

Guernsey Annual Greenhouse Gas Bulletin

2019

Issue date 12th March 2021

The Greenhouse Gas Bulletin provides annual updates of Guernsey's greenhouse gas emissions inventory. The data is provided by Aether Limited who compile the figures as part of the UK National Atmospheric Emissions Inventory.



States of
Guernsey

1.1 Introduction

The Greenhouse Gas Bulletin provides annual updates of Guernsey’s greenhouse gas emissions inventory. The data is provided by Aether Limited who compile the figures as part of the UK National Atmospheric Emissions Inventory.

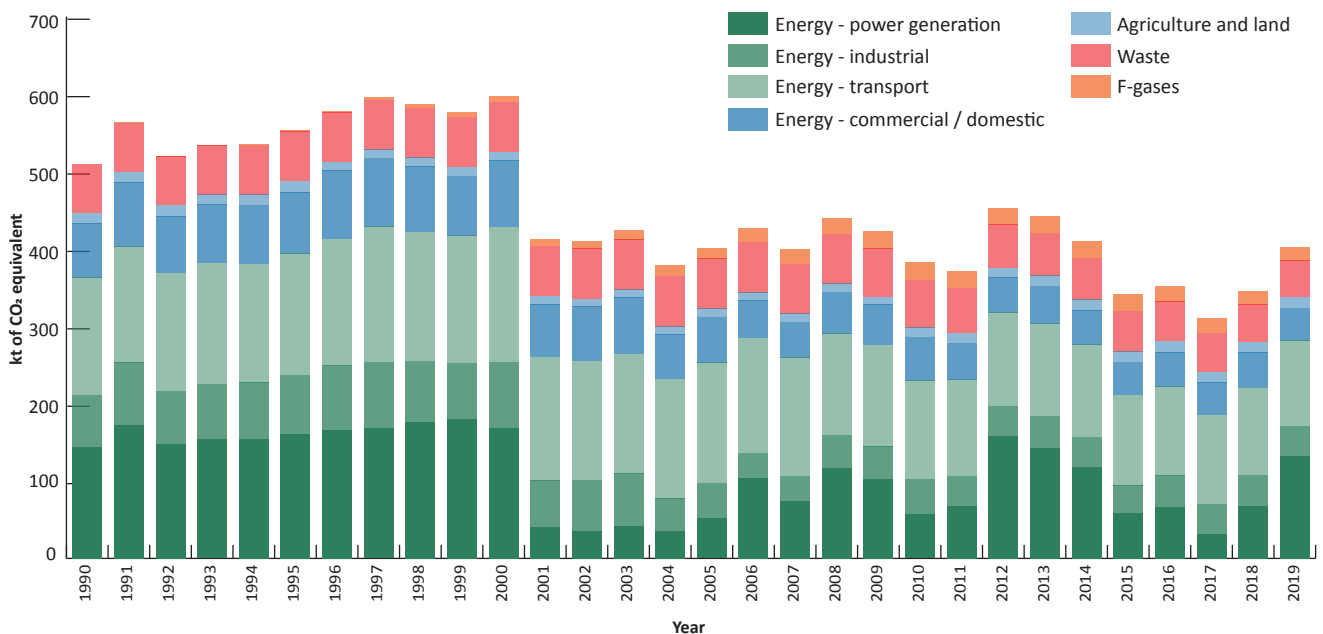
The Kyoto Protocol was extended to the Bailiwick of Guernsey in 2006. The Doha Amendment to the Kyoto Protocol was adopted in 2012 with a commitment period from 2013-2020. The Doha Amendment was extended to the Bailiwick of Guernsey on 1st September 2020, and came into effect on 31st December 2020 following receipt by the Depository of the required number of ratifications.

The analysis provided in this bulletin uses 1990 as a base year for comparison. The inventory is for the island of Guernsey only.

1.2 Headlines

- Greenhouse gas emissions from Guernsey increased by 16.3% in 2019, when they totalled 401.7kt of carbon dioxide (CO₂) equivalent, compared to 345.4kt in 2018.
- The cumulative percentage change in Guernsey’s greenhouse gas emissions between 1990 and 2019 was a decrease of 21.1% (or 107.6kt of CO₂ equivalent).
- Power generation contributed the largest proportion (33.0%) of the greenhouse gases emitted in 2019. Problems with the cable link to France meant that much of the power needed in 2019 had to be generated on island. Transport contributed a further 27.7%.
- The majority (79.6%) of the emissions were in the form of carbon dioxide.

