



# Company Carbon Footprint

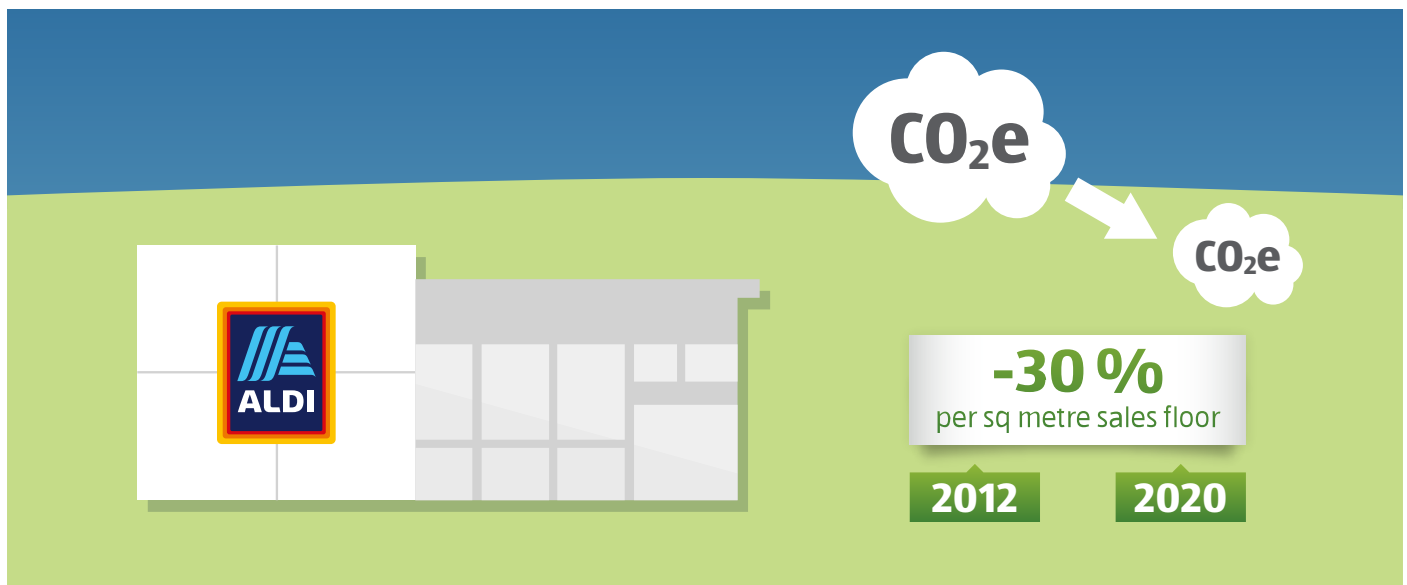
Summary Report 2016





The ALDI SOUTH Group aims to minimise the negative impacts of its business operations on the climate and the environment. We want to contribute to climate protection by lowering our greenhouse gas emissions. For this reason, our international climate strategy focusses on the systematic reduction of our energy consumption, employing more environmentally friendly refrigerants, the use of renewable energy, and modern logistics concepts.

We first adopted this international climate strategy in 2014. The strategy defines our goal for reducing greenhouse gas emissions per square metre of sales area by the year 2020 in every country of operation by 30 % compared to the year 2012. For the purpose of this calculation, Australia, the USA, and Germany are all considered separately, whereas Great Britain and Ireland on the one hand, and the HOFER S/E countries, i.e. Austria, Switzerland, Slovenia, and Hungary, on the other hand, are consolidated into two groups.

