



TREASURY WINE ESTATES

TREASURY WINE ESTATES LTD.

**Qualifying Explanatory Statement for
Lindeman's Global portfolio in support of
PAS 2060**



1. Executive Summary

This document forms the Qualifying Explanatory Statement to demonstrate that Treasury Wine Estates has achieved carbon neutrality for its Lindeman's wines for the period commencing 1st January 2020 to 31st December 2020.

This document is the Qualifying Explanatory Statement (QES) which provides collected evidence in support of the declaration that Treasury Wine Estates

1. has achieved carbon neutrality for its Lindeman's Wines marketed Globally for the period commencing 1st January 2020 to 31st December 2020 (see Section 3); and
2. is committed to ongoing reductions for its Lindeman's Wines. (see section 4).

The carbon neutrality declaration has been made and the collected supporting evidence has been provided in accordance with the requirements prescribed by PAS 2060:2014 – Specification for the demonstration of carbon neutrality.



Angus Lilley

Chief Marketing Officer & General Manager Sales, ANZ

27/01/2022

2. General information

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Entity making PAS 2060 declaration:	Treasury Wine Estates Ltd
Subject of PAS 2060 declaration:	Lindeman's branded wine range sold globally, including production, stores, offices, warehouses and delivery fleets associated with the import and distribution of Lindeman's products.
Description of Subject:	The Lindeman's wine range that is sold globally, including sub-brands: <ul style="list-style-type: none">• Alcohol-free<ul style="list-style-type: none">○ Alcohol Free Cabernet Sauvignon

	<ul style="list-style-type: none"> ○ Alcohol Free Semillon Chardonnay ○ Alcohol Free Sparkling Chardonnay Pinot Noir Muscat ● Bag in Box <ul style="list-style-type: none"> ○ 3L Chardonnay Bib ○ 3L Rose BiB ○ 3L Shiraz Cabernet BiB ○ 3L Sauvignon Blanc BIB ● Bins Bag in Box <ul style="list-style-type: none"> ○ 3L Bin 45 Cabernet Sauvignon BiB ○ 3L Bin 65 Chardonnay BiB ○ 3L Bin 50 Shiraz BiB ○ 3L Bin 85 Pinot Grigio BIB ● Bins Range: 750ml bottles <ul style="list-style-type: none"> ○ Bin 25 Sparkling Brut ○ Bin 30 Sparkling Rose ○ Bin 35 Rose ○ Bin 40 Merlot ○ Bin 45 Cabernet Sauvignon ○ Bin 46 Sweet Red ○ Bin 50 Shiraz ○ Bin 55 Shiraz Cabernet ○ Bin 65 Chardonnay ○ Bin 85 Pinot Grigio ○ Bin 80 Cabernet Merlot ○ Bin 90 Moscato ○ Bin 95 Sauvignon Blanc ○ Bin 99 Pinot Noir ● Bins Range 1.5L bottles <ul style="list-style-type: none"> ○ Bin 40 Merlot ○ Bin 45 Cabernet Sauvignon ○ Bin 50 shiraz ○ Bin 65 Chardonnay ○ Bin 80 Cabernet Merlot ○ Bin 85 Pinot Grigio ○ Bin 90 Moscato ○ Bin 95 Sauvignon Blanc ● Bins Range 375ml bottles: <ul style="list-style-type: none"> ○ Bin 65 Chardonnay ○ Bin 45 Cabernet Sauvignon ● Bins Range 187ml bottles <ul style="list-style-type: none"> ○ Bin 50 Shiraz
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- Cawarra 750ml
 - Cawarra Chardonnay
 - Cawarra Cabernet Merlot
 - Cawarra Merlot
 - Cawarra Shiraz Cabernet

- Cawarra 1L bottles
 - Cawarra Cabernet Merlot

- Cawarra 1.5L bottles
 - Cawarra Semillon Chardonnay
 - Cawarra Shiraz Cabernet

- Cawarra 187ml bottles
 - Cawarra Semillon Chardonnay
 - Cawarra Shiraz Cabernet

- Coonawarra Trio
 - LSR Shiraz Cabernet
 - Pryus Cabernet Sauvignon
 - St George Cabernet Sauvignon

- Early Harvest 750ml
 - Early Harvest Rose
 - Early Harvest Crisp Dry White
 - Early Harvest Chardonnay
 - Early Harvest Pinot Grigio
 - Early Harvest Shiraz
 - Early Harvest Semillon Sauvignon Blanc

- Gentleman's Collection 750ml
 - GC Cabernet Sauvignon
 - GC Shiraz
 - GC Red Blend
 - GC Chardonnay
 - CH Tawny Port
 - GC Coffee Shiraz

- Gentleman's Collection 3L BIB
 - GC Shiraz

- Henry's Sons
 - Brut Cuvee
 - Chardonnay
 - Semillon Sauvignon Blanc
 - Shiraz Cabernet

- PET Range

- Chardonnay PET
- Riesling PET
- Shiraz Cabernet PET

- Porphyry
 - Porphyry Blanc

- Premier Selection
 - Premier Selection Brut Cuvee
 - Premier Selection Chardonnay
 - Premier Selection Semillion Chardonnay
 - Premier Selection Shiraz Cabernet

- South Africa
 - South Africa Cabernet Merlot
 - South Africa Chardonnay Viognier
 - South Africa Chardonnay Sauvignon Blanc
 - South Africa Shiraz Cabernet
 - South Africa Rose

- Winemaker's Release
 - Winemaker's Release Australia Chardonnay
 - Winemaker's Release Australia Shiraz Cabernet
 - Winemaker's Release chardonnay/Chenin Blanc
 - Winemaker's Release Merlot Cabernet
 - Winemaker's Release Spanish White
 - Winemaker's Release Spanish Red

- Varietals
 - Varietals Chardonnay

The carbon footprint of these products was calculated based on data from calendar year 2020 and covers all aspects of their cradle to grave lifecycle.

- **Winemaking:** Grapes are grown across Australia, South Africa & Spain
- **Wine packaging:** Wine is packaged across Australia, South Africa, Spain, The UK, Denmark and the USA
- **Distribution:** Wine is distributed from packaging site to retailers across the globe
- **Use Phase:** Products are used by customers and expected to be stored in a fridge at home (white, rose) or ambient (red). Electricity consumption emissions for refrigeration based on the grid factor for the country of sale of the wine.

