Carbon Footprint Report for:

Wakefield Print Ltd

Period: 2019-2020 Financial Year

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CONTENTS

1. Summary

This report is a carbon footprint measurement report of greenhouse gas emissions and offsetting prepared for Wakefield Print Ltd with the following boundaries:

Organisation details	Name: Wakefield Print Ltd Contact person: Lindsay Email: lindsay@promoteyou.co.nz Area of Business: Printing FTEs: 2
Report period	April 1st 2019 – March 31st 2020
Organisational Boundary	This measurement covers the following sites: • Office and print rooms – Wakefield, Tasman, NZ
Operational Boundary	Business Operations Scope 1, 2 and 3 emissions resulting from: • Fuels • Air-conditioning • Purchased energy • Line losses • Driving • Flying • Waste to Landfill • Freight • Accommodation • Agriculture
Omissions	None
Emissions	Total emissions = 3.56 tCO2e *including electricity and radiative forcing) Total emissions = 2.66 tCO2e *less electricity (pre-offset)
Offsets	Total offsets = 3.19 tCO2e (120% offset)

Wakefield Print ltd has elected to offset 120% of these emissions with Verified Emission Reduction units provided by Ekos. Through this measurement and offsetting Wakefield Print has qualified for Climate Positive Business Operations certification.

2. Methodology

This report was prepared with activity data provided by Wakefield Print Ltd and compiled and calculated by Ekos.

The International Standards Organisation (ISO) 14064-1 sets out two methods for measuring greenhouse gas emissions:

I. Direct measurement
II. Use of an emission factor multiplied by activity data.

This report is based on method II.

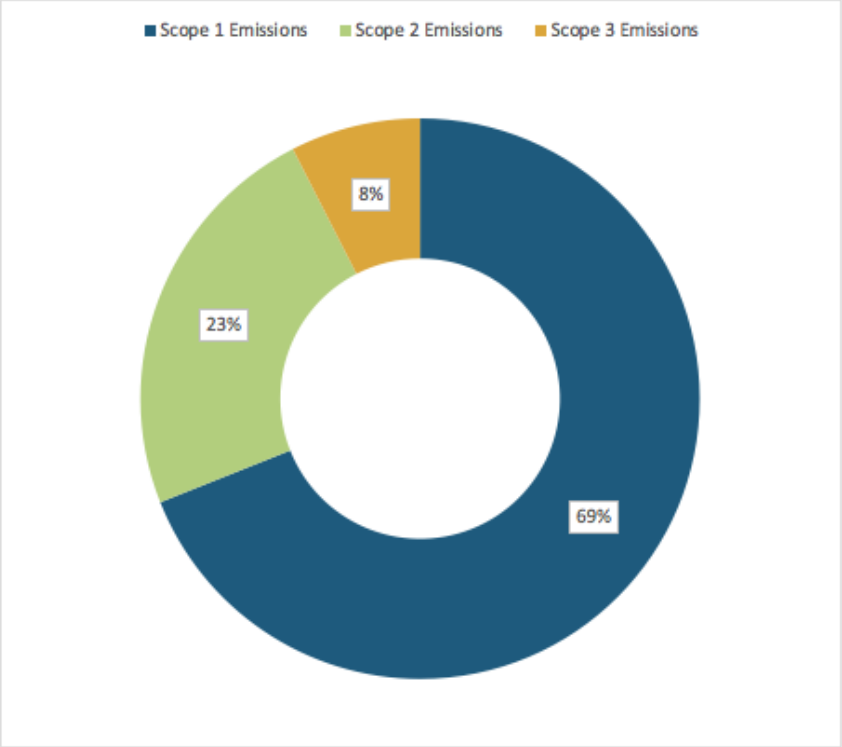
Emission factors have been sourced from the New Zealand Ministry for the Environment 2019 Guidance for Voluntary Greenhouse Gas Reporting and the UK's Department of Environment, Food and Rural Affairs (DEFRA 2018).