Figure 1.2.1 Total emissions by source



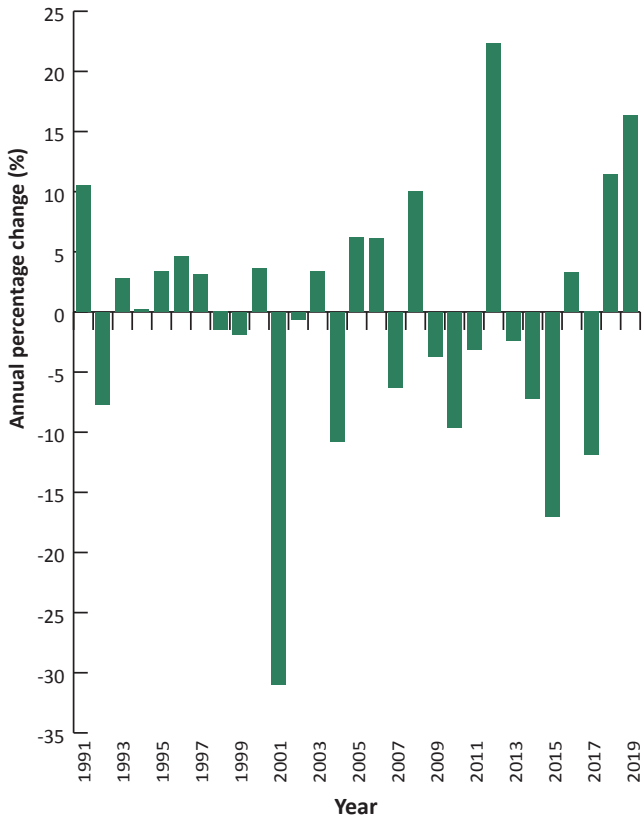
1.3 Key data

Greenhouse gas emissions need to be calculated in a consistent manner across all jurisdictions to ensure comparability and avoid double counting or omissions.

The content and structure of the inventory is based on the categories defined by the United Nations Economic Commission for Europe (UNECE). See www.unece.org for more information.

The methodology used to calculate the data is refined each year and the whole data set is revised to ensure comparability between one year and the next. As such, the figures published here should not be compared with those previously published.

Figure 1.3.1 Annual percentage change in total emissions



In 2019, Guernsey's emissions totalled 401.7kt of CO₂ equivalent, which equates to 6.4 tonnes per capita. The total was 16.3% higher than in 2018 (see [Table 1.3.1](#)) and 21.1% lower than in 1990.

Table 1.3.1 Key data

Date	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	509.2		
1991	562.7	10.5%	10.5%
1992	519.5	-7.7%	2.0%
1993	533.9	2.8%	4.8%
1994	534.8	0.2%	5.0%
1995	552.8	3.4%	8.6%
1996	578.2	4.6%	13.5%
1997	595.9	3.1%	17.0%
1998	587.1	-1.5%	15.3%
1999	576.2	-1.9%	13.2%
2000	597.2	3.6%	17.3%
2001	412.0	-31.0%	-19.1%
2002	409.8	-0.6%	-19.5%
2003	423.6	3.4%	-16.8%
2004	378.0	-10.8%	-25.8%
2005	401.5	6.2%	-21.2%
2006	425.8	6.1%	-16.4%
2007	399.1	-6.3%	-21.6%
2008	438.8	10.0%	-13.8%
2009	422.6	-3.7%	-17.0%
2010	382.1	-9.6%	-25.0%
2011	370.3	-3.1%	-27.3%
2012	452.9	22.3%	-11.1%
2013	442.1	-2.4%	-13.2%
2014	410.2	-7.2%	-19.5%
2015	340.6	-17.0%	-33.1%
2016	351.8	3.3%	-30.9%
2017	309.9	-11.9%	-39.1%
2018	345.4	11.4%	-32.2%
2019	401.7	16.3%	-21.1%

2.1 Emissions inventory - type

Emissions of the greenhouse gases; carbon dioxide, methane, nitrous oxide and fluorinated gases (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride) are all estimated for the inventory. They are all presented in the form of carbon dioxide (CO₂) equivalents for ease of comparison.

In 2019, Guernsey's emissions totalled 401.7kt of CO₂ equivalent, which equates to 6.4 tonnes per capita. The total was 16.3% higher than in 2018 (see [Table 1.3.1](#)) and 21.1% lower than in 1990.

[Table 2.1.1](#) shows that the majority (319.6 kt) of Guernsey's emissions are in the form of carbon dioxide (CO₂). The main source of these emissions is combustion of fossil fuels for power generation, transport and heating i.e. energy.

The variability in recent years as shown in [Figure 1.2.1](#) is largely due to changes in the amount of power being generated on island.

Table 2.1.1 Emissions by type

Date	Carbon Dioxide (kt)	Methane (kt of CO ₂ equivalent)	Nitrous Oxide (kt of CO ₂ equivalent)	F-Gases (kt of CO ₂ equivalent)
1990	425.8	72.4	11.1	0.0
1991	478.4	73.1	11.2	0.0
1992	434.5	73.9	11.0	0.0
1993	449.8	72.9	10.9	0.3
1994	449.1	73.6	11.3	0.8
1995	465.7	74.2	11.6	1.4
1996	493.8	71.1	11.1	2.2
1997	509.5	71.7	11.2	3.5
1998	498.8	72.0	11.2	5.1
1999	487.6	71.5	11.3	5.8
2000	507.1	71.8	11.1	7.2
2001	321.8	71.0	10.5	8.7
2002	319.6	70.0	10.3	9.9
2003	331.1	70.5	10.3	11.7
2004	283.9	70.8	10.2	13.1
2005	306.9	70.4	10.2	13.9
2006	328.0	70.6	10.2	17.0
2007	300.1	70.4	10.2	18.3
2008	339.2	69.3	10.5	19.7
2009	323.6	66.5	10.4	22.1
2010	282.0	66.5	10.8	22.8
2011	275.0	63.5	10.6	21.2
2012	359.5	61.0	10.8	21.6
2013	348.3	60.9	11.0	21.9
2014	316.7	60.6	11.2	21.7
2015	250.2	58.5	10.8	21.1
2016	262.9	58.1	11.0	19.9
2017	223.6	56.6	11.1	18.6
2018	262.1	55.2	11.1	17.0
2019	319.6	53.9	11.2	17.0

3.1 Emissions inventory - source

Figure 3.1.1 and **Figure 3.1.2** show the proportions of emissions contributed by different sources in 1990 and 2019. This data is also provided in **Table 3.1.1** overleaf.

