

# **Te ine tukunga: He tohutohu pakihi**

## **Measuring emissions: A guide for organisations**

2024 example report for greenhouse gas emissions



*Ministry for the*  
**Environment**  
*Manatū Mō Te Taiao*



**Te Kāwanatanga o Aotearoa**  
New Zealand Government

## Disclaimer

The information in this publication is, according to the Ministry for the Environment's best efforts, accurate at the time of publication. The Ministry will make every reasonable effort to keep it current and accurate. However, users of this publication are advised that:

- the information does not alter the laws of New Zealand, other official guidelines, or requirements
- it does not constitute legal advice, and users should take specific advice from qualified professionals before taking any action based on information in this publication
- the Ministry does not accept any responsibility or liability whatsoever whether in contract, tort, equity, or otherwise for any action taken as a result of reading, or reliance placed on this publication because of having read any part, or all, of the information in this publication or for any error, or inadequacy, deficiency, flaw in, or omission from the information in this publication
- all references to websites, organisations or people not within the Ministry are for convenience only and should not be taken as endorsement of those websites or information contained in those websites nor of organisations or people referred to.

## Acknowledgements

Prepared by the Ministry for the Environment, with technical expert advice from Toitū Envirocare Limited and Manaaki Whenua Landcare Research.

The Ministry for the Environment thanks the following organisations and government agencies for their contribution to the production of this publication:

Ministry of Business, Innovation and Employment, Ministry for Primary Industries, Te Manatū Waka Ministry of Transport, Auckland Transport, Air New Zealand, KiwiRail, KPMG, Originair, Air Chathams, Sounds Air and Auckland Council.

This document may be cited as: Ministry for the Environment. 2024. *Measuring emissions: A guide for organisations: 2024 example report for greenhouse gas emissions*. Wellington: Ministry for the Environment.

Published in May 2024 by the  
Ministry for the Environment  
Manatū Mō Te Taiao  
PO Box 10362, Wellington 6143, New Zealand  
[environment.govt.nz](https://environment.govt.nz)

ISBN: 978-1-991140-21-0  
Publication number: ME 1831

© Crown copyright New Zealand 2024

# Contents

|  |    |
|--|----|
| Purpose of this example report   | 4  |
| Greenhouse gas emissions report  | 5  |
| Introduction   | 5  |
| Emissions inventory results  | 5  |
| Dual reporting of indirect emissions from purchased and generated energy | 6  |
| Statement of intent  | 7  |
| Organisation description   | 7  |
| Organisational boundaries and consolidation approach                     | 8  |
| Justification of consolidation approach                                  | 8  |
| Organisational structure   | 8  |
| Organisational business units excluded from inventory                    | 10 |
| GHG emission source inclusions and activity data management              | 10 |
| GHG emissions excluded sources and sinks                                 | 16 |
| Quantified inventory of emissions and removals                           | 17 |
| GHG emission calculations and results                                    | 18 |
| Liabilities  | 19 |
| GHG stocks held  | 19 |
| Land-use change  | 19 |
| References   | 20 |
| Appendix 1   | 21 |
| GHG emissions data summary   | 21 |

# Purpose of this example report

The Ministry for the Environment (MfE) supports organisations acting on climate change. We recognise there is strong interest from organisations/entities across Aotearoa New Zealand to measure, report and reduce their emissions. We prepared this guide to help you measure and report your organisation's/entity's greenhouse gas (GHG) emissions. Measuring and reporting emissions empowers entities to manage and reduce emissions more effectively over time.

The guide aligns with and endorses the use of the GHG Protocol and ISO 14064-1:2018.

This example report is part of a suite of documents that comprise *Measuring Emissions: A guide for organisations*, as outlined in figure 1. It demonstrates what an inventory might look like, and should be read alongside the [Example GHG inventory](#). For more information about producing a GHG report, see section 2 of the [Detailed guide](#).

