
b.effect

Brewing Company

**Greenhouse Gas
Emissions Inventory**

2020-2021

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Introduction

This report is a greenhouse gas (GHG) emissions inventory for b.effect Brewing Company. The inventory is a quantitative estimate of the amount of GHG emissions that can be directly attributed to the organisation's operations within the 2020- 2021 financial year.

The inventory has been prepared in accordance with the requirements of the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and ISO 14064-1:2006 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals.

Statement of Intent

This inventory forms part of b.effect's commitment to measure and manage their emissions.

Organisational Description

b.effect Brewing Company creates a range of beverages, including New Zealand craft beers, cider, kombucha and non-alcoholic beverages. The brewery is located in Wanaka, New Zealand. b.effect's beverages are enjoyed at the b.social bar and restaurant located next to the brewery as well as in establishments across the South Island and some in the North Island.

b.effect recognises that its operations may have a direct impact on the environment and is making an active effort to understand their environmental impact and improve it by setting sustainability objectives. This can enable the balancing of environmental and financial priorities throughout business operations and establish themselves as an environmentally responsible organisation.

GHG Emissions Inventory Summary

Table 1- Greenhouse gas emissions of b.effect for the measurement period of 1 April 2020 to 31 March 2021.

Type of emission	kg CO ₂ -e
Direct (Scope 1) Emissions	
Diesel use	6232.57
Refrigerants	TBC
Industrial carbon dioxide use	2400
Total Direct (Scope 1) Emissions	8632.57 (TBC)
Indirect (Scope 2) Emissions	
All purchased electricity in owned buildings and leased buildings where b.effect is the sole tenant	6607.56
Total Indirect (Scope 2) Emissions	6607.56
Indirect (Scope 3) Emissions	
Transmission and distribution line losses for all purchased electricity	566.56
Long haul heavy truck	1139.67
Domestic coastal freight, other bulk	12.03
Rail freight	50.28
International sea freight, refrigerated	261.48
Water supply	257.19
Food/brewing waste	TBC
General waste	TBC
Total Indirect (Scope 3) Emissions	2287.21 (TBC)

Total emissions	17527.34 (TBC)
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GHG emission source inclusions

The GHG emissions sources included in this inventory were identified with reference to the methodology in the GHG Protocol and ISO14064-1:2006 standards. As adapted from the GHG Protocol, these emissions were classified under the following categories:

- Direct GHG emissions (Scope 1): emissions from sources that are owned or controlled by b.effect.
- Indirect GHG emissions (Scope 2): emissions from the generation of purchased electricity, heat and steam consumed by b.effect.
- Indirect GHG emissions (Scope 3): emissions that occur as a consequence of the company’s activities but from sources not owned or controlled by b.effect.

The emissions sources in Table 2 have been included in the GHG emissions inventory.

Table 2: GHG emission sources included in the inventory

GHG emissions source	Data source	Data unit	Uncertainty
Electricity	Consumption report from supplier	kwh	It is assumed the data is correct for b.effect’s electricity usage only and doesn’t account for businesses sharing the same supply.
Refrigerants	Maintenance records	kg	It is assumed the maintenance provider has supplied a complete and accurate record.

Industrial carbon dioxide	Purchase records	kg	It is assumed the provider has supplied a complete and accurate record.
Diesel	Purchase records	litres	It is assumed data source represents a complete and accurate account of all travel activity.
Long haul heavy truck	Mainfreight annual activity reports	t.km	It is assumed Mainfreight has provided accurate records.
Domestic Coastal freight	Mainfreight annual activity reports	t.km	It is assumed Mainfreight has provided accurate records.
Rail freight	Mainfreight annual activity reports	t.km	It is assumed Mainfreight has provided accurate records.
International sea freight, refrigerated	Purchase records	t.km	It is assumed the provider has supplied accurate purchase records.
Water supply	Water meter records	m ³	It is assumed the measurements of water usage are accurate.
Food/brewing waste	b.effect staff estimate	kg	It is assumed the estimates of waste production are accurate.
General waste	b.effect staff estimate	kg	It is assumed the estimates of waste production are accurate.

GHG emission source exclusions

The following notable emissions sources have been excluded from the emissions inventory.

Table 2: Notable emission sources excluded from the inventory

GHG emissions source	GHG emissions level scope	Reason for exclusion
Staff commuting	Scope 3	Staff commuting to work is considered to fall under the personal carbon footprint of the employee as b.effect has little control over where people live and how they choose to commute therefore this is outside the Scope.
Recycling	Scope 3	Waste which is recycled by municipal facilities is not accurately accounted for as it is not certain where it travels to to be processed. Therefore, b.effect's recycling is accounted for as 'General Waste' as a Scope 3 emission which is likely to generate an emissions overestimate.