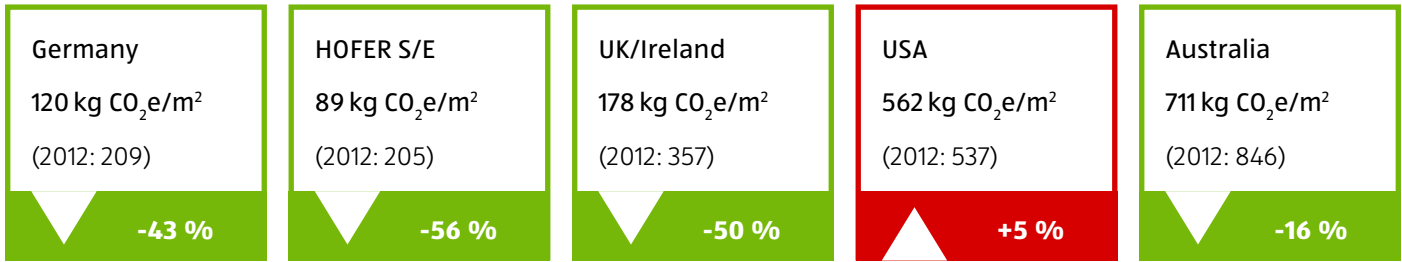


## Summary

We monitor our progress by calculating the Company Carbon Footprint (CCF) for all of our business processes and locations every two years in accordance with the Greenhouse Gas Protocol (GHG Protocol<sup>1</sup>), which defines the main criteria of relevance, completeness, consistency, transparency, and accuracy.

Moreover, the GHG balances for 2012, 2014, and 2016 have been audited with limited assurance in accordance with the International Standard on Assurance Engagement (ISAE) 3410 by the auditing firm PricewaterhouseCoopers Germany.

<sup>1</sup> The Greenhouse Gas Protocol is a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).



While ALDI SOUTH has already achieved or even exceeded its climate reduction goal across our European countries of operation, ALDI Australia is well on track. An increase from the baseline was only recorded in the US, which was caused primarily by exceptionally high refrigerant losses in stores measured in 2016. Multiple initiatives are already under way to improve this by 2020. Despite the continuous expansion of the ALDI SOUTH Group, absolute GHG emissions are 3 % below the levels recorded for 2012.

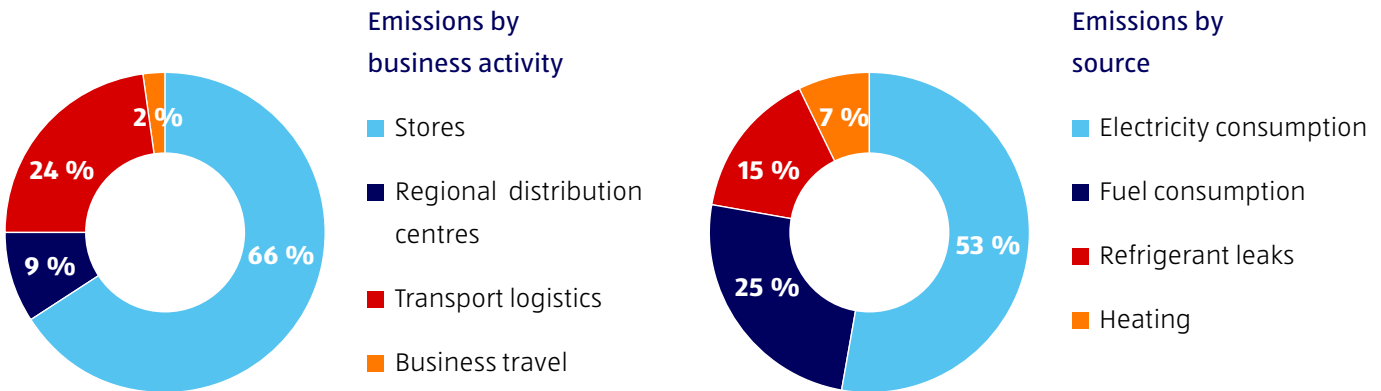


Figure 1: Group-wide emissions by activity and source

Based on our analyses, we have determined that the majority of greenhouse gas emissions are generated within our stores, followed by logistics and distribution centre operations. With respect to stores and distribution centres, this is primarily due to the electricity required to refrigerate products and ventilate the buildings, as well as for air conditioning and lighting. Emissions are also caused by refrigerant leakages and energy consumption for heating. With respect to logistics, GHG emissions are primarily caused by fuel consumption.