Transport contributed the largest proportion of emissions in 1990 and second largest in 2019, at 29.8% and 27.7% respectively.

Power generation contributed the second largest proportion in 1990 and the largest proportion in 2019 (at 28.2% and 33.0% respectively).

Waste contributed 12.4% in 1990 and 11.8% in 2019.

Industrial combustion contributed 13.2% in 1990 compared with 9.4% in 2019, whilst commercial and domestic combustion went from 13.8% in 1990 to 10.5% in 2019.

Agriculture, land use, land use change and forestry contributed 2.6% in 1990 and 3.4% in 2019.

F-Gases, which contributed less than 0.1% in 1990, contributed 4.2% in 2019.

The changes in terms of emissions by mass, rather than proportions, are given on **pages 8 to 14**.

Figure 3.1.1 Percentage contribution of emissions by source 1990

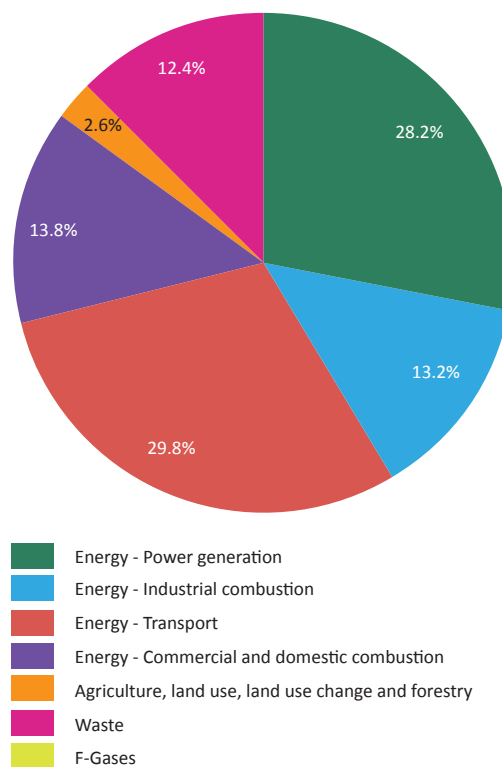
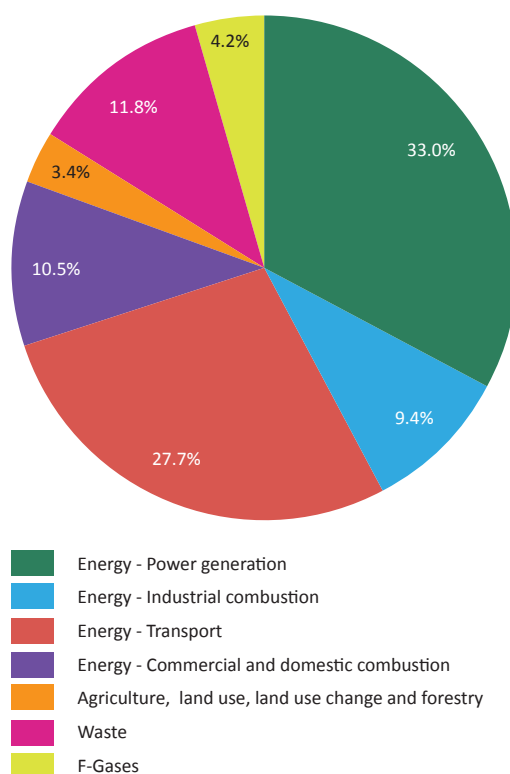


Figure 3.1.2 Percentage contribution of emissions by source 2019



3.1 Emissions inventory - source

The emissions inventory is “source based”, which means it reflects only emissions released from Guernsey. As such, emissions resulting from the generation of electricity in Europe, which is imported for consumption in Guernsey, are not included. Electricity has been imported via a cable link to France since 2001, resulting in a significant decrease in the amount of power generated on-island.

Combustion of fuels for energy (including electricity generation, heating, industrial processes and transport) has contributed the largest proportion of emissions since 1990. The majority of the emissions are in the form of carbon dioxide, but methane and nitrous oxide are also released in the combustion processes. In 2019, emissions from fuels for energy constituted 80.6% of the total emissions.

Landfilled waste is the next largest contributor to Guernsey’s total emissions and the proportion it has contributed has changed little since 1990. The emissions are mostly in the form of methane gas, which is released by decomposing material. There was a large reduction in the amount of waste sent to Guernsey landfill in 2019, and the emissions will decrease gradually as the waste decays.

Agriculture, land use, land use change and forestry combined contribute a small proportion of total emissions (3.4% in 2019). The majority of the emissions are methane released by the digestive processes of cattle. Nitrous oxide is also released as a result of the combustion of fuels for energy and as a result of waste disposal and agricultural processes, but at comparatively low levels.

The fluorinated gases (“F-gases”) are not estimated by source in the same way as the other three gases mentioned above. They are associated with chemicals used in refrigeration, air-conditioning and heat pump systems and can be released as greenhouse gases if the systems leak or are disposed of improperly.

More detail and analysis of Guernsey emissions by source is provided over the next pages.