	<ul style="list-style-type: none"> • End of Life: primary packaging is expected to either be sent to landfill or recycling.
Rationale for selection of the subject:	<p>Lindeman's is the perfect brand to lead the way for TWE in becoming Carbon Neutral, with its significant profile across the UK, the Nordics The Netherlands, The USA, Canada, Asia and Australia. All life-cycle stages in association with Lindeman's wine portfolio was chosen as this represents all wines sold under the Lindeman's brand globally.</p> <p>The scope of this PAS 2060 includes all emissions based on the operational control principle defined in the 2014 WRI GHG Protocol – Corporate Accounting Standard and the National Greenhouse & Energy Reporting Scheme (NGERS) Act 2008 (Australia).</p> <p>The footprint was calculated in accordance to:</p> <ul style="list-style-type: none"> • PAS 2050: 2011 – Specification for the assessment of the life cycle greenhouse gas emissions of goods and services • Product Carbon Footprint Protocol (parts 1 & 2) • Product Environmental Footprint Category Rules (PEFCR) for still and sparkling wine (2018) • The certification requirements of the Footprint Expert™ Guide <p>The methodology using The Carbon Trust's Footprint Expert tool was chosen as the outputs of the model included a breakdown of the footprint by activity. This helps to identify hotspots in the lifecycle of the wine products (raw materials, manufacture, distribution, disposal) where there may be potential for further improvements.</p> <p>The Carbon Trust is well placed to support Lindeman's with this work having unrivalled expertise in life cycle analysis product footprinting, having developed lifecycle footprinting methodologies for, and with, standards bodies and industry sector associations.</p>
Control approach:	Cradle-to-Grave
Type of conformity assessment:	Independent third-party certification (see Appendix 2)
Baseline date for PAS 2060 programme:	1 st January 2019 – 31 st December 2019 for European Sales
Application period:	1 st January 2020 – 31 st December 2020
Individuals responsible for evaluation and provision of data necessary for declaration:	<p>Camilla Pendleton, Senior Brand Manager</p> <p>Marcus Ingleby, Head of Brand</p> <p>Ben Blake, Marketing Director</p> <p>Christina Zavalis, Head of Supply Sustainability and Technology</p>

	Lin Lin Low, Supply Sustainability Manager Andrew Ford, Senior Manager, Supply Analytics
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3. Declaration of achievement to carbon neutrality

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Declaration of achievement:	Carbon neutrality of Lindeman’s Wines achieved by Treasury Wine Estates in accordance with PAS 2060 in February 2022 for the period commencing January 1 st 2020 – December 31 st 2020, certified by the Carbon Trust.
Recorded carbon footprint of the subject during the period stated above	55,296 (tCO₂e) See section 3.2 for further details.
Carbon footprint reduction target for period	5.65% reduction of the entire measured footprint (2,565 tCO ₂ e) for the period 1 st January 2020 to 31 st December 2020 for the products sold in the European markets only, vs the footprint measured for those same products during 1 st January 2019-31 st December 2019. This target was based on the Lindeman’s carbon footprint for Europe only. The scope has now changed to global Lindeman’s sales & production, so this reduction target does not apply to all IPLs; however, we have still achieved reductions, which have been recorded in this document.
Carbon footprint reduction achieved for period	Due to data quality and methodology changes, it is not possible to make accurate comparisons between most life cycle stages. In particular, distribution data has been replaced from complete estimates with mainly actual data so the results should not be directly compared. Percentage reductions have been calculated for packaged wine (includes vineyard, winery and non-bottle packaging – to match the lifecycle stage boundaries used in 2019), since they had the most similar data quality across 2019 and 2020. However, it should be noted that recycled content has now been included in packaging calculations when it wasn't previously. The reduction due to the packaged wine lifecycle stage only resulted in a 15% reduction in the average total footprint per litre (kgCO ₂ e/litre –

	<p>weighted by sales) for the European sales in 2020 against the 2019 baseline.</p> <p>See section 3.4 for further details.</p>
Carbon offsets purchased	<p>70,000 tCO₂e have been purchased. We will use 55,296 of these this year and keep the remaining for future requirements.</p> <p>See section 3.5 for further details.</p>

3.1 Carbon footprint methodology

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
<p>Description of the standard and methodology used to determine GHG emissions and reductions</p>	<p>The methodology for calculating the carbon footprint was as follows:</p> <p>The Greenhouse Gas Protocol Product Life Cycle Accounting and Reporting Standard (GHGP Product Standard) was used to quantify the GHG emissions associated with products covered by the certification scope, using data representing operations between 1st January 2020 and 31st December 2020.</p> <p>The carbon footprint was based on 95% of likely greenhouse gas emissions; primary sources are subject to variation over time; footprint is best estimate based on reasonable costs of evaluation.</p> <p>The carbon footprint was measured using the primary data regarding Lindeman's products using the EU's PEF wine footprint method and the international wine carbon calculator protocol version 2 for sector guidance. The footprint is calculated using the internationally recognised PAS 2050 product carbon footprinting methodology, and the GHG Product Life Cycle Accounting and Reporting Standard for the period 1st January - 31st December 2020. The total Carbon Footprint to offset (55,296 tCO₂e) was calculated based on a total of 45,352,728 litres being sold globally. The total emissions per region of sale are outlined in Table 1.</p> <p>This methodology was developed to be in accordance with the requirements of PAS 2060. The provisions of the methodology for calculating the carbon footprint was applied as detailed and the principles set out in PAS 2060 were met.</p>
<p>Justification for the selection of the methodologies chosen</p>	<p>This method was chosen as it provides an internationally-recognised approach to the calculation of representative product CO₂e footprints</p>

	and meets the requirements of PAS 2060 for the substantiation of GHG emissions (PAS 2060: 5.2.2 to 5.2.4). The product CO ₂ e footprints have been reviewed and assured by an independent third party, Carbon Trust (see Annex C of this report for the assurance statement).
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3.2 Carbon footprint breakdown

Carbon Footprint <i>(for latest footprinting year)</i>	Information Relating to the Carbon Neutral Declaration
Total Carbon Footprint	55,296 tCO₂e

Table 1. Total emissions by region

Region	Total footprint (tCO ₂ e)
AUS	9,181
CAN	5,384
China	638
Europe	27,042
SEAMEA	763
UST	12,288
TOTAL	55,296

3.2.1 Data methods

Data sources

Detailed data request sheets were provided to Lindeman's by The Carbon Trust. Most of the data only needed to be updated from last certification, however, there was an aim to improve data coverage during this recertification in some key areas such as:

- Spanish grape production
- Transport of grapes AU/SA
- Transport of packaging AU

Data sources used for the study include a mix of primary and secondary sourced data. Where possible, primary data were sourced. Secondary data were sourced only where primary data were not available or where the relative impact on the carbon footprint result was nominal or deemed non-significant.