**Figure 1: Documents in Measuring emissions: A guide for organisations**

| Measuring emissions: A guide for organisations |  |
|--|--|
| Detailed guide                                 | For users who need to know the data sources, methodologies, uncertainties and assumptions behind the emission factors for each emission source |
| Emission factors summary                       | Quick look up tables providing the main emission factors for each emission source  |
| Emission factors workbook                      | As above but in Excel format across multiple tabs  |
| Emission factors flat file                     | Simple format for integration with software  |
| Interactive workbook                           | Use this spreadsheet to input your activity data, in order to work out your organisation's emissions and produce an inventory                  |
| Example GHG inventory                          | Shows what a finished inventory might look like  |
| Example GHG report                             | Shows what a finished report might look like   |

THIS DOCUMENT

# Greenhouse gas emissions report

## Introduction

This report is the annual greenhouse gas (GHG) emissions inventory and management report for OPQ Construction Limited, covering the measurement period 01 January 2022 to 31 December 2022.

The inventory report and any GHG assertions are expected to be verified by a Programme-approved, third-party verifier. The level of assurance is reported in a separate Assurance Statement provided to the directors of the certification entity.

The inventory has been prepared in accordance with the requirements of the *GHG Protocol Corporate Accounting and Reporting Standard* and *ISO 14064-1:2018 Specification with Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals*.

## Emissions inventory results

**Table 1: Inventory summary**

| Category<br>(ISO 14064-1:2018)  | Scopes<br>(ISO 14064-1:2006) | 2020          | 2021           | 2022            |
|---|------------------------------|---------------|----------------|-----------------|
| Category 1: Direct emissions (tCO <sub>2</sub> e)   | Scope 1                      | 322.52        | 200.81         | 1,486.99        |
| Category 2: Indirect emissions from imported energy (market-based method) (tCO <sub>2</sub> e)                | Scope 2                      | 0.85          | 8.31           | 5.37            |
| Category 3: Indirect emissions from transportation (tCO <sub>2</sub> e)                                       | Scope 3                      | 13.17         | 11.15          | 12.42           |
| Category 4: Indirect emissions from products used by organisation (tCO <sub>2</sub> e)                        |                              | 361.18        | 26.27          | 2,792.62        |
| Category 5: Indirect emissions associated with the use of products from the organisation (tCO <sub>2</sub> e) |                              | 0.00          | 0.36           | 3.93            |
| Category 6: Indirect emissions from other sources (tCO <sub>2</sub> e)  |                              | 0.00          | 0.00           | 0.00            |
| <b>Total direct emissions (tCO<sub>2</sub>e)</b>  |                              | <b>322.52</b> | <b>200.81</b>  | <b>1,486.99</b> |
| <b>Total indirect emissions (tCO<sub>2</sub>e)</b>  |                              | <b>375.21</b> | <b>46.09</b>   | <b>2,814.35</b> |
| <b>Total gross emissions (tCO<sub>2</sub>e)</b>   |                              | <b>697.73</b> | <b>246.90</b>  | <b>4,301.34</b> |
| Category 1 direct removals (tCO <sub>2</sub> e)   |                              | 0.00          | -725.00        | -1,450.00       |
| Purchased emission reductions (tCO <sub>2</sub> e)  |                              | 0.00          | 0.00           | 0.00            |
| <b>Total net emissions (tCO<sub>2</sub>e)</b>   |                              | <b>697.73</b> | <b>-478.10</b> | <b>2,851.34</b> |

## Dual reporting of indirect emissions from purchased and generated energy

All purchased and generated energy emissions are dual reported using both the location-based method and market-based method. Dual reporting illustrates the role of supplier choice, onsite renewable energy generation and contractual instruments in managing indirect emissions from energy alongside any ongoing energy efficiency and reduction efforts.

From the 2020 inventory, OPQ Construction Ltd aligns to market-based reporting for tracking energy related emissions and reductions over time.

Contractual instruments are any type of contract between two parties for the sale and purchase of energy bundled with attributes about the energy generation, or for unbundled attribute claims. This includes Renewable Energy Certificates.