3. Emissions by Scope 2019-2020 FY

Table 1. Emissions by Scope and tCO2e (including radiative forcing)

Scope 1 Emissions	2.45
Scope 2 Emissions	0.84
Scope 3 Emissions	0.27

Figure 1. Emissions by Scope

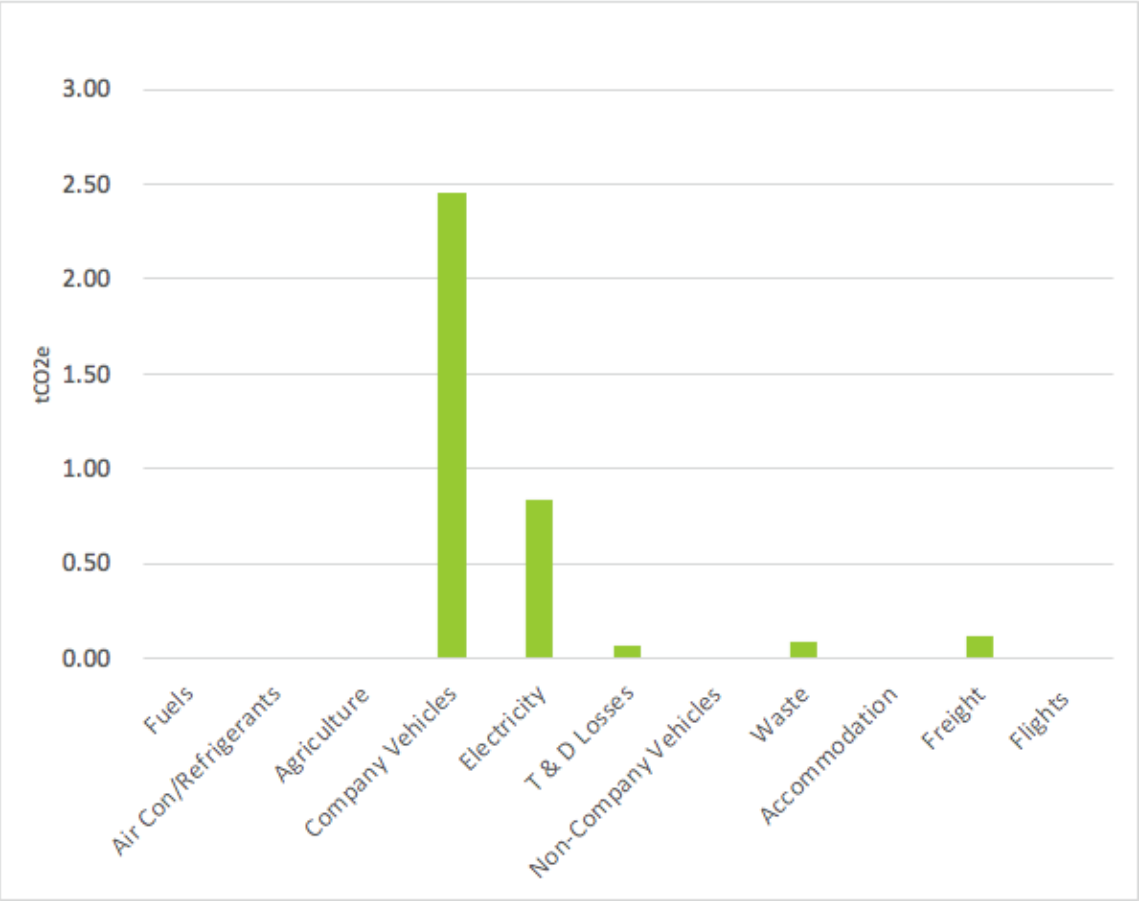


4. Emissions by Activity 2019-2020 FY

Table 2. Emissions by Activity, Scope and tCO2e (including radiative forcing)

	Activity	tCO2e
Scope 1	Fuels	0.00
	Air Con/Refrigerants	0.00
	Agriculture	0.00
	Company Vehicles	2.45
Scope 2	Electricity	0.84
Scope 3	T & D Losses	0.06
	Non-Company Vehicles	0.00
	Waste	0.09
	Accommodation	0.00
	Freight	0.11
	Flights	0.00
Total		**3.56**
FTEs		2
Footprint per FTE		**1.78**

Figure 2. Emissions by Activity and tCO2e (including radiative forcing)



5. Omissions

There were no organisational or activity omissions.