### Insight carbon neutrality

Since the beginning of 2016, HOFER business operations in Austria have been carbon-neutral. This was achieved primarily through reduction, modernisation, and overall usage of electricity from renewable sources. Emissions which cannot be avoided are compensated by supporting a range of climate protection projects, whereby the compensation of emissions is not offset against any values reported in the CCF. In early 2017, ALDI SOUTH Germany and ALDI SUISSE followed suit.



Across our European countries of operation, the absolute level of GHG emissions produced in stores significantly decreased by up to 71 % compared to the base year of 2012. This was achieved through increased energy efficiency and modernisation, the transition to green electricity, increased use of photovoltaic (PV) systems, and positive developments in the area of refrigerant leakages.

## Development of emissions per source

### Energy consumption (electricity and heating)

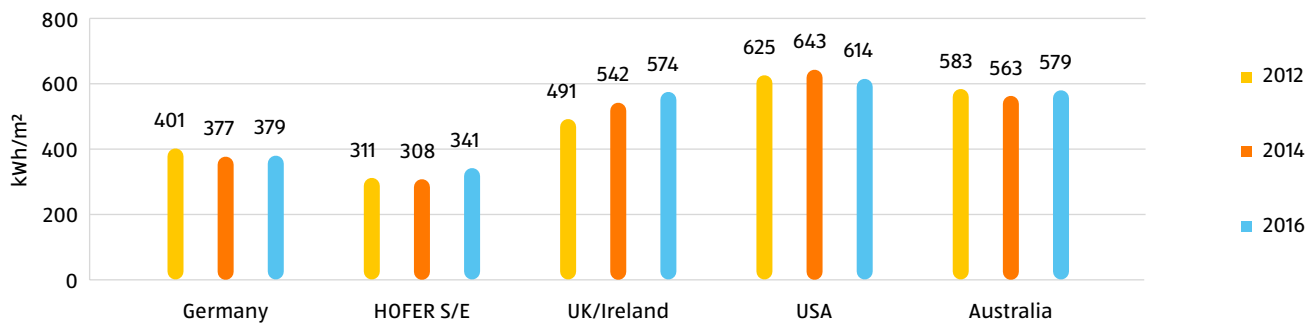


Figure 2: Energy consumption in stores [kWh/m<sup>2</sup> sales floor]

Since electricity production from renewable sources does not cause any direct GHG emissions, they offer a climate-friendly alternative to fossil fuels.

Table 1: Share of renewable energy sources in overall electricity consumption

	Germany	HOFER S/E	UK/Ireland	USA	Australia
Electricity from photovoltaic systems produced and consumed by ALDI SOUTH	14 %	1 %	4 %	1 %	0.1 %
Green electricity <sup>2</sup> purchased from the electricity grid	11 %	83 %	96 %	0 %	0 %

HOFER Austria and ALDI SUISSE, and also since May 2014 HOFER Slovenia, exclusively use green electricity, meaning that with the exception of Hungary, the entire HOFER Group is supplied with green electricity<sup>3</sup>. In 2017, ALDI SOUTH followed this trend in Germany. In the meantime, ALDI UK and ALDI Ireland have now also completed a full transition to renewable energies.

As a result of the increased use of renewable energies, the average level of GHG emissions per kWh significantly decreased throughout our European countries of operation. Changes to the regional electricity mixes in the US and Australia led to reductions in the average electricity emission factors by 4 % and 18 %, respectively, when compared to the base year.

<sup>2</sup> 'Green electricity' refers to the procurement of 100 % renewable energy, e.g. through green tariffs, not the share of renewable energy in the regional electricity mixes.

<sup>3</sup> In Hungary, there was no free market for green electricity in 2016, meaning it is not yet possible to use purely green electricity in this country.



**Transport logistics (transport by logistics vehicles between regional distribution centres (RDCs) and stores)**

Reducing our fuel consumption is a major factor in minimising our carbon footprint. We achieve this by providing driver training to promote efficient driving behaviour, as well as by introducing fuel-efficient technology and equipment, and telematics to determine the most efficient route plans.

By employing these measures, we have been able to reduce the GHG emissions caused per kilometre across the entire fleet of logistics vehicles. In particular, our logistics fleets in the US and Australia showed significant improvement as a result.