Primary activity data:

- Collected from those processes owned, operated or controlled by the organization, e.g. fuel use, electricity and water consumption
- Primary data collected from a sample of vineyards as with last year, including an updated list of all Australian Vineyards with 2020 production volumes.

Secondary data is used for inputs where primary activity data has not been obtained

- Use of PAS 2050 GHG assessment information as secondary data
- Product Environmental Footprint Category Rules (PEFCR) for still and sparkling wine e.g. electricity required for storing wine in retail.
- Use data from competent sources (e.g. national government, official United Nations publications) e.g. waste treatment emissions

Where primary data was not available secondary data was used. For example:

- Using Google maps or sea-distances.org to find the distance from one location to another when modelling distribution
- Market averages for recycled content and recycling rates

The activity data supplied by Lindeman’s was compiled from the following sources:

- Data collection sheets for vineyards, wineries and bottling sites,
- Distribution leg data by region at a SKU level,
- Packaging material data including material types and recycled content.

Emission factors

BEIS and IEA emission factors were used where appropriate during the analysis. The Ecoinvent emission factor database was also used, mainly for the ingredient and material emission factors.

The distances and modes of transport were inputted into The Carbon Trust’s Footprint Expert (FPX) freight calculators to get Emissions Factors for distribution legs.

Data Quality and Uncertainty

The data quality assessments were carried out based on a key developed internally at Carbon Trust and the PEFCR guidance for wine footprinting and the results are reported in Table 2. The full assessment can be found in the model, where the activity data and emission factors are scored separately for each lifecycle stage and combined into one overall Average DQ score.

Table 2 : Data source quality assessment results

Emissions Source	Total Emissions	Contribution (%)	Average DQ
Wine Making	20,337,536	37%	3.50

Packaging Process	1,417,411	3%	4.00
Embodied Bottle	14,712,383	27%	4.00
Embodied Non-Bottle Packaging	3,511,888	6%	4.00
Distribution (Wine)	9,500,038	17%	3.00
Distribution (Empty Bottle)	2,584,392	5%	3.00
Use Phase	1,295,537	2%	3.00
End of Life Bottle	300,437	1%	3.50
End of Life Non-Bottle	1,613,828	3%	3.50

Table 3. Description of life cycle stages

Life cycle stage	Description	Key Assumptions
Raw material production and distribution	<p>Agricultural process (grape production):</p> <p>Water use Use of fertilisers and pesticides</p> <p>Manufacturing:</p>	<ul style="list-style-type: none"> - We have collected data for all owned vineyards and have assumed this to be representative of all 3rd party vineyards based on what Lindeman's have told us about their 3rd party grape sourcing. - When the grapes are transported from vineyard to winery it is assumed that the truck is empty on the return leg - Data has not yet been collected for trellis construction and use at vineyards. A % uplift has been applied to vineyard emissions of 6.5% based on the average of two sources: <ul style="list-style-type: none"> o Trellis represents 3% of vineyard emissions, https://awitc.com.au/wp-content/uploads/2016/07/141_Abbott.pdf

	Transportation of grapes to the winery Grapes crushing Energy, water and waste flows (where available)	<ul style="list-style-type: none"> ○ Trellis represents 10% of vineyard emissions, https://www.sciencedirect.com/science/article/abs/pii/S0959652613005660
Product manufacturing and packaging	Filling operations Materials, energy, waste	<ul style="list-style-type: none"> - Metal closures 50:50 split of steel and aluminium. - Capsule and muselet made of aluminium. - Cork can be composted but not recycled, therefore, no recycling rate and virgin/recycled material emission factors are the same. - Simplified EU-PEF method used: Glass, Metal and Paper use 20:80 split and plastics (including bag with tap) 50:50 (Contains recycle:Gets recycled).
Finished goods distribution and retail	Transport from factory to retail	<ul style="list-style-type: none"> - If not specified the mode of transport was assumed to be road when the transport leg was within a country, and when country to country where appropriate. Sea freight was assumed for transport of wine between countries where road transport is not feasible. This is a conservative assumption in the absence of better data. - Closest port chosen for countries where wine is not shipped to directly from AUS - Website 'sea-distance.org' used to find port to port shipping distances. East Timor not on 'sea-distance.org' so Makassar, Indonesia chosen as closest port
Use-phase	Electricity consumption for wine cooling (whenever the serving temperature is less than ambient)	<ul style="list-style-type: none"> - 0.062 kwh/per bottle is assumed electricity consumption (source: PEFCR)

	temperatur e)	
End-of-life	Glass bottle: recycling, incineration , landfill PET cork, aluminium, paper: recycling, incineration , landfill	- Refer to assumptions in packaging

Table 4. List of countries of sale, by region

Country	Region
Bahrain	SEAMEA
Finland	Europe
Malta	Europe
Russia	Europe
Estonia	Europe
Sweden	Europe
Hungary	Europe
Spain	Europe
Germany	Europe
Poland	Europe
Austria	Europe
Czech Republic	Europe
Norway	Europe
Netherlands	Europe
Denmark	Europe
Iceland	Europe
Canada	CAN
Ireland	Europe
France	Europe
Luxembourg	Europe
Belgium	Europe
Kenya	SEAMEA
Italy	Europe
Ghana	SEAMEA
Great Britain	Europe
United Kingdom	Europe
Israel	SEAMEA
Cyprus	Europe
Mauritius	SEAMEA
United Arab Emirates	SEAMEA
Mongolia	SEAMEA
Australia	AUS

China	China
Fiji	AUS
Malaysia	SEAMEA
Papua New Guinea	AUS
Vietnam - L3	SEAMEA
Hong Kong	SEAMEA
Bermuda	UST
Jamaica	UST
Netherlands Antilles	UST
Taiwan	SEAMEA
United States	UST
Japan	SEAMEA
Nauru	AUS
Singapore	SEAMEA
Vanuatu	AUS
Guam	SEAMEA
South Korea	SEAMEA
Sri Lanka	SEAMEA
India	SEAMEA
East Timor	AUS
Thailand	SEAMEA
Laos	SEAMEA
Myanmar	SEAMEA
Philippines	SEAMEA
Barbados	UST
Dominican Republic	UST
Solomon Islands	AUS
Norfolk Island	AUS
Bahamas	UST
British Virgin Islands	UST
Trinidad and Tobago	UST
Turks and Caicos Islands	UST
US Virgin Islands	UST
Costa Rica	UST
Mexico	UST
Saint Lucia	UST
Saint Vincent & the Grenadines	UST

3.3 Methodology by Lifecycle Stage

The methodology behind the model calculations is described for each lifecycle stage below.