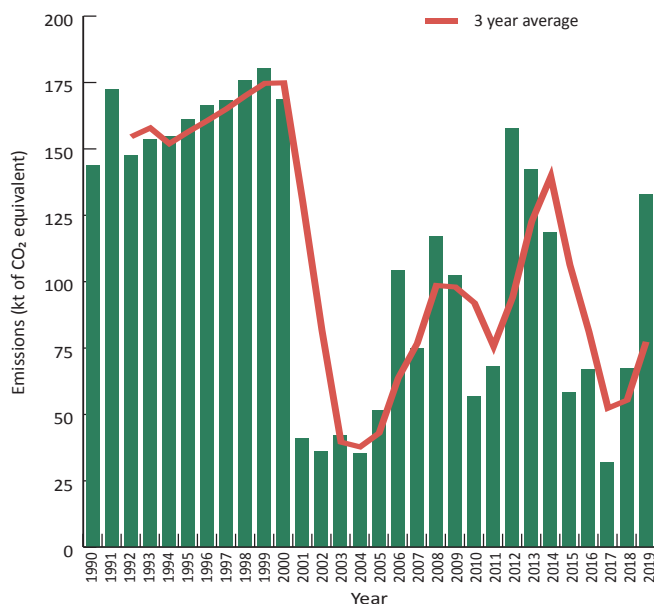
3.1 Emissions inventory - source

Table 3.1.1 Percentage contribution of emissions by source

	Energy - Power generation (%)	Energy - Industrial combustion (%)	Energy - Transport (%)	Energy - Commercial and domestic combustion (%)	Agriculture, land use, land use change and forestry (%)	Waste (%)	F-gases (%)
1990	28.2	13.2	29.8	13.8	2.6	12.4	0.0
1991	30.6	14.3	26.7	14.7	2.5	11.2	0.0
1992	28.4	13.3	29.3	14.1	2.8	12.2	0.0
1993	28.8	13.5	29.1	14.2	2.5	11.9	0.1
1994	28.9	13.6	28.7	14.1	2.6	11.9	0.1
1995	29.1	13.7	28.4	14.4	2.7	11.5	0.3
1996	28.7	14.3	28.4	15.2	1.9	11.0	0.4
1997	28.2	14.5	29.3	14.8	1.9	10.7	0.6
1998	29.9	13.6	28.3	14.3	2.0	10.9	0.9
1999	31.3	12.6	28.6	13.4	2.0	11.2	1.0
2000	28.2	14.2	29.2	14.4	1.9	10.8	1.2
2001	9.9	14.5	38.8	16.5	2.6	15.7	2.1
2002	8.7	16.0	37.4	17.2	2.4	15.8	2.4
2003	9.9	15.9	36.5	17.2	2.5	15.3	2.8
2004	9.3	11.1	41.0	15.1	2.9	17.2	3.5
2005	12.8	11.4	38.8	14.7	2.6	16.2	3.5
2006	24.4	7.6	34.8	11.4	2.5	15.3	4.0
2007	18.7	7.9	38.4	11.4	2.9	16.1	4.6
2008	26.6	9.7	29.9	12.2	2.5	14.6	4.5
2009	24.2	10.1	30.9	12.5	2.4	14.7	5.2
2010	14.9	12.0	33.3	14.7	3.2	15.9	6.0
2011	18.3	10.4	33.6	12.9	3.5	15.6	5.7
2012	34.8	8.6	26.7	10.1	2.6	12.5	4.8
2013	32.2	9.3	27.1	11.0	3.0	12.4	5.0
2014	28.9	9.4	29.1	10.7	3.5	13.1	5.3
2015	17.1	10.7	34.3	12.5	3.9	15.4	6.2
2016	19.0	11.4	32.7	12.6	4.1	14.5	5.7
2017	10.3	12.4	37.0	13.6	4.6	16.1	6.0
2018	19.5	11.8	32.5	13.2	4.0	14.1	4.9
2019	33.0	9.4	27.7	10.5	3.4	11.8	4.2

4.1 Emissions by source - energy

Figure 4.1.1 Energy emissions - power generation



Combustion of fuels for power generation contributed 33.0% of Guernsey's total greenhouse gas emissions in 2019 (see [Table 3.1.1](#)). The majority of the emissions are in the form of carbon dioxide, but small amounts of methane and nitrous oxide are also released in the combustion processes.

Electricity has been imported via a cable link to France since 2001, reflected by a 75.9% decrease in power generation emissions between 2000 and 2001 (see [Table 4.1.1](#)).

Prior to 2000, when all of Guernsey's electricity was generated on island, power generation was the single largest component contributor to Guernsey's total emissions. Some electricity is still generated on island and it is this amount which impacts most noticeably on the total level of emissions.

The amount of electricity generated on island varies from year to year. In 2012 a fault in the cable link to France resulted in the need to generate electricity on island, resulting in an increase in power generation emissions between 2011 and 2012. In the latter part of 2018 and throughout most of 2019 there was another cable fault, again leading to increased power generation emissions.

Table 4.1.1 Energy emissions - power generation

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	143.8		
1991	172.3	19.8	19.8
1992	147.4	-14.5	2.5
1993	153.6	4.2	6.8
1994	154.7	0.7	7.5
1995	161.0	4.1	12.0
1996	166.2	3.2	15.5
1997	168.0	1.1	16.8
1998	175.8	4.6	22.2
1999	180.1	2.5	25.3
2000	168.7	-6.4	17.3
2001	40.7	-75.9	-71.7
2002	35.8	-12.0	-75.1
2003	42.0	17.3	-70.8
2004	35.2	-16.2	-75.5
2005	51.5	46.4	-64.2
2006	104.1	102.1	-27.6
2007	74.6	-28.3	-48.1
2008	116.8	56.4	-18.8
2009	102.2	-12.5	-29.0
2010	56.8	-44.4	-60.5
2011	67.8	19.3	-52.9
2012	157.7	132.8	9.7
2013	142.3	-9.8	-1.1
2014	118.4	-16.7	-17.6
2015	58.2	-50.8	-59.5
2016	66.7	14.6	-53.6
2017	31.9	-52.2	-77.8
2018	67.2	110.9	-53.2
2019	132.7	97.3	-7.7

In total, the emissions from power generation decreased by 7.7% (or 11.1kt of CO₂ equivalent) between 1990 and 2019.