**Table 2: Dual reporting of indirect emissions from imported energy**

| Category   | Location-based methodology (tCO <sub>2</sub> e) | Market-based methodology (tCO <sub>2</sub> e) |
|--|---|---|
| Category 1: Direct emissions   | 1,486.99  | 1,486.99                                      |
| Category 2: Indirect emissions from imported energy                                      | 9.44  | 5.37  |
| Category 3: Indirect emissions from transportation                                       | 12.42   | 12.42   |
| Category 4: Indirect emissions from products used by organisation                        | 2,792.62  | 2,792.62                                      |
| Category 5: Indirect emissions associated with the use of products from the organisation | 3.93  | 3.93  |
| Category 6: Indirect emissions from other sources  | 0.00  | 0.00  |
| <b>Total direct emissions</b>  | <b>1,486.99</b>                                 | <b>1,486.99</b>                               |
| <b>Total indirect emissions</b>  | <b>2,818.41</b>                                 | <b>2,814.35</b>                               |
| <b>Total gross emissions</b>   | <b>4,305.40</b>                                 | <b>4,301.34</b>                               |
| Category 1 direct removals   | -1,450.00                                       | -1,450.00                                     |
| <b>Total net emissions</b>   | <b>2,855.40</b>                                 | <b>2,851.34</b>                               |

# Statement of intent

This inventory forms part of OPQ Construction's commitment to measure and manage our emissions. The intended users of this inventory are internal staff for GHG reporting purposes.

## Organisation description

OPQ Construction Ltd is a wholly-owned subsidiary of OPQ New Zealand Ltd, which is owned by parent company OPQ International Inc. OPQ Construction has a turnover of over \$180 million, employing about 1400 permanent staff, with headquarters in Auckland. The company's core activities broadly cover utility works, civil engineering, cross-country pipelines, facilities management and plant hire. To carry out our work efficiently we have offices and depots throughout New Zealand.

OPQ Construction recognises that its operations may have a direct impact on the environment, and has made environmental management an integral part of its management system. OPQ Construction manages, monitors, and improves its environmental performance through actively offering leadership and implementation of a formal environmental management system certified to the internationally recognised ISO 14001 standard.

OPQ Construction is committed to operating in an energy-efficient environment and considers the management of its GHG emissions to be a principal component of its environmental and sustainability objectives. It is our aim to exploit all opportunities for energy savings throughout the business, to establish ourselves as an environmentally responsible organisation as well as a contributor to national carbon reduction targets.

By enabling an energy-conscious culture within the company, we aim to balance our environmental and financial priorities throughout our operations and demonstrate regulatory compliance with existing and future legislation.

# Organisational boundaries and consolidation approach

Organisational boundaries were set with reference to the methodology described in the *GHG Protocol* and *ISO 14064-1:2018* standards.

## Justification of consolidation approach

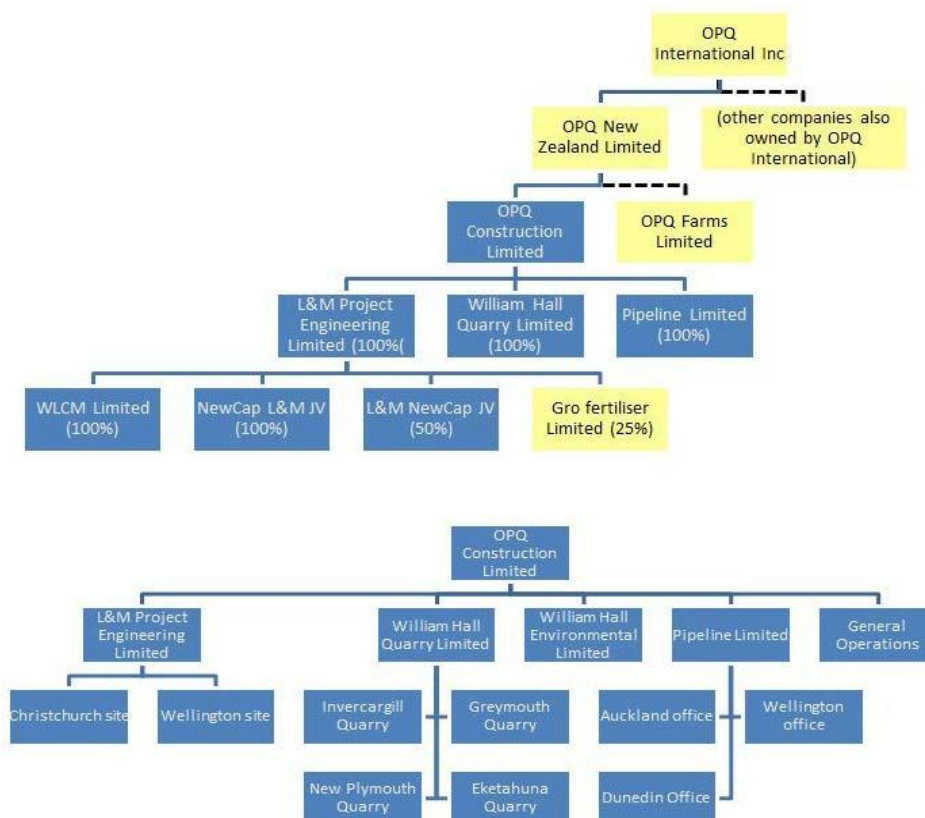
The GHG Protocol allows two distinct approaches to consolidate GHG emissions: the equity share or the control approach. The control approach is further broken down into a financial or an operational approach. We used an operational control consolidation approach to account for emissions.