3.3.1 Wine Making

The emissions associated grape production at the vineyards are modelled in the crop calculators. Input and output data recorded in the data collection sheets is inputted into Crop Calculators, where an emission factor in kgco2e per kg of grape production is calculated.

Emissions associated with wine making at wineries are calculated in the wine making tabs e.g. Wine Making – AU White. At the winery the wine produced is known as the intermediate product, lees and pomace are also produced and they are the co-products. The mass allocation of the intermediate product is calculated, and the total process emissions are apportioned to the percentage of intermediate product.

Coffee is in one of the products – Gentleman’s Collection Coffee Shiraz. This has a small dash of cold brew coffee to add depth and to diversify the wine category with innovation

3.3.1.1 Re-baselining Vineyard Calculations

There can be significant variations in weather conditions at Lindeman’s vineyards year on year, for example widespread frosts during 2020 caused large decreases in production volumes across many sites. The resulting year on year variations in production tonnages, alongside near constant inputs to sites (such as fertilisers), mean emissions per tonne of production may fluctuate due to conditions outside of Lindeman’s control. This makes it difficult to assess annual carbon reductions, to smooth out any fluctuations the footprint is now calculated using a 3-year rolling average (2018, 2019 & 2020 for the 2020 footprint).

The previously calculated footprint for 2019 was re-baselined to align with the 3-year rolling average. This involved receiving additional 2017 and 2018 vineyard data and recalculating the vineyard footprint as an average across the three years.

3.3.2 Packaging

There are a variety of formats across the IPLs modelled:

- Glass:
 - 1.5L
 - 1l
 - 750ml
 - 375ml
 - 187ml
- PET:
 - 750ml
- Bag in box:
 - 3L
- Cans:
 - 250ml

To measure the embodied and end-of-life emissions of the packaging materials the Product Environmental Footprint Circular Footprint Formula (PEF CFF) method was employed which accounts for recycled content of the material and market recycling rates. The formula is outlined in Figure 1. Recycling rates differ by material and region. Regional recycling rates are applied by material to the markets in which the products being footprinted are sold.

Circular Footprint Formula

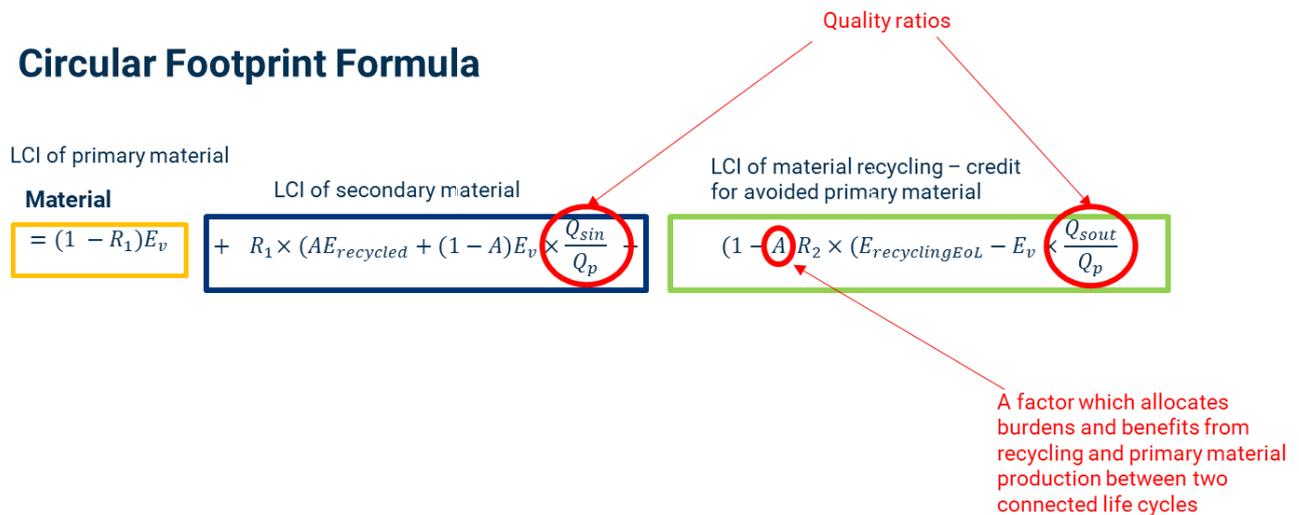


Figure 1 – PEF Circular Footprint Formula

3.3.3 Upstream transport

Upstream transport includes the distribution of any input materials into the system boundary, including fertiliser to vineyard, grapes to winery and packaging materials to bottling sites.

The upstream transport of materials is calculated in the individual process tabs, except for empty glass bottles. The upstream transport of glass bottles is added onto the end of the downstream distribution calculations.

Vineyard to winery:

Lindeman's grapes are grown across three different countries:

- Australia
- South Africa
- Spain

Lindeman's provided detailed data on the transportation of grapes within Australia, including tonnes, number of orders and total km travelled, a weighted average for distance per journey was calculated from this. For South Africa and Spain the average distance of an outbound journey was supplied.

Upstream glass transport:

An average distance for the inbound journey of glass packaging to bottling sites was provided for Australia, South Africa and the United States. A conservative estimation was made for the UK, France, and Denmark.

3.3.4 Downstream distribution

Lindeman's were able to provide more detailed downstream distribution data for this reporting period. The shipping EF was around 4x higher last year using the FPX ship freight calculator, compared to this year's emissions calculated by their provider. The data was provided by SKU, detail did however vary by market. Each SKU had at least data containing:

- Origin of wine
- Packaging site
- Destination country

Some SKUs had more detailed leg routes, for example distribution data provided for SKUs sold in Europe was broken down by leg, with some distances and modes of transport provided. Where distance and mode of the leg were not provided estimations were made. Start and end locations were provided for each leg of a SKUs distribution, using google maps and sea-distances.org distance travelled was calculated. Mode of transport was assumed to be road if transported within a country, and country to country where appropriate. Sea freight was assumed for transport of wine between countries where road transport is not feasible.