4.1 Emissions by source - energy

Table 4.1.2 Energy emissions - industrial combustion

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	67.4		
1991	80.6	19.7	19.7
1992	69.2	-14.2	2.7
1993	72.1	4.2	7.1
1994	72.6	0.7	7.8
1995	75.6	4.1	12.2
1996	83.0	9.7	23.1
1997	86.3	4.0	28.0
1998	79.8	-7.5	18.4
1999	72.3	-9.4	7.3
2000	85.1	17.6	26.2
2001	59.6	-30.0	-11.6
2002	65.6	10.2	-2.6
2003	67.2	2.4	-0.3
2004	41.9	-37.6	-37.7
2005	45.8	9.2	-32.0
2006	32.2	-29.7	-52.2
2007	31.5	-2.3	-53.3
2008	42.6	35.6	-36.7
2009	42.5	-0.3	-36.9
2010	45.9	8.0	-31.9
2011	38.6	-15.8	-42.7
2012	38.9	0.6	-42.3
2013	41.2	6.1	-38.8
2014	38.4	-6.8	-43.0
2015	36.3	-5.5	-46.2
2016	40.2	10.8	-40.3
2017	38.4	-4.4	-42.9
2018	40.8	6.2	-39.4
2019	37.8	-7.4	-43.9

Energy emissions also include industrial combustion emissions (relating to building processes, use of generators etc), which decreased by 43.9% (or 29.6kt of CO₂ equivalent) between 1990 and 2019 (see [Figure 4.1.2](#) and [Table 4.1.2](#)). The red line on the chart shows the historic three year average.

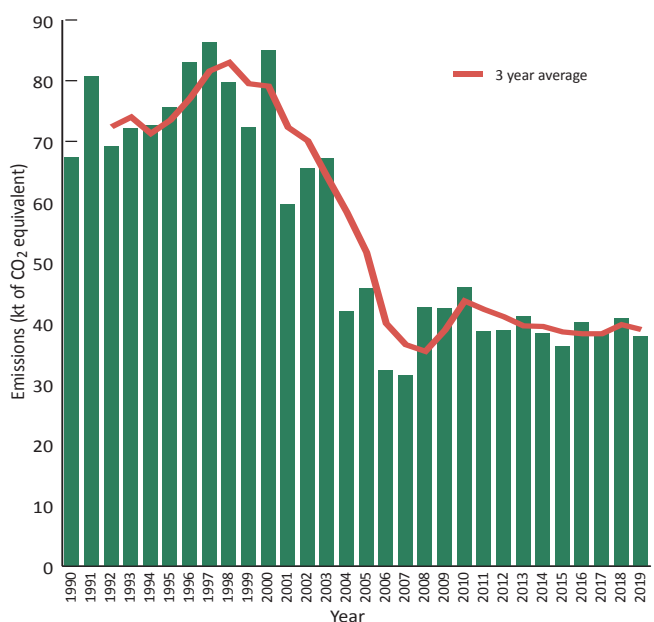
The majority of the emissions are in the form of carbon dioxide, but small amounts of methane and nitrous oxide are also released in the combustion processes.

This source was the fifth largest contributor to emissions in 2019, at 37.8kt of CO₂ equivalent.

In 2019, emissions from industrial combustion contributed 9.4% to the total.

The methodology behind the calculations is constantly being refined and, as such, the figures published here should not be compared with those previously published.

Figure 4.1.2 Energy emissions - industrial combustion



4.1 Emissions by source - energy

Table 4.1.3 Energy emissions - transport

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	151.7		
1991	150.0	-1.1	-1.1
1992	152.1	1.4	0.2
1993	155.6	2.3	2.6
1994	153.7	-1.3	1.3
1995	157.0	2.2	3.5
1996	164.0	4.5	8.1
1997	174.8	6.5	15.2
1998	166.4	-4.8	9.7
1999	164.8	-0.9	8.6
2000	174.3	5.8	14.9
2001	159.7	-8.4	5.3
2002	153.3	-4.0	1.0
2003	154.7	0.9	2.0
2004	155.0	0.2	2.2
2005	155.8	0.5	2.7
2006	148.1	-5.0	-2.4
2007	153.3	3.5	1.0
2008	131.0	-14.5	-13.6
2009	130.5	-0.4	-14.0
2010	127.2	-2.5	-16.1
2011	124.4	-2.2	-18.0
2012	120.9	-2.8	-20.3
2013	120.0	-0.8	-20.9
2014	119.4	-0.4	-21.3
2015	116.8	-2.2	-23.0
2016	115.2	-1.4	-24.1
2017	114.6	-0.5	-24.5
2018	112.3	-2.0	-26.0
2019	111.1	-1.1	-26.8

Emissions from transport decreased between 1990 and 2019 by 26.8% (40.6kt of CO₂ equivalent) to 111.1kt of CO₂ equivalent (see **Figure 4.1.3** and **Table 4.1.3**). The red line on the chart shows the historic three year average.