## Organisational structure

Figure 1 shows the legal structure of the organisation. OPQ Construction International Inc is shown for transparency of the organisational boundary, to show the relationship to the parent company. OPQ Farms Ltd is a totally separate business from OPQ Construction.

The bottom half of figure 1 shows the reporting structure chosen for accounting for the organisation’s emissions. The structure was developed based on physical sites the organisation occupies.

**Figure 1: Legal structure of the organisation (top half) and the reporting structure chosen for accounting for emissions (bottom half)**





**Table 3: Brief description of business units**

| Business unit   | Address   | Purpose  |
|---|---|--|
| <b>OPQ Construction Ltd</b>                                   | Site address: OPQ Construction Ltd (head office), 2334 Builders Ave, Auckland | Ownership of all subsidiary companies. Some activities are measured at this level, in relation to the head office  |
| <b>General operations</b>                                     | n/a   | Covers miscellaneous emissions-sourcing activities associated with all reporting units that cannot be separated by reporting unit  |
| <b>L&amp;M Project Engineering Ltd</b>                        | Site address: OPQ Construction Ltd (head office), 2334 Builders Ave, Auckland | Management and marketing of general engineering and construction services. Activities at this level are accounted under head office  |
| <b>L&amp;M Project Engineering Ltd &gt; Christchurch site</b> | Site address: 2 Engineers Ave, Christchurch                                   | South Island operations depot for engineering and construction services  |
| <b>L&amp;M Project Engineering Ltd &gt; Wellington site</b>   | Site address: 34 Legos Rd, Wellington   | North Island operations depot for engineering and construction services  |
| <b>Pipeline Ltd</b>   | Site address: OPQ Construction Ltd (head office), 2334 Builders Ave, Auckland | Management of the design, construction and installation of pipelines and related plant for the oil, gas, water and energy industries. Activities at this level are accounted under head office |
| <b>Pipeline Ltd &gt; Auckland</b>                             | Site address: 7 Mayline Rd, Auckland  | Warehouse and distribution hub for pipes and associated materials  |
| <b>Pipeline Ltd &gt; Dunedin</b>                              | Site address: 21 Pype Rd, Dunedin   | Manufacturing site of pipes and associated materials   |
| <b>Pipeline Ltd &gt; Wellington</b>                           | Site address: 24 Linea Rd, Wellington   | Warehouse and distribution hub for pipes and associated materials  |
| <b>William Hall Quarry Ltd</b>                                | Site address: OPQ Construction Ltd (head office), 2334 Builders Ave, Auckland | Management of the quarry sites. Activities at this level are accounted under head office   |
| <b>William Hall Quarry Ltd &gt; Eketahuna Quarry</b>          | Site address: Sandbank Way, Eketahuna   | Quarrying of stone aggregate   |
| <b>William Hall Quarry Ltd &gt; Greymouth Quarry</b>          | Site address: Riverwide Rd, Greymouth   | Quarrying of stone aggregate   |
| <b>William Hall Quarry Ltd &gt; Invercargill Quarry</b>       | Site address: Greywacke Rd, Invercargill                                      | Quarrying of stone aggregate   |
| <b>William Hall Quarry Ltd &gt; New Plymouth Quarry</b>       | Site address: Andesite Rd, New Plymouth                                       | Quarrying of stone aggregate   |

## Organisational business units excluded from inventory

L&M Project Engineering Ltd has a 25 per cent ownership in Gro Fertiliser Ltd, of which the organisation has no operational control. It is a fully discrete business with its own management and sites. Therefore, it has been excluded from the inventory.