6. Uncertainty

Certain activities may contribute such a small portion of the total CO2e emissions that they make up less than 1 per cent. These may be excluded from the footprint measurement, provided that the total of excluded emissions does not exceed the materiality threshold 5 per cent: meaning the total of all emission sources excluded as *de minimis* must not exceed 5 per cent of the total footprint.

The *de minimis* rule was applied to:

- No activities

Client Estimations and measurement improvements

Company vehicles

Wakefield Print's 2020 FY company vehicle emissions were calculated by converting the dollars spent on fuel and using the average price per litre.

To improve the accuracy of company vehicle emissions for future measurements we recommend keeping an accurate record of the litres of fuel purchased. The next best approach is to record the total kms travelled by the vehicle.

Incoming Freight

Wakefield Print's 2020 FY inward freight emissions were calculated by doubling the evidence-based calculations made for outgoing freight. This estimation was accepted due to the fact that incoming freight data was complex and unavailable to the client. It was also accepted that using the proxy of Wakefield Print's calculated outgoing freight emissions was a conservative over-estimate of stock coming in vs stock going out over the financial year.

Future measurement will require Wakefield Print to keep records of incoming goods, where they are sent from, the weight and mode of freight used.

Outgoing freight

Wakefield Print's 2020 FY outgoing freight emissions were calculated using conservative evidence-based estimates to calculate the weight of outgoing goods. For each product sent using courier bags, the parcels sent were assumed to be the maximum weight the bag could carry. Assumptions were as follow: DLE bag – 200grams, A5 bag – 500 grams, A4 bag – 1 kg, A3 bag – 2 kg , XLG bag - 3 kg

To improve the accuracy of outgoing freight emissions for future measurements we recommend weighing and recording goods sent OR asking your freight company to provide this information in an excel report.

The businesses for Climate Action group in Te Tauihu is currently calling for interest from local businesses who would like to be involved in a campaign that will put the pressure back on freight companies to do this piece of data collection and reporting work. With collective buying power we should be able to put pressure on freight companies to transition to electric vehicles. Let us know if you are interested in joining this working group.

Defaults used by Ekos:

- For outgoing freight calculations – Ekos assumed that legs of freight sent out of town used 60% truck and 40% van ratio.
- For local deliveries within the Nelson and Tasman region – Ekos assumed 100% van.

7. Offsets and Certification

To qualify for Climate Positive Certification with Ekos an organisation must measure and offset 120% of Scope 1 (fuels, air conditioning, company vehicles, agriculture) Scope 2, (purchased energy), and Scope 3 (line losses, non-company vehicle use, flying, freight, accommodation, and waste to landfill) activity emissions.

Wakefield Print Ltd has measured all required activity emissions.

Total offsets (less Ecotricity pre-offset emissions) totalling 2.66 tCO2e including radiative forcing.

Wakefield Print Ltd has offset 3.19 tCO2e (120%) including radiative forcing.

Wakefield Print Ltd qualifies for Climate Positive Business Operations certification for the 2019-2020 financial year period (01.04.2019 – 31.03.2020).

Offsets in the form of Verified Emission Reduction Units (VERs) or New Zealand Carbon Units (NZUs) are sourced from the Ekos carbon credit supply chain, and these offsets are retired on the Markit Environmental Registry (if VERs) or the New Zealand Carbon Registry (if NZUs).

8. Emission Reduction Recommendations

The emissions profile hotspots for Wakefield Print Ltd & their Climate Positive Business Operations certification for the 2020 Financial year was its Scope 1 company vehicle emissions and its Scope 2 electricity emissions.

Company vehicle emissions:

Covid-19 will likely result in a dramatic reduction in your company vehicle driving emissions and an upgrade in tele-conferencing habits. The challenge now, is how we can lock-in these new behaviours and keep driving emissions down in the long-term. To reduce your driving emissions, Ekos recommends:

- **Behaviour change:** Set an “only when necessary” driving policy along with an annual driving emissions reduction target.
- **Infrastrucutre Upgrade/Policy set:** Upgrade fossil fuel reliant vehicle fleets to hybrid and electric models where possible.