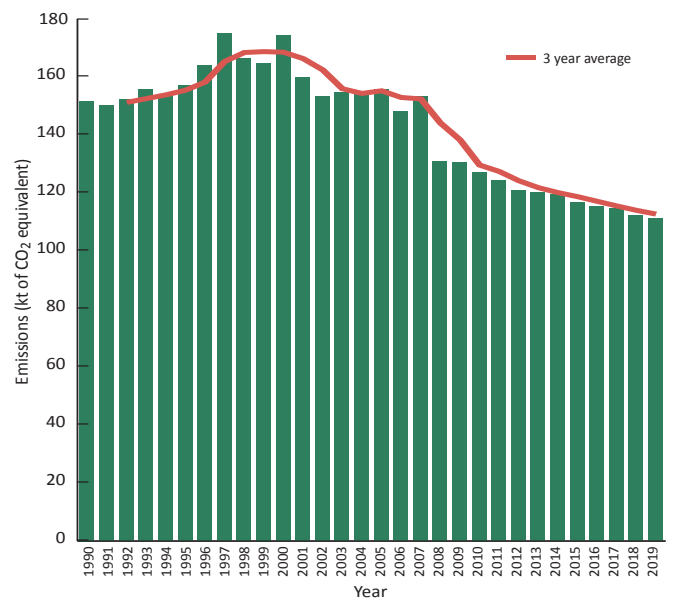
Despite this decrease, emissions from this source constituted the second largest proportion of the total in 2019, when it contributed 34.3% of energy emissions and 27.7% of total emissions.

65% of transport emissions resulted from on-island road transport in 2019, with a further 22% from aviation and 11% from navigation.

Levels of greenhouse gases emitted as a result of transport have generally been trending downwards since a peak in 2000 (see **Figure 4.1.3**).

The majority of greenhouse gas emissions resulting from transport are carbon dioxide. Other non-greenhouse gas air pollutants, such as nitrogen dioxide, sulphur dioxide are also present in vehicle exhaust emissions.

Figure 4.1.3 Energy emissions - transport



4.1 Emissions by source - energy

Table 4.1.4 Energy emissions - commercial and domestic combustion

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	70.2		
1991	82.9	18.1	18.1
1992	73.2	-11.7	4.3
1993	75.7	3.5	8.0
1994	75.5	-0.3	7.6
1995	79.4	5.2	13.2
1996	88.0	10.8	25.4
1997	88.0	0.0	25.4
1998	84.0	-4.5	19.7
1999	77.4	-7.9	10.3
2000	86.2	11.3	22.8
2001	68.0	-21.1	-3.1
2002	70.6	3.9	0.7
2003	72.8	3.0	3.7
2004	57.0	-21.6	-18.7
2005	59.0	3.5	-15.9
2006	48.7	-17.5	-30.6
2007	45.5	-6.6	-35.2
2008	53.5	17.5	-23.8
2009	52.8	-1.2	-24.7
2010	56.2	6.4	-19.9
2011	47.6	-15.3	-32.1
2012	45.7	-4.1	-34.9
2013	48.6	6.4	-30.7
2014	44.1	-9.4	-37.2
2015	42.4	-3.7	-39.5
2016	44.4	4.6	-36.8
2017	42.3	-4.8	-39.8
2018	45.6	7.9	-35.0
2019	42.1	-7.7	-40.0

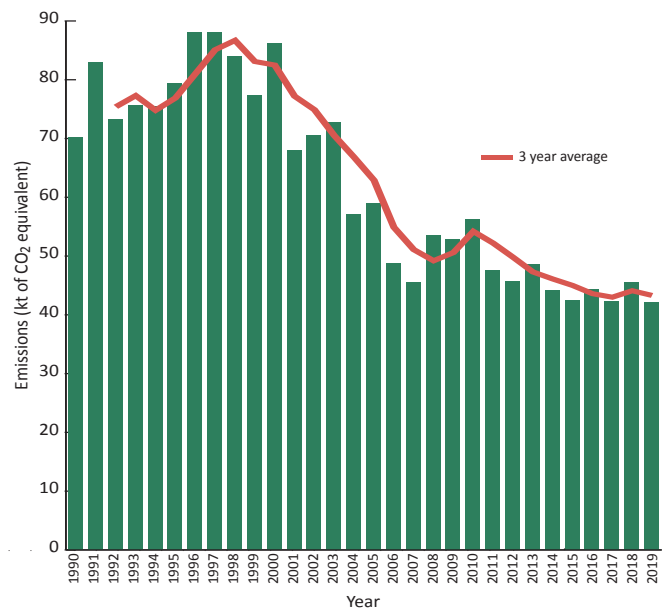
Commercial and domestic combustion of fuels for heating and hot water in homes and offices etc also contribute a substantial amount of the island’s emissions (10.5% of the 2019 total).

The emissions from commercial and domestic combustion were 42.1kt of CO₂ equivalent in 2019, which was 40.0% lower than in 1990 (see **Table 4.1.4**).

The emissions from this source have ranged from 42kt to 88kt of CO₂ equivalent over the twenty-nine years covered by the inventory.

The red line on the chart shows the historic three year average.