GHG emission calculations and results

GHG emissions for the b.effect for this measurement period are provided in the GHG Inventory summary section at the start of this report.

Figure 1 gives a visual overview of where the emissions are occurring across the organisation. For more detail, see the b.effect Greenhouse Gas Emissions Inventory Model using the Ministry for the Environment interactive workbook.

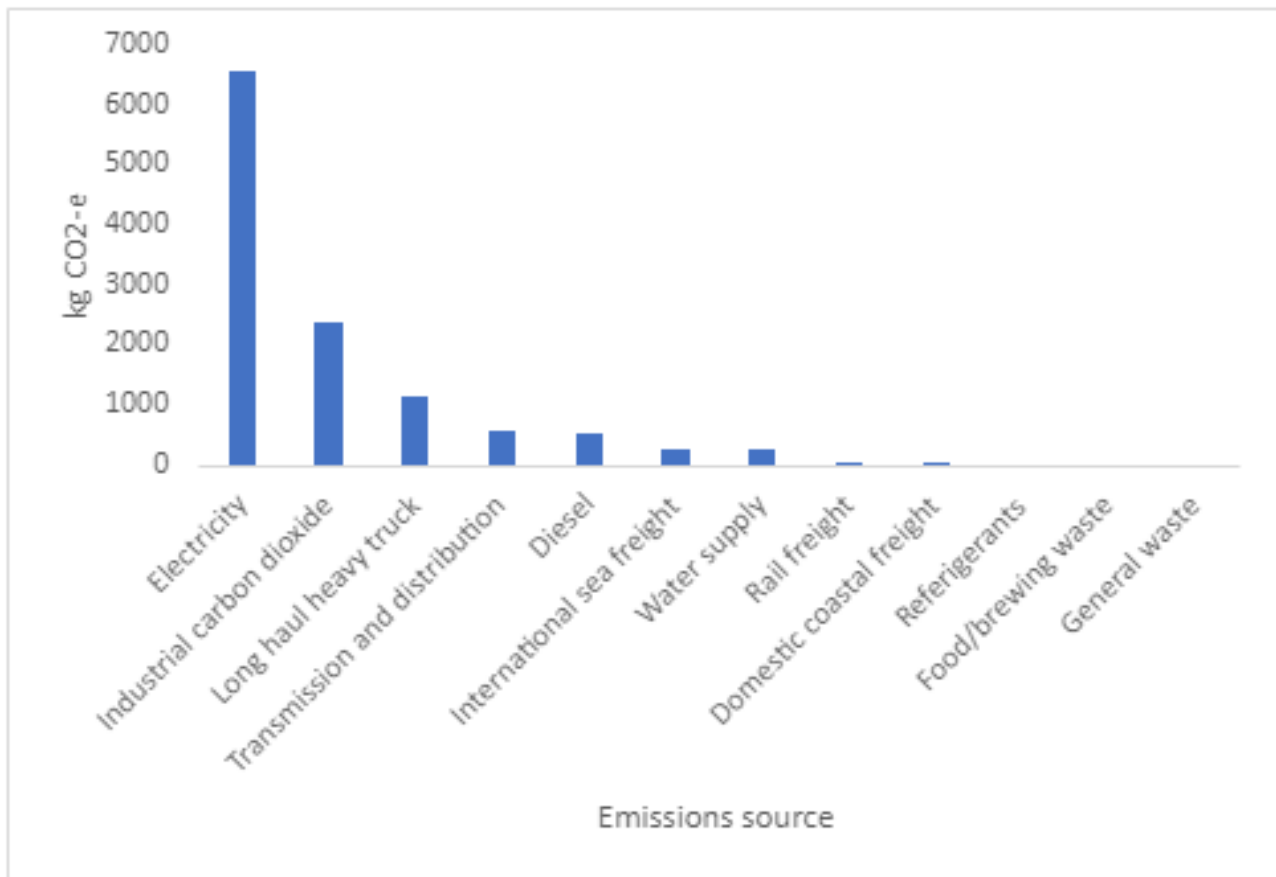


Figure 1- Greenhouse gas emissions by source

Liabilities

Refrigerators hold greenhouse gas stocks of HFCs, PFCs and SF6 which are gasses with high global warming potentials. Their accidental release could result in a large increase in emissions for the reporting period. Therefore, any GHG stocks in refrigerators are included in the greenhouse gas emissions inventory to identify significant liabilities.

References

International Organization for Standardization. 2006. ISO14064-1:2006. Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas GHG emissions and removals. Geneva: ISO.

Ministry for the Environment. 2020. Measuring Emissions: A Guide for Organisations: 2020 Detailed Guide. Wellington: Ministry for the Environment.

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“Small changes can cause create effects”
-Edward Lorenz