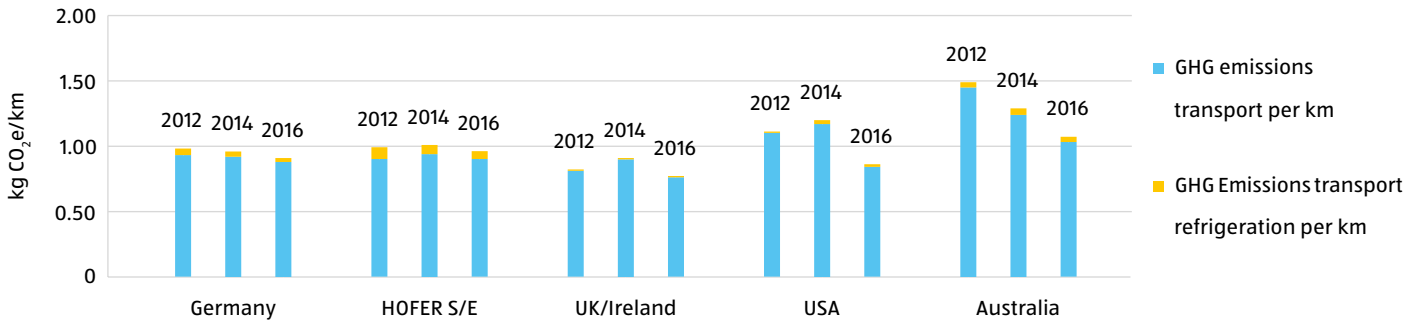


Figure 3: Emissions caused by transport logistics [kg CO<sub>2</sub>e/km]

**Refrigerants**

Some refrigerants (F-gases and HCFCs) possess a very high global warming potential (GWP), which in some cases is several thousand times higher than that of CO<sub>2</sub> (GWP of 1). In contrast, natural refrigerants are an environmentally friendlier alternative with only a very low global warming potential. Besides our efforts to minimise leakages, the transition away from refrigerants such as R404A to environmentally friendlier refrigerants significantly reduces this damage potential.

Our choice of refrigerants worldwide has already had a positive impact, for example, the use of R404A has been reduced to 29 % compared to 46 % in 2014. As a result, in 2017 the ALDI SOUTH Group received the award of 'Green Cooling Leader' by the non-governmental organisation Environmental Investigation Agency (EIA) for its efforts in the area of refrigeration technology, in particular for the use of natural refrigerants.

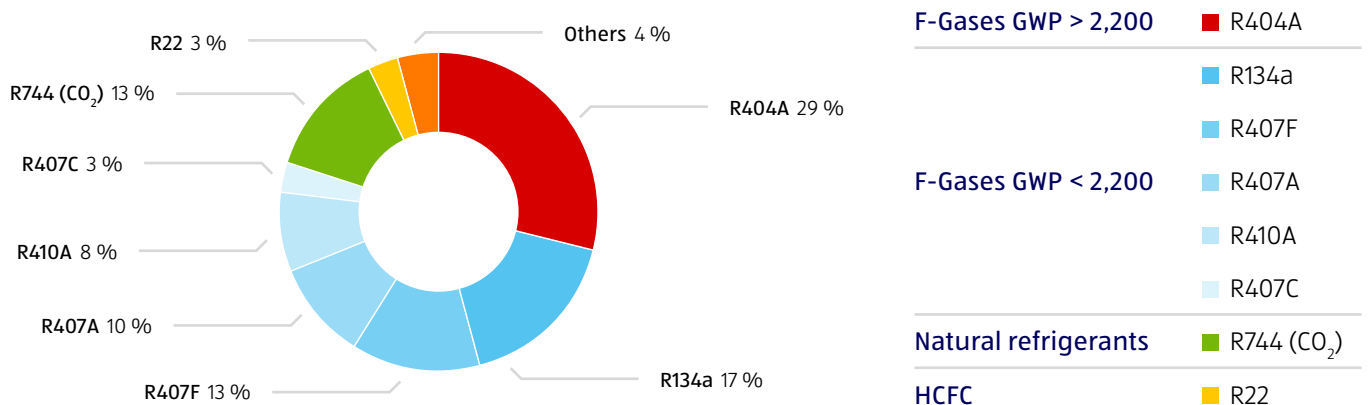


Figure 4: Refrigerants used in stores (refrigeration and air conditioning systems)



## Developments by business activity

The absolute values calculated for the Company Carbon Footprint largely depend on the size of our business operations in each country, and fully reflect the effects which international business expansion has on absolute emissions.