## GHG emission source inclusions and activity data management

As adapted from ISO 14064-1:2018, the emissions sources deemed significant for inclusion in this inventory were classified into the following categories:

- **Direct GHG emissions (Category 1):** GHG emissions from sources that are owned or controlled by the company.
- **Indirect GHG emissions (Category 2):** GHG emissions from the generation of purchased electricity, heat and steam consumed by the company.
- **Indirect GHG emissions (Categories 3-6):** GHG emissions that occur as a consequence of the activities of the company but occur from sources not owned or controlled by the company.

Table 4 provides detail on the categories of emissions included in the GHG emissions inventory, an overview of how activity data were collected for each emissions source, and an explanation of any uncertainties or assumptions made based on the source of activity data.

**Table 4: GHG emission sources included in the inventory**

| Business unit   | GHG emission source  | GHG emissions level scope   | Data source   | Data collection unit | Uncertainty (description)   |
|---|--|---|---|----------------------|---|
| <b>OPQ Construction/General operations</b>                                  | Air travel domestic (average)<br>Air travel long haul (econ) | Scope 3   | Travel provider (Flyaway Peter Travel Ltd) annual activity report (obtained via our accounts team – Ian Dollar) | pkm                  | It is assumed the data source represents a complete and accurate account of all travel activity. The organisation has a rule that all staff must book via the company travel provider. Discussion with the accounts team confirmed they were unaware of any travel being booked via staff credit card or staff expense claims |
| <b>Other/OPQ Construction/William Hall Quarry/New Plymouth</b>              | Biodiesel  | Outside scopes (CO <sub>2</sub> ), Scope 1 (CH <sub>4</sub> , N <sub>2</sub> O) | Tank readings at start and end of measure period  | GJ                   | It is assumed the tank readings were done correctly   |
| <b>OPQ Construction/General operations</b>                                  | Car – diesel, <2000cc Car – petrol, <2000cc                  | Scope 3   | Annual staff commuting survey   | km                   | It is assumed the data source is an appropriate representation of activity. Assumptions are made on vehicle type and approximate travel distance from staff home locations  |
| <b>OPQ Construction/General operations<br/>OPQ Construction/Head office</b> | Car – petrol, <2000cc  | Scope 1   | Rental car provider 12-month summary reports (Carls Car Rental Ltd)   | km                   | It is assumed the rental car reports are complete and accurate and that all rental cars were booked via this rental car provider  |
| <b>OPQ Construction</b>   | Concrete 30 MPa  | Scope 3   | Quantity surveyor report  | kg                   | It is assumed the QS report is complete and accurate and that all materials were used during the year of measurement  |

Example report

| Business unit  | GHG emission source                   | GHG emissions level scope | Data source  | Data collection unit | Uncertainty (description)   |
|--|---------------------------------------|---------------------------|--|----------------------|---|
| <p><b>OPQ Construction/General operations</b></p> <p><b>OPQ Construction/L&amp;M Project Engineering/Christchurch</b></p> <p><b>OPQ Construction/L&amp;M Project Engineering/Wellington</b></p> <p><b>OPQ Construction/William Hall Quarry/Eketahuna Quarry</b></p> <p><b>OPQ Construction/William Hall Quarry/Greymouth Quarry</b></p> <p><b>OPQ Construction/William Hall Quarry/Invercargill Quarry</b></p> <p><b>OPQ Construction/William Hall Quarry/New Plymouth</b></p> | Diesel                                | Scope 1                   | Online consumption report downloaded from supplier's (Gasoline Master Ltd) customer online login area              | L                    | It is assumed the supplier reports are complete and accurate. A small number of fuel purchases are via credit card, but in the base year this was deemed to be de minimis based on estimation methods |
| <b>All business units</b>  | Electricity                           | Scope 2                   | Online consumption report downloaded from supplier's (Power Up Energy Ltd) customer online login area              | kWh                  | It is assumed the supplier has provided data for all meters   |
| <b>OPQ Construction/Head office</b>  | Fertiliser nitrogen (N)               | Scope 3                   | Delivery receipts from Agrisupply Ltd  | kg                   | It is assumed all supplier receipts are complete and accurate   |
| <b>Other/William Hall Quarry Ltd &gt; Eketahuna Quarry</b>   | Forest – growth                       | Forestry                  | Aerial maps showing areas by forest type   | ha                   | It is assumed the aerial maps are accurate and the forest cover classification is appropriate   |
| <b>Other/William Hall Quarry Ltd &gt; Eketahuna Quarry</b>   | Forest – harvested                    | Forestry                  | Forest harvest records and aerial maps showing areas   | ha                   | It is assumed the forest harvest records are complete and accurate  |
| <b>OPQ Construction/General operations</b>   | Freight rail<br>Freight average truck | Scope 3                   | Freight provider annual activity reports (spreadsheet supplied via email by Joe Bloggs at Postman Pat Freight Ltd) | tkm                  | A small amount of freight is done by other suppliers but in the base year this was deemed to be de minimis based on estimation methods  |

