925	1,816	1,604	1,314	1,255	1,173	1,064
Mid-year population estimate	persons	1,697,534	1,704,924	1,714,042	1,727,733	1,743,113	1,761,683	1,779,152	1,793,333	1,804,833	1,814,318	1,823,634	1,829,725
Waste emissions per capita	**kgCO$_2$e / person**	**1,228**	**1,205**	**1,189**	**1,158**	**1,125**	**1,093**	**1,021**	**894**	**728**	**692**	**643**	**581**

continued...

	Units	2014	2015	2016	2017
Waste management emissions	ktCO$_2$e	731	807	793	804
Mid-year population estimate	persons	1,840,498	1,851,621	1,862,137	1,870,834
Waste emissions per capita	**kgCO$_2$e / person**	**397**	**436**	**426**	**430**

Source: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990-2017
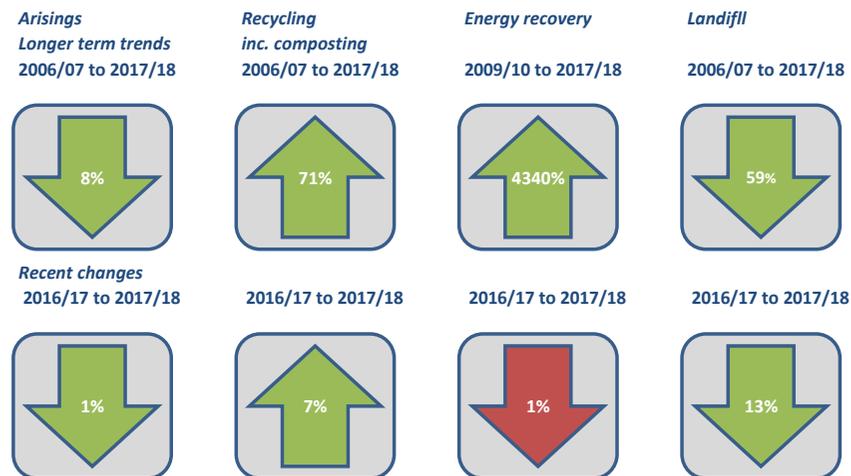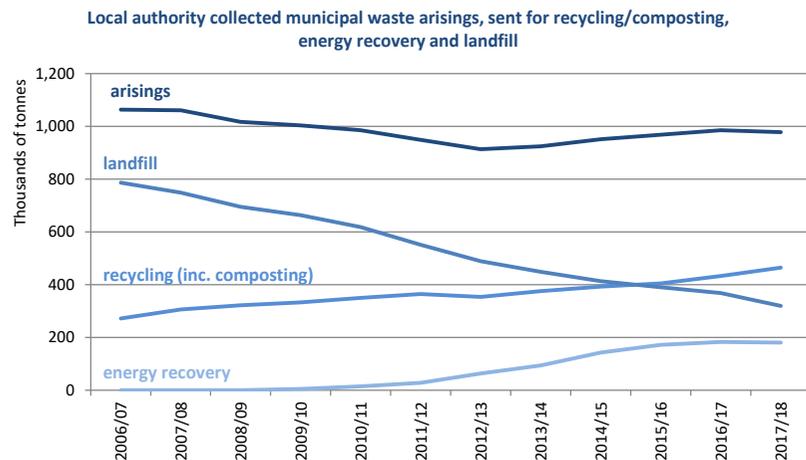https://naei.beis.gov.uk/reports/reports?section_id=4
NISRA mid year population estimates
https://www.nisra.gov.uk/publications/2018-mid-year-population-estimates-northern-ireland

Note: Figures for greenhouse gas emissions are updated annually due to ongoing improvements to data collection or estimation techniques.
Link to user guidance for waste sector

7.2 - Waste indicator - local authority collected municipal waste

Local authority collected municipal waste arisings, sent for recycling/composting, energy recovery and landfill

Arisings Longer term trends 2006/07 to 2017/18	Recycling inc. composting 2006/07 to 2017/18	Energy recovery 2009/10 to 2017/18	Landifll 2006/07 to 2017/18
↓ 8%	↑ 71%	↑ 4340%	↓ 59%

Recent changes 2016/17 to 2017/18	2016/17 to 2017/18	2016/17 to 2017/18	2016/17 to 2017/18
↓ 1%	↑ 7%	↓ 1%	↓ 13%

Local authority collected (LAC) municipal waste arisings, recycling (inc. composting) and landfill
Northern Ireland, 2006-07 to 2017-18

	Units	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
LAC municipal waste arisings	Tonnes	1,064,090	1,061,108	1,017,215	1,004,020	985,176	949,491	913,546	924,412	951,423	969,157	985,994	977,817
LAC municipal waste sent for recycling (inc. composting)	Tonnes	271,730	306,242	321,457	332,392	349,929	364,320	353,961	375,683	392,962	404,732	432,847	464,287
LAC municipal waste sent for energy recovery	Tonnes	0	0	0	4,052	14,075	27,590	63,043	93,382	141,835	170,913	182,034	179,899
LAC municipal waste landfilled	Tonnes	786,951	749,228	694,904	663,697	618,531	551,472	489,437	448,990	412,755	390,256	367,484	319,212

Source: Northern Ireland LAC Municipal Waste Management Statistics, DAERA
https://www.daera-ni.gov.uk/articles/northern-ireland-local-authority-collected-municipal-waste-management-statistics

Note: Tonnes for recycling/composting/landfill calculated by multiplying percentage recycled/composted/landfilled by total LAC municipal waste arisings.
Link to user guidance for waste sector

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