Emission factors for upstream and downstream distribution were calculated in the route mapping tab, which fed into the SKU mapping tab, due to its complexity. Distances of each transport leg were either provided by Lindeman's or estimated using Google Maps and website 'seadistances.org'. Mode of transport in some cases was provided by Lindeman's, where it was not assumptions were made, and averages used. The distances and modes of transport were then inputted into The Carbon Trust's Footprint Expert (FPX) freight calculators.

Winery to bottling site/port:

- SA: km from google maps or provided, then EF for kgco2e/kg/km from road freight calculator
- Spain: km from google maps or provided, then EF for kgco2e/kg/km from road freight calculator
- Aus: Total km and total litres of bulk wine transported, EF from BEIS used for HGV >33T

Bottling site to port/customer:

For Australia total km and total litres transported were provided, from this an EF in kgco2e/litre was found using BEIS EF for HGV >33T in kgco2e/km.

Port to port:

Shipment profile data was provided for all trade lanes, it included tonnes, km and emissions in kgco2e. An EF in kgco2e/kg was calculated for each trade lane.

Port to bottling site/customer:

- Distances either provided by Lindeman's or estimated from google maps, assumed road/truck transport. Road freight calculator used to get an EF (kgco2e/kg)

3.3.5 Use phase

The use phase takes the default scenario as based on the PEFCR guidance “cooling of the product before its consumption will be considered for sparkling and still wines (red, white or rosé) whenever the serving temperature inferior to ambient temperature.”

Since data was not available to specify when serving temperature is inferior to ambient temperature for each sales region, the conservative approach has been taken by assuming that all wines undergo this cooling.

To calculate the EF for use phase per SKU, regional grid mix factors are used. The PEFCR guidance document for wine states that *0.062 kwh/bottle* is the default electricity consumption per functional unit. This has been applied to all wines.

3.3.6 End of life

The end-of-life footprint analysis takes into account market recycling rates and process emissions of waste treatment options. It is calculated using the formula in figure 3.