Example report

| Business unit  | GHG emission source                   | GHG emissions level scope | Data source   | Data collection unit | Uncertainty (description)  |
|--|---------------------------------------|---------------------------|---|----------------------|--|
| Other/OPQ Construction/William Hall Quarry/New Plymouth  | Enteric Fermentation Non-dairy cattle | Scope 1                   | Stock management records  | Head                 | It is assumed all livestock on the records were on the site for the full 12 months   |
| Other/OPQ Construction/William Hall Quarry/New Plymouth  | Enteric Fermentation Sheep            | Scope 1                   | Stock management records  | Head                 | It is assumed all livestock on the records were on the site for the full 12 months   |
| OPQ Construction/General Operations<br>OPQ Construction/Pipeline/Dunedin   | LPG stationary commercial             | Scope 1                   | Invoices from LPG supplier (Total Gas Ltd)  | kg                   | It is assumed the supplier has provided complete and accurate invoice data   |
| OPQ Construction/Head office<br>OPQ Construction/General operations<br>OPQ Construction/L&M Project Engineering/Christchurch<br>OPQ Construction/L&M Project Engineering/Wellington<br>OPQ Construction/General operations | Petrol regular                        | Scope 1                   | Online consumption report downloaded from supplier's (Gasoline Master Ltd) customer online login area           | L                    | It is assumed the supplier reports are complete and accurate. A small number of fuel purchases are via credit card but in the base year this was deemed to be de minimis based on estimation methods |
| OPQ Construction/L&M Project Engineering/Christchurch  | Steel welded beams and columns        | Scope 3                   | Quantity surveyor report  | t                    | It is assumed the QS report is complete and accurate, and that all materials were used during the year of measurement  |
| OPQ Construction/L&M Project Engineering/Christchurch  | Steel – structural average            | Scope 3                   | Supplier invoices (various suppliers)   | t                    | It is assumed the supplier invoice records are complete and accurate   |
| OPQ Construction/General operations<br>OPQ Construction/Head office  | Taxi (regular)                        | Scope 3                   | Travel provider (Flyaway Peter Travel Ltd) annual activity report (obtained via our accounts team – Ian Dollar) | \$                   | It is assumed data source represents a complete and accurate account of all travel activity. The organisation has a rule that all staff must book via the company travel provider.                   |

Example report

| Business unit   | GHG emission source  | GHG emissions level scope   | Data source   | Data collection unit | Uncertainty (description)  |
|---|--|---|---|----------------------|--|
|   |  |   |   |                      | Discussion with the accounts team confirmed they were unaware of any travel being booked via staff credit card or staff expense claims   |
| <b>OPQ Construction/Head office</b>   | Waste landfilled – LFGR, Garden waste landfilled – LFGR, paper | Scope 3   | Waste provider 12-month reports (Wallys Waste Ltd)  | kg                   | It is assumed the provider reports are complete and accurate   |
| <b>OPQ Construction/General operations</b>  | Waste landfilled – LFGR, Mixed                                 | Scope 3   | Waste provider 12-month reports (Wallys Waste Ltd)  | kg                   | It is assumed the provider reports are complete and accurate   |
| <b>Other/OPQ Construction/L&amp;M Project Engineering/Christchurch</b>            | Wood chips industry  | Outside scopes (CO <sub>2</sub> ), Scope 1 (CH <sub>4</sub> , N <sub>2</sub> O) | Will’s wood chip supplies – monthly invoices  | kg                   | Wood chips are combusted in the boiler. The data source is complete and accurate, as the truck load is weighed on each delivery  |
| <b>OPQ Construction/L&amp;M Project Engineering/Christchurch</b>                  | Steel welded beams and columns                                 | Scope 3   | Quantity surveyor report  | t                    | It is assumed the QS report is complete and accurate, and that all materials were used during the year of measurement  |
| <b>OPQ Construction/L&amp;M Project Engineering/Christchurch</b>                  | Steel – structural average                                     | Scope 3   | Supplier invoices (various suppliers)   | t                    | It is assumed the supplier invoice records are complete and accurate   |
| <b>OPQ Construction/General operations</b><br><b>OPQ Construction/Head office</b> | Taxi (regular)   | Scope 3   | Travel provider (Flyaway Peter Travel Ltd) annual activity report (obtained via our accounts team – Ian Dollar) | \$                   | It is assumed data source represents a complete and accurate account of all travel activity. The organisation has a rule that all staff must book via the company travel provider. Discussion with the accounts team confirmed they were unaware of any travel being |