Figure 4.1.4 Energy emissions - commercial and domestic combustion



4.2 Emissions by source - agriculture, land use, land use change and forestry

Table 4.2.1 Energy emissions - agriculture, land use, land use change and forestry

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	13.2		
1991	13.8	4.5	4.5
1992	14.4	3.7	8.4
1993	13.2	-8.4	-0.6
1994	14.1	6.9	6.2
1995	14.7	4.3	10.8
1996	11.1	-24.6	-16.5
1997	11.5	3.8	-13.3
1998	12.0	4.2	-9.6
1999	11.5	-4.3	-13.5
2000	11.5	0.1	-13.5
2001	10.9	-4.9	-17.7
2002	9.8	-9.8	-25.8
2003	10.5	6.3	-21.1
2004	10.9	4.0	-17.9
2005	10.4	-4.4	-21.6
2006	10.7	2.7	-19.4
2007	11.5	7.9	-13.0
2008	11.0	-4.6	-17.1
2009	10.2	-6.8	-22.7
2010	12.4	20.6	-6.8
2011	12.8	3.6	-3.4
2012	11.7	-8.8	-11.9
2013	13.2	12.9	-0.6
2014	14.4	9.1	8.5
2015	13.4	-6.9	1.0
2016	14.3	7.2	8.2
2017	14.1	-1.4	6.7
2018	13.8	-2.5	4.0
2019	13.8	0.1	4.1

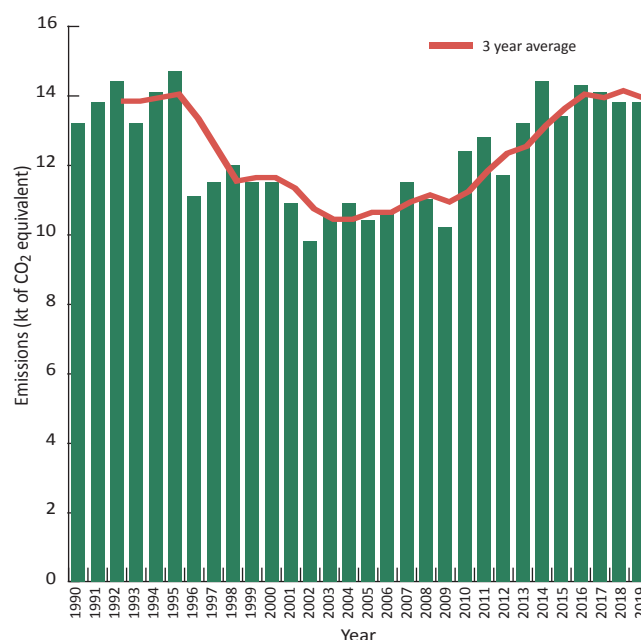
Other emissions include those from agriculture, land use, land use change and forestry (shown in **Figure 4.2.1**), which contributed 3.4% of the total emissions in 2019. The red line on the chart shows the historic three year average.

The majority of these emissions are methane released by the digestive processes of cattle. The decrease between 1995 and 1996 resulted from a change in the way cattle data were sourced.

There was a decrease in the number of cattle in the island in 2001, when the milk quota was reduced, resulting in a reduction in emissions from cattle. Livestock-related emissions have since remained at a steady level. However, there has been a generally increasing trend in total emissions from this source since 2002, due to increasing emissions resulting from land use change.

The total level of emissions from these sources has increased by 4.1% (0.6kt of CO₂ equivalent) between 1990 and 2019.

Figure 4.2.1 Energy emissions - agriculture, land use, land use change and forestry



4.3 Emissions by source - waste

Table 4.3.1 Energy emissions - waste

	Total emissions (kt of CO ₂ equivalent)	Annual % change	Cumulative % change
1990	62.9		
1991	63.0	0.2	0.2
1992	63.2	0.2	0.4
1993	63.3	0.2	0.7
1994	63.5	0.3	0.9
1995	63.6	0.2	1.1
1996	63.7	0.2	1.3
1997	63.9	0.3	1.6
1998	64.1	0.3	1.9
1999	64.3	0.3	2.2
2000	64.4	0.2	2.3
2001	64.5	0.2	2.6
2002	64.7	0.2	2.8
2003	64.8	0.2	3.0
2004	64.9	0.2	3.2
2005	65.1	0.2	3.4
2006	65.1	0.1	3.5
2007	64.4	-1.2	2.3
2008	64.2	-0.3	2.0
2009	62.3	-3.0	-1.0
2010	60.8	-2.4	-3.4
2011	57.9	-4.8	-8.0
2012	56.4	-2.6	-10.4
2013	54.9	-2.6	-12.7
2014	53.8	-2.1	-14.6
2015	52.4	-2.5	-16.7
2016	51.1	-2.5	-18.9
2017	49.9	-2.2	-20.6
2018	48.6	-2.6	-22.7
2019	47.2	-2.9	-25.0

Waste was the third largest contributor to Guernsey's total emissions in 2019. It contributed 11.8% (47.2kt of CO₂ equivalent) of the total emissions in 2019.