Table 2: Absolute GHG emissions per country and activity [1,000 t CO<sub>2</sub>e]<sup>4</sup>

		ALDI SOUTH Group	Germany	HOFER S/E	UK/Ireland	USA	Australia
Stores	2016	934	140	27	46	523	198
	2012	1,052	255	92	135	413	157
	Change since base year	-11 %	-45 %	-71 %	-66 %	+27 %	+26 %
RDCs	2016	123	14	4	3	67	36
	2012	145	35	16	13	55	26
	Change since base year	-15 %	-60 %	-72 %	-81 %	+22 %	+39 %
Transport logistics	2016	341	49	31	78	147	35
	2012	252	50	28	36	107	31
	Change since base year	+35 %	-2 %	+13 %	+116 %	+37 %	+11 %
Business travel	2016	22.9	5.2	3.1	3.4	9.7	1.4
	2012	14.4	4.6	2.3	2.1	4.0	1.4
	Change since base year	+59 %	+12 %	+33 %	+65 %	+139 %	-2 %
Total	2016	1,421	208	66	130	747	269
	2012	1,464	344	138	187	579	215
	Change since base year	-3 %	-39 %	-52 %	-30 %	+29 %	+25 %

<sup>4</sup> Minor differences are due to rounding.



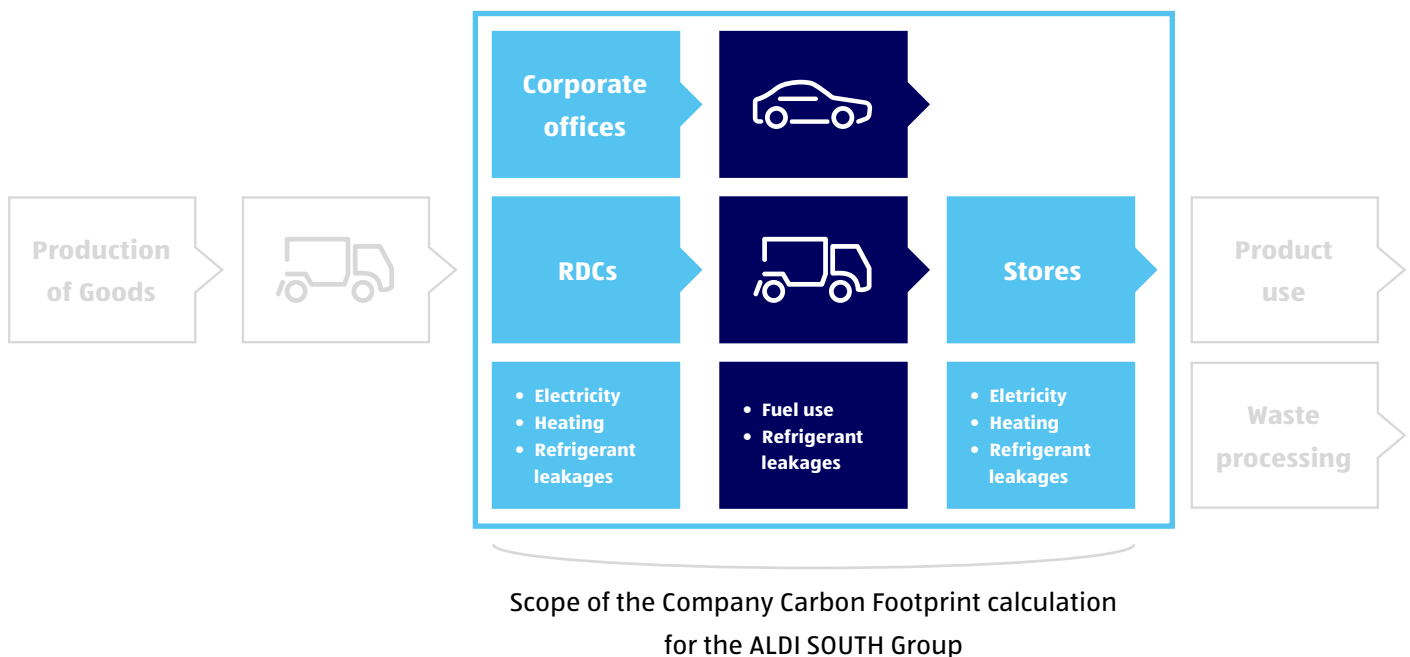
## Methodology

The summary report reflects the impact of all six greenhouse gases defined as being of relevance within the Kyoto Protocol. These comprise carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). To enable an accurate comparison of the emissions produced, these gases are all converted to carbon equivalents (CO<sub>2</sub>e).

### Scope

According to the standards defined by the GHG Protocol, a carbon footprint must account for at least all directly produced emissions. These emissions are classified as Scope 1 emissions and are produced as a direct result of a company's on-site business operations. In addition, the carbon footprint must include Scope 2 emissions, which are also the direct result of a company's own business operations but are not produced directly on site, for example in a power plant. In contrast to Scope 1 and 2 emissions, Scope 3 emissions are not generally subject to internal monitoring as these are caused, for example, by external business partners, suppliers, or due to services provided by third parties. Indirect emissions classified as Scope 3 emissions are however accounted for within the area of logistics. As ALDI SOUTH commissions third-party service providers with tasks concerning the storage of products and their distribution to stores in several countries and regions, all GHG emissions caused by contract hauliers and external logistics centres are also accounted for.

Consequently, the ALDI SOUTH Company Carbon Footprint comprises the GHG emissions produced by store operations, regional distribution centres, national corporate offices, transport logistics, and business travel in company cars. Generally, all instances of electricity, heating, and fuel consumption together with refrigerant leakages are recorded for the above-mentioned areas of business operations. The following chart illustrates the limits to be considered when calculating the Company Carbon Footprint for the ALDI SOUTH Group.