Example report

| Business unit  | GHG emission source            | GHG emissions level scope   | Data source  | Data collection unit | Uncertainty (description)   |
|--|--------------------------------|---|--|----------------------|---|
|  |                                |   |  |                      | booked via staff credit card or staff expense claims  |
| <b>OPQ Construction/Head office</b>                                    | Waste landfilled – LFGR, paper | Scope 3   | Waste provider 12-month reports (Wallys Waste Ltd) | kg                   | It is assumed the provider reports are complete and accurate  |
| <b>OPQ Construction/General operations</b>                             | Waste landfilled – LFGR, Mixed | Scope 3   | Waste provider 12-month reports (Wallys Waste Ltd) | kg                   | It is assumed the provider reports are complete and accurate  |
| <b>Other/OPQ Construction/L&amp;M Project Engineering/Christchurch</b> | Wood chips industry            | Outside scopes (CO <sub>2</sub> ), Scope 1 (CH <sub>4</sub> , N <sub>2</sub> O) | Will’s Wood Chip Supplies – monthly invoices       | kg                   | Wood chips are combusted in the boiler. The data source is complete and accurate, as the truck load is weighed on each delivery |

# GHG emissions excluded sources and sinks

OPQ Construction recognises the extent of Scope 3 emissions is significant. We have chosen to declare the following notable emissions sources that have been excluded from the emissions inventory.

**Table 5: Notable emission sources excluded from the inventory**

| Business unit   | GHG emission source | GHG emissions level scope | Reason for exclusion  |
|---|---------------------|---------------------------|---|
| OPQ Construction/L&M Project Engineering/Christchurch | Staff taxi travel   | Scope 3                   | Taxi travel is not separately coded in the accounting system, and therefore is impractical to obtain for this reporting period. An estimate indicated over \$550,000 would have to be spent on taxi travel to exceed 1% of the total emissions inventory. Expenditure is very unlikely to be more than this, as it was estimated only about \$20,000 would have been spent on taxi travel in New Zealand (based on a conservative assumption of \$100 on taxis for every staff travel flight taken). Given the small estimated impact on the total, we have chosen to exclude this. |
| L&M Project Engineering Ltd > Christchurch site       | Waste landfilled    | Scope 3                   | In this base year, estimates illustrate emissions from this source were only 0.01% of total emissions. Collating data for this source was very time-consuming, and given the small impact on the total, we have chosen to exclude this.   |
| L&M Project Engineering Ltd > Wellington site         | Waste landfilled    | Scope 3                   | In this base year, estimates illustrate emissions from this source were only 0.01% of total emissions. Collating data for this source was very time-consuming, and given the small impact on the total, we have chosen to exclude this.   |
| Head office   | Refrigerants (HVAC) | Scope 3                   | Head office is in a leased building and all HVAC equipment is owned and maintained by the lessor. We do not have any ability to influence or reduce the emissions.  |



# Quantified inventory of emissions and removals

A calculation methodology has been used for quantifying the emissions inventory based on the following calculation approach, unless otherwise stated below:

Emissions = activity data x emissions factor

All emission factors were sourced from the Ministry for the Environment's 2024 *Measuring emissions: A guide for organisations*.

Where applicable, unit conversions applied when processing the activity data has been disclosed.