Electricity Emissions

Wakefield Print has invested in a 4kw solar system and uses Ecotricity (the only power company in New Zealand that has already measured and offset the emissions of its power distribution). This is great and are two of the interventions that we would have suggested!

Despite having solar, Wakefield Print still requires the import of electricity in times where solar energy is not being generated. Without knowing the exact source of your electricity emissions, I can only assume that the large usage comes from the operation of printing equipment.

Ekos won't pretend to be an expert on printing equipment, however standard appliance and heating and cooling efficiency principles are likely to apply to any business.

Appliances

- If you think you are having issues managing your energy demand an energy auditor may be able to help by providing a whole sweep of your business.
- If you are investing in new equipment, there is likely to be a range of options, some of which are more efficient than others. Investing in the most efficient model will mean more cost up front, but lower running costs.
- Standby mode (make sure your machines have been set to use standby/power saving mode whenever they are not in operation).

Heating & cooling

- Perhaps your business uses heaters and coolers to regulate the temperature of the printing rooms. Avoid using heat pumps for air conditioning during summer if possible. Unfortunately heat pumps are not efficient coolers. Fans and natural ventilation are the most efficient forms of cooling.
- To reduce your dependency on mechanised cooling and heating, ensure that your work office is well insulated (prioritise ceiling and floor insulation).

9. Glossary

De minimis

Certain activities may contribute such a small portion of the total CO2e emissions that they make up less than 1 per cent. These may be excluded from the footprint measurement, provided that the total of excluded emissions does not exceed the materiality threshold 5 per cent: meaning the total of all emission sources excluded as *de minimis* must not exceed 5 per cent of the total footprint.

Greenhouse gas (GHG)
Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. These include: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

The GHG scopes referred to are:

- Scope 1 - direct emissions from sources owned or controlled by you (e.g. diesel generator, coal heating, own vehicle fleet, agriculture)
- Scope 2 - indirect emissions generated by purchased energy (e.g. electricity, gas)
- Scope 3 - indirect emissions that are a consequence of the operations of an organisation or individual, but are not directly owned or controlled by the organisation or individual (e.g. flights, freight, non-company vehicles, waste, accommodation, electricity line losses).

Radiative forcing (RF) - Radiative forcing helps organisations account for the wider climate effects of aviation, including water vapour and indirect GHGs. This is an area of active research, aiming to express the relationship between emissions and the climate warming effects of aviation, which is yet to be agreed. For this reason, Ekos makes accounting for RF optional for our clients.

A multiplier of 1.9 is used to account for Radiative forcing in accordance with the Ministry for Environment *Measuring Emissions: A Guide for Organisations 2019*.

Appendix 1: Emission Factors

Ekos uses emission factors provided by the New Zealand Ministry for the Environment (MfE) *Measuring Emissions: A Guide for Organisations 2019*.

Where emission sources are not covered by the MFE emission factors, Department for Environment and Rural Affairs (DEFRA) UK Government conversion Factors for Greenhouse Gas Reporting 2018.

Emission source	**Emission Factor**	**Notes**
Electricity		
Electricity	0.000098 tCO2e/kWh	
Electricity Transmission and Distribution	0.0000007 tCO2e/kWh	
Company Vehicles		
Petrol	0.00245tC02e/L	Transport
Waste to Landfill		
General waste (without gas recovery) General waste (with gas recovery)	0.00117 tCO2e/kg 0.00024 tCO2e/kg	Conversion from kgs to L divides by 7.6923
Office Waste (without gas recovery) Office Waste (with gas recovery)	0.00184 tCO2e/kg 0.00038 tCO2e/kg	
Freight		
Road Freight Van Truck Ferry	 0.00070 tCO2e/ tonne. km 0.00014 tCO2e/ tonne. km 0.000017 tCO2e / tonne. km	Assumption of truck to van ratio determined by client