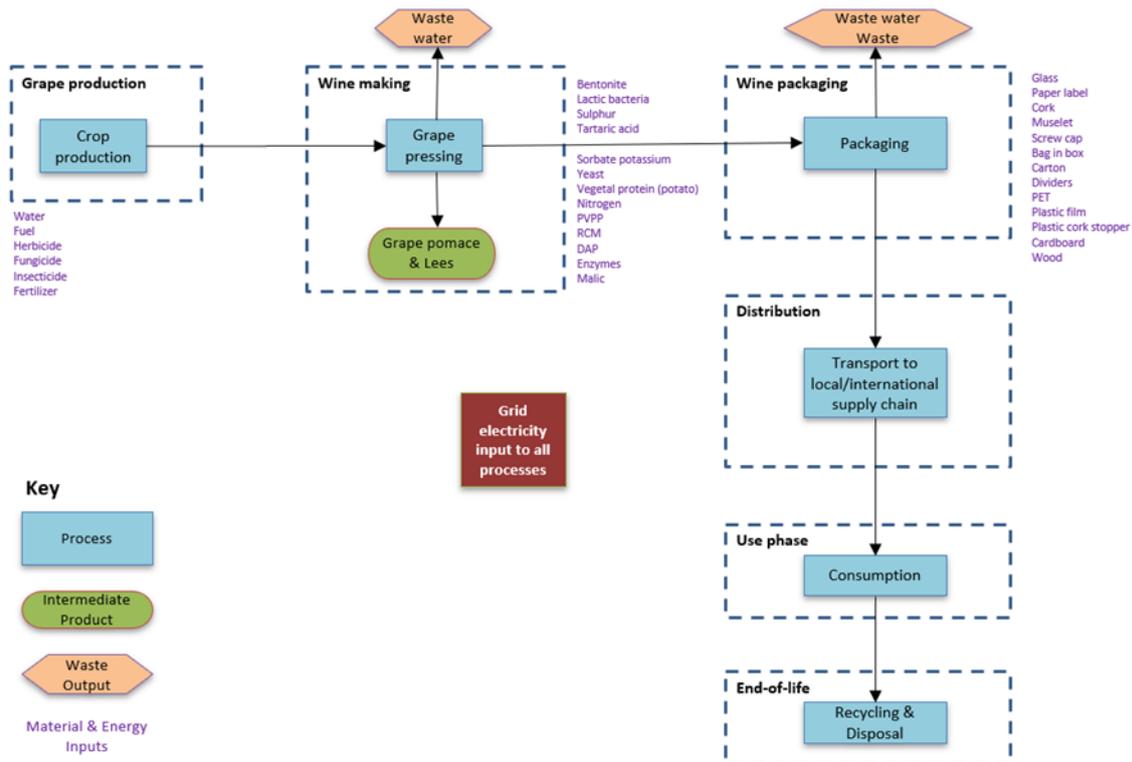


Figure 1 – Process Map of Lindeman's wine lifecycle stages

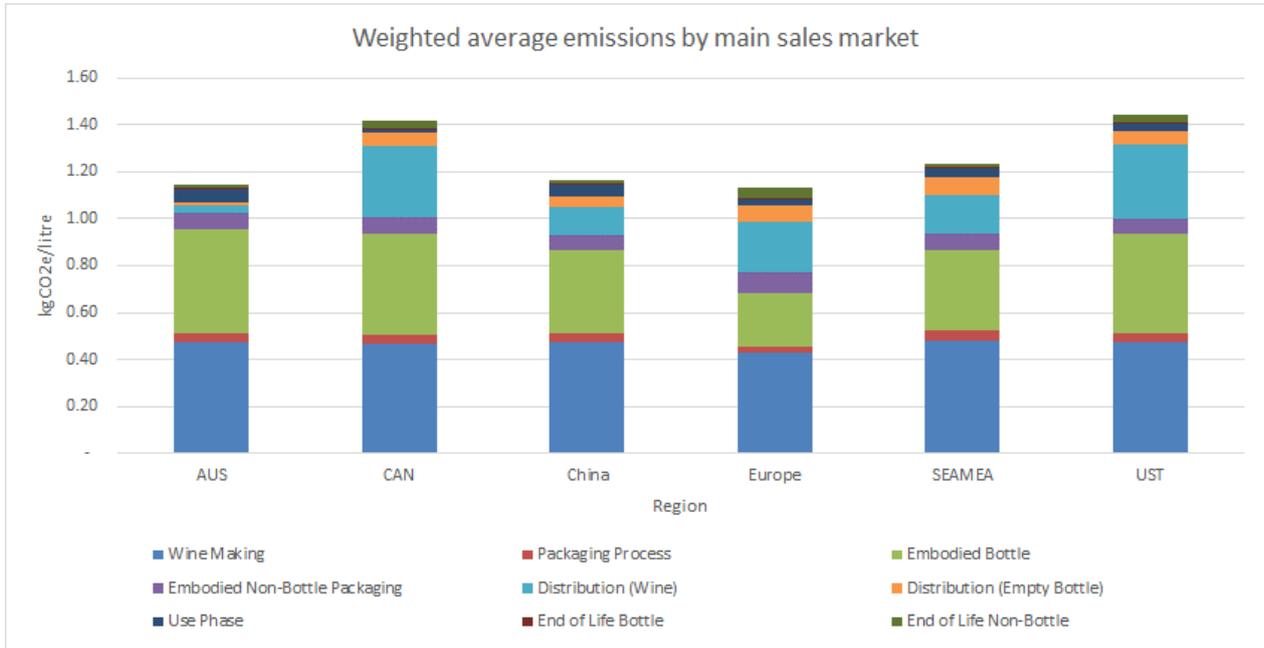


Figure 3 – Emissions by Sales Region

3.4 Carbon reduction

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Reductions achieved	<p>Due to data quality and methodology changes, it is not possible to make accurate comparisons between most life cycle stages. In particular, distribution data has been replaced from complete estimates with mainly actual data so the results should not be directly compared. Percentage reductions have been calculated for packaged wine (includes vineyard, winery and non-bottle packaging – to match the lifecycle stage boundaries used in 2019), since it had the most similar data quality across 2019 and 2020.</p> <p>The reduction due to the packaged wine lifecycle stage only resulted in a 15% reduction in the average total footprint per litre (kgCO₂e/litre – weighted by sales) for the European sales in 2020 against the 2019 baseline.</p> <p>Overall comparison of results can be found in Figures 3.1 and 3.2.</p>
Baseline period	1 st January 2019 – 31 st December 2019
Supporting information	The scope of neutrality has changed from Europe to Global sales, as well as additional SKUs being included as a result of this. Therefore,

	reductions can only be calculated for European sales which were certified in 2019.
Confirmation that there has been no change to the definition of the subject	The scope of sales have changed from Europe to Global, as well as additional SKUs included. However the products (wines produced in Australia, South Africa, and Spain) remain the same.
Description of the means by which reductions have been achieved and any applicable assumptions or justifications	<p>Treasury Wine Estates has in place initiatives throughout the business that reduced the product carbon footprint of the Lindeman's Portfolio. These include:</p> <ul style="list-style-type: none"> - Improving data quality - Reducing weight of packaging - Increased renewable energy at production sites