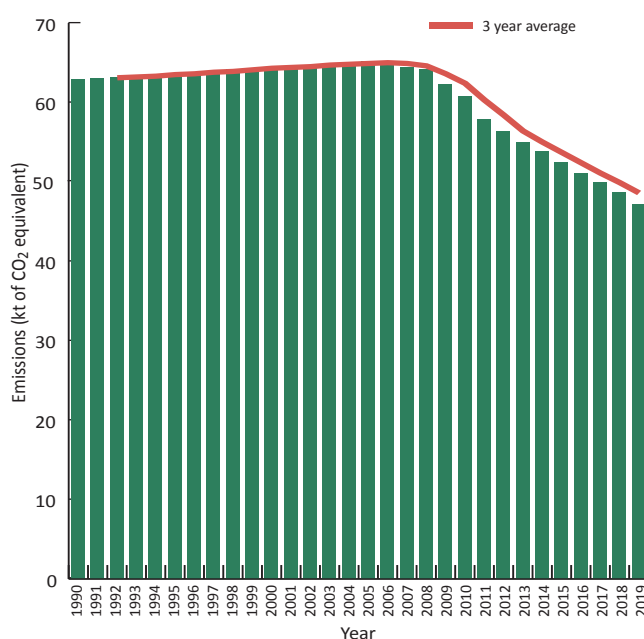
The emissions are mostly (89% in 2019) in the form of methane gas, which is released as landfilled matter decomposes. In a weight for weight comparison, methane has a twenty one times higher global warming potential than carbon dioxide i.e. one kt of methane is equivalent to 21kt of carbon dioxide.

As a result, relatively small changes in the amount of methane emitted equate to considerably larger changes to emissions in terms of CO₂ equivalents.

There have been decreases in the emissions from this source since 2006 (see [Figure 4.3.1](#) and [Table 4.3.1](#)) as less waste has been going to landfill during these years. The large decrease in waste going to Guernsey landfill from 2019 will be reflected in gradually decreasing emissions as waste decays.

The cumulative decrease between 1990 and 2019 was 25.0% (or 15.7kt of CO₂ equivalent).

Figure 4.3.1 Energy emissions - waste



5.1 Emissions - F-gases

Table 5.1.1 F-gas emissions

	Total emissions (kt of CO ₂ equivalent)	Annual % change
1990	0.0	
1991	0.0	0.0
1992	0.0	204.9
1993	0.3	2324.7
1994	0.8	163.2
1995	1.4	79.1
1996	2.2	60.7
1997	3.5	58.4
1998	5.1	43.2
1999	5.8	14.3
2000	7.2	23.9
2001	8.7	20.6
2002	9.9	14.4
2003	11.7	17.7
2004	13.1	11.8
2005	13.9	6.6
2006	17.0	21.7
2007	18.3	7.9
2008	19.7	7.7
2009	22.1	11.9
2010	22.8	3.5
2011	21.2	-7.1
2012	21.6	1.8
2013	21.9	1.4
2014	21.7	-1.0
2015	21.1	-2.6
2016	19.9	-5.7
2017	18.6	-6.3
2018	17.0	-8.8
2019	17.0	0.0

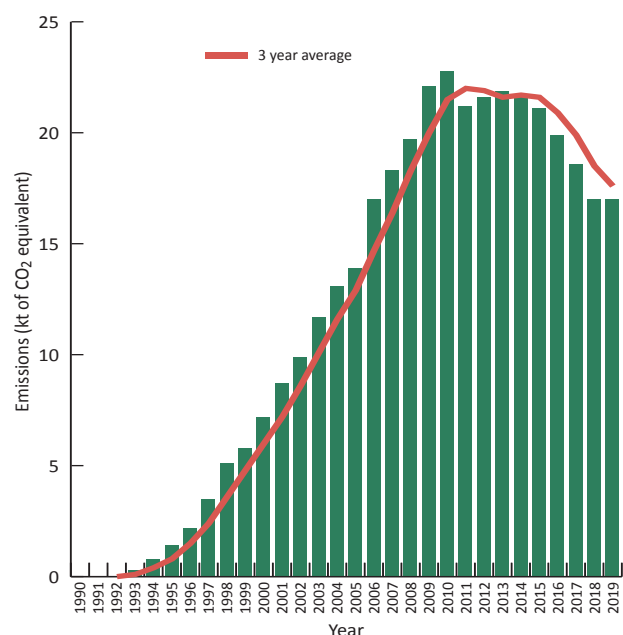
Fluorinated gases (“F-gases”) are not estimated by source in the same way as the other three gases mentioned above, but are included in the total greenhouse gas emissions.

F-gases can be released by refrigeration, air-conditioning and heat pump systems if they leak or are disposed of improperly.

In 2019, they contributed 4.2% of the total, compared to less than 0.001% in 1990, an increase of 17.0kt of CO₂ equivalent. The red line on the chart shows the historic three year average.

F-gases have very high global warming potentials compared to carbon dioxide. As such, amounts in the region of one gram in weight could have the same effect as one tonne of carbon dioxide being released into the atmosphere. The result of this is a highly volatile trend in terms of percentage changes.

Figure 5.1.1 F-gas emissions



6.1 Further information

This bulletin has been produced by the States of Guernsey Data and Analysis team. The Guernsey emissions inventory is compiled by Aether, who lead the compilation of the inventories for UK crown dependencies and applicable overseas territories as part of the UK National Atmospheric Emissions Inventory (NAEI), which is developed and maintained by Ricardo Energy & Environment, in collaboration with Aether, CEH, Forest Research, Hartley McMaster and Gluckman Consulting. The NAEI is funded by the Department for Business, Energy & Industrial Strategy (BEIS), Department for Environment, Food and Rural Affairs (Defra), the Scottish Government, the Welsh Government and the Northern Ireland Department of Agriculture, Environment and Rural Affairs.

6.2 Contact details

You may also be interested in other States of Guernsey Data and Analysis publications, which are all available online at www.gov.gg/data. Please contact us for further information.

E-mail: dataandanalysis@gov.gg

Write / visit: Data and Analysis
Sir Charles Frossard House
La Charroterie
St Peter Port
Guernsey
GY1 1FH



For more information
go to gov.gg/data