In addition, ALDI SOUTH also operates special business units, including the ALDI-owned chocolate factory in Austria, as well as two coffee roasting houses and one hotel in Germany. These are included in the values for Germany and Austria accordingly.



## Emission factors

The basic data used for determining energy consumption and refrigerant leakages consists predominantly of primary data (e.g. electricity meter readings). In cases where consumption-related data was not available, for example in case of certain leased objects, it was extrapolated using average values. GHG emissions are calculated based on energy (heating and electricity) and fuel consumption, the quantity of refrigerant leakages, and the resulting greenhouse gas effects (emission factor/global warming potential).

### Electricity-related emission factors

Since it is our goal to calculate GHG emissions as accurately as possible, emission factors reported by energy providers (referred to as 'market-based' within the Scope 2 Guidance) are preferred over emission factors reported at regional and national level ('location-based'). Market-based emission factors may only be considered if records concerning emission factors are available for the individual site. In order to prevent errors regarding the distinction of data ('double-counting'), the national electricity mix and market-based electricity mixes must not be used simultaneously. In the event that market-based emissions data is only available for a certain share of the electricity purchased, the remaining amount is calculated based on the so-called residual mix<sup>5</sup> of the relevant country. In a slight deviation from the Scope 2 Guidance, this hybrid approach is used instead of reporting both market- and location-based emissions.

In order to fulfil further requirements of the Scope 2 Guidance of the GHG Protocol, green electricity certificates are to be provided as proof of correctness concerning the applied emission factor (in g CO<sub>2</sub>e/kWh), the energy sources used (e.g. 80 % water power, 20 % solar energy), the amount of green electricity consumed, and the geographical origin.

### Global warming potential of refrigerants

Refrigerants are calculated according to the criteria issued by the Intergovernmental Panel on Climate Change (IPCC) due to the fact that – when leaked – such refrigerants have the same greenhouse gas effect across the globe as a result of their material properties. However, as scientific knowledge of the global warming potential of refrigerants is still being gathered, the relevant emission factors are also subject to adjustment.

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<sup>5</sup> Residual mix = national mix without separately traded electricity certificates