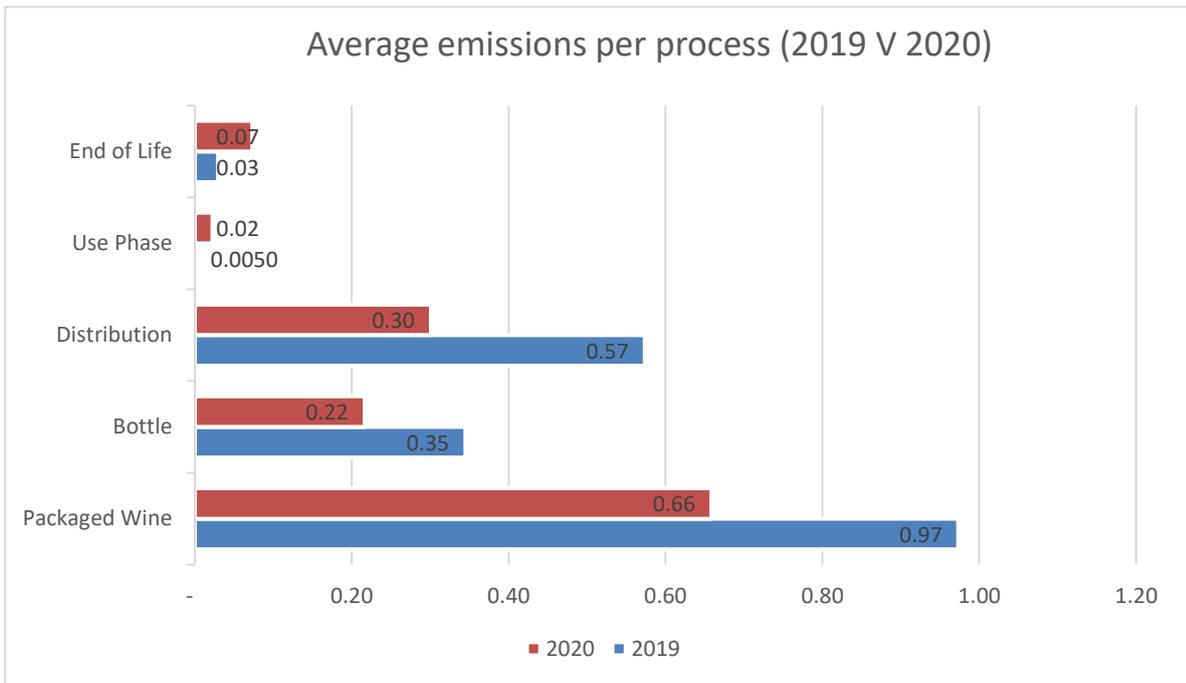


Figure 3.1 – Emission reductions per life stage

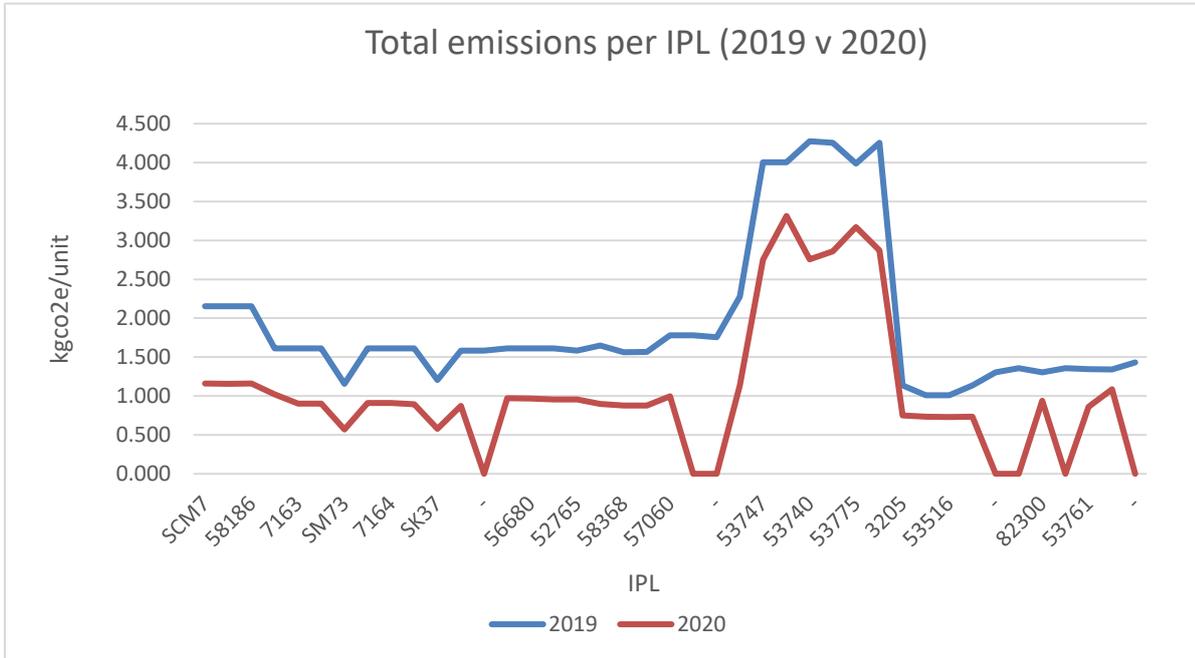


Figure 3.2 – Emission reductions per IPL – measured reductions due to a mixture of actual reductions and footprint methodology and data quality changes.

Carbon offsets

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Offset methodology	Offset through Clean Development Mechanism (CDM) standard offset credits, purchased through ClimateCare Ltd.
Offset Confirmation	<p>The offsets generated represent genuine, additional GHG emission reductions elsewhere. Projects involved in delivering offsets meet the criteria of additionality, permanence, leakage and double counting. Carbon offsets are verified by an independent third-party verifier.</p> <p>The credits from the selected carbon offset projects are:</p> <ul style="list-style-type: none"> • Only issued after the emission reduction has taken place. • Retired within 12 months from the date of the declaration of achievement. • Supported by publicly available project documentation on a registry which provides information about the offset project, quantification methodology and validation and verification procedures.

	<ul style="list-style-type: none"> • Stored and retired in an independent and credible registry.
Offsets	Full details of the carbon offsets included in making this declaration are provided in Appendix 1.

4. Declaration of ongoing commitment

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Declaration of on-going commitment:	Treasury Wine Estates Ltd commits to making a commitment for on-going carbon reductions on a global basis. Given the change in the boundary meaning a significantly larger footprint to offset, TWE will work on what is the best use of the investment, either through carbon offsets or through investments in carbon reduction technologies in the value chain.

4.1 Carbon management plan

PAS 2060 Requirement	Information Relating to the Carbon Neutral Declaration
Targets for GHG reduction for the defined subject appropriate to the timescale for achieving carbon neutrality	We will look to reduce the footprint of our products by 1.5% on an absolute basis of the carbon footprint for the period 1 st January 2021 – 31 st December 2021 through carbon reducing activities outlined below. On-going, we are committed to continuing to reduce our Carbon Footprint each year thereafter.
Planned means of achieving and maintaining GHG emissions reduction	<p>Globally the business tracks, monitors and reports its Scope 1 & 2 emissions.</p> <p>The targets outlined in this plan will be reviewed and assessed on a quarterly basis in order to track progress and to implement corrective action to ensure targets are achieved.</p> <p>Over the past year, Treasury Wine Estates has reduced its emissions footprint by 3.2%, which has been delivered through a solid focus on reducing energy usage across operations through infrastructure efficiency investment, awareness programs and research and development.</p>

	<p>Over the period of 1st January 2021 to 31st December 2021 and beyond the business will continue to investigate and invest in a number of initiatives to reduce its footprint.</p> <p>In 2021 to reduce the total carbon footprint by the target of 1.5% TWE will focus upon:</p> <ul style="list-style-type: none"> • Increasing recycled content in our tertiary cardboard packaging • Improving recyclability across our Bag in Box range <ul style="list-style-type: none"> • Changing colour of handle and tap to transparent • Changing bag to EVOH • Improving supplier and third-party relations, ensuring sustainability is on the agenda • Data quality improvements, particularly from 3rd party growers <p>To ensure continuous carbon footprint reduction, our future plans include:</p> <ul style="list-style-type: none"> • Working with cardboard suppliers to implement a circular economy model • Increasing recycled content of labels • Improving recycled content of PET products • Improved bulk wine handling between production and bottling sites • Lightweight Sparkling Bottles • Assessing our material indirect upstream and downstream GHG emissions (scope 3) • Improving energy efficiencies for wine-making and packaging • Developing a plan for expanding sustainability certification through our grower and bulk wine network in F22 • Tetra Pak formats • Spanish Organic Tier for Europe market <p>In addition to this, Treasury Wine Estates has set global corporate targets, in line with it's ambition to cultivate a brighter future. These targets include:</p> <ul style="list-style-type: none"> • 100% renewable electricity by 2024 • Net zero emissions (Scope 1 and 2) by 2030 • 100% of products to comprise of 50% recycled material by 2025
<p>The offset strategy to be adopted</p>	<p>Energy Infrastructure Carbon Credits, Reducing gas leaks in Bangladesh, CDM standard.</p>

Appendix of qualifying explanatory statement

Appendix 1: Offsets

Project name	Country	Project type	Standard	Type of credits	Total credits	Generation period	Retirement date	Reference No. & link to registry	Offset volume (tCO ₂ e)
Gas Leak Reduction (CDM10077)	Bangladesh	Energy Infrastructure	CDM	CERs	70,000 tCO ₂ e	2017+	Q2 2022	Reducing Gas Leakages within the Titas Gas Distribution Network	70,000



CARBON OFFSET CERTIFICATE

Treasury Wine Estates EMEA

HAS OFFSET

70,000

TONNES OF CO₂

Through projects which tackle global climate change and improve people's lives.

By offsetting your emissions through ClimateCare you are supporting projects that make a measurable difference to people's lives as well as protecting the environment. Climate and development projects:

-  **CREATE JOBS**
-  **IMPROVE HEALTH**
-  **SAVE FAMILIES MONEY**
-  **PROTECT WILDLIFE**
-  **PRESERVE LOCAL RESOURCES**
-  **FIGHT CLIMATE CHANGE**

www.climatecare.org 18 January 2022

Appendix 2: Independent third-party assurance



Certificate of Achievement

Treasury Wines Estates EMEA Limited

has measured in the product carbon footprints of their

Lindeman's Proprietary Limited Wines

Carbon Trust Assurance Limited certifies that Treasury Wines Estates EMEA Limited has re-calculated 143 Carbon Footprints representing 143 Individual Product Lines (IPLs) sold Cradle-to-Grave (Business-to-Consumer) and marketed in Europe, Australia, New Zealand, South East Asia, Japan, Middle East and Africa and Canada, in accordance with:

- PAS 2050: 2011 – Specification for the assessment of the life cycle greenhouse gas emissions of goods and services
- Greenhouse Gas Protocol – Product Life Cycle Accounting and Reporting Standard (2011)
- Product Environmental Footprint Category Rules (PEFCR) for still and sparkling wine (2018)
- The certification requirements of the Footprint Expert™ Guide

A detailed list of certified Carbon Footprints and Reductions results can be found in the associated Certification Letter CERT-13241.

Awarded: 27 January 2022

Valid Until: 26 January 2024

for and on behalf of Carbon Trust Assurance Ltd,

A handwritten signature in black ink, appearing to read "Hugh Jones".

Hugh Jones,
Managing Director

This certificate is for presentation purposes only. Please do not copy or circulate this certificate without the Certification Letter and associated Annexes where full details on the scope of the certification are documented. This certificate remains the property of Carbon Trust Assurance Limited and is bound by the conditions of the contract. Information and Contact: Carbon Trust Assurance Limited is registered in England and Wales under Company number 06547658 with its Registered Office at Dorset House, Stamford Street, London, SE1 9WT. Telephone: +44 (0) 20 7 170 7000. Carbon Trust Assurance Limited is a fully owned subsidiary of the Carbon Trust.

Appendix 3: Additional supporting information for interested parties

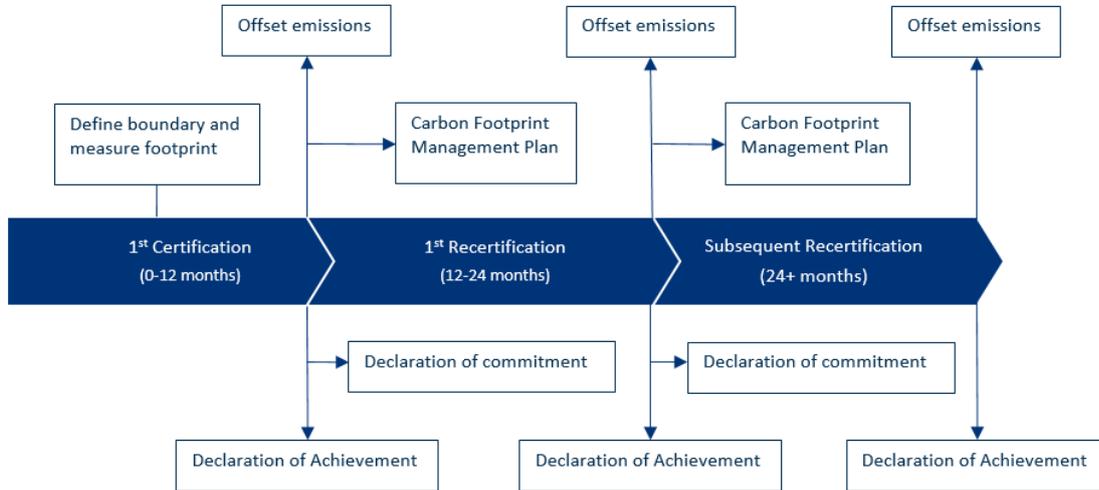


Figure 2. PAS 2060 certification process

Source: Carbon Trust. Adapted from “BSI - PAS 2060:2014: *Specification for the demonstration of carbon neutrality: Figure 1 – Illustration of the cyclical process for demonstrating carbon neutrality, taking into account permitted baseline period exceptions*”. [Simplified version]

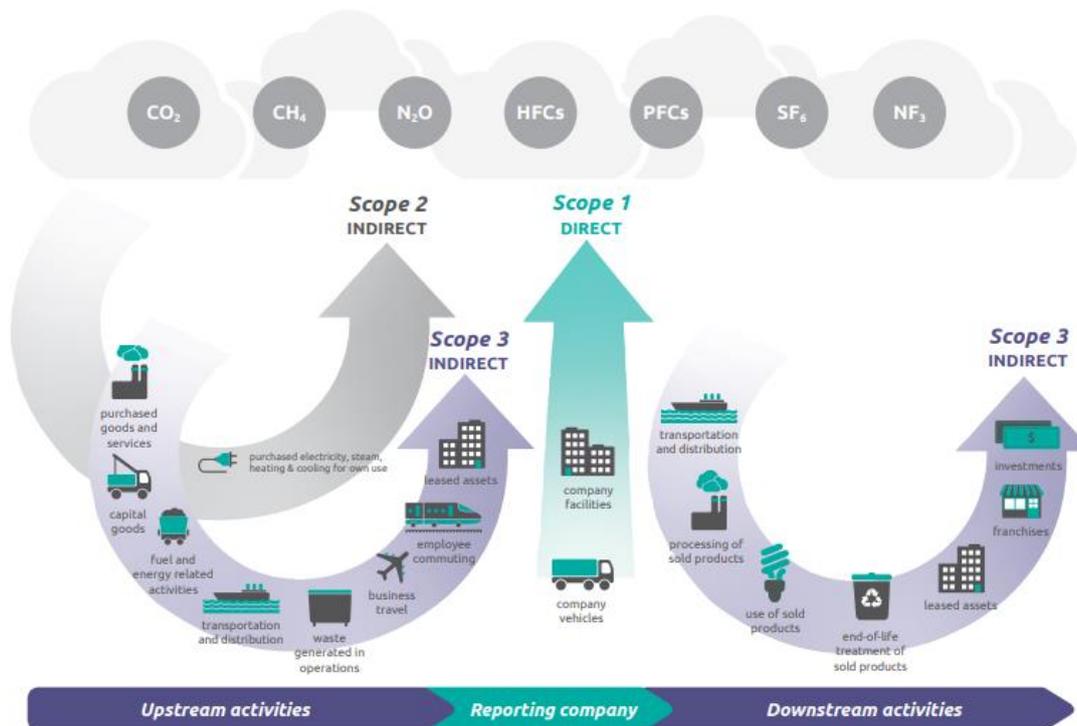


Figure 3. Organisational carbon footprinting

Source: Greenhouse Gas Protocol: <http://ghgprotocol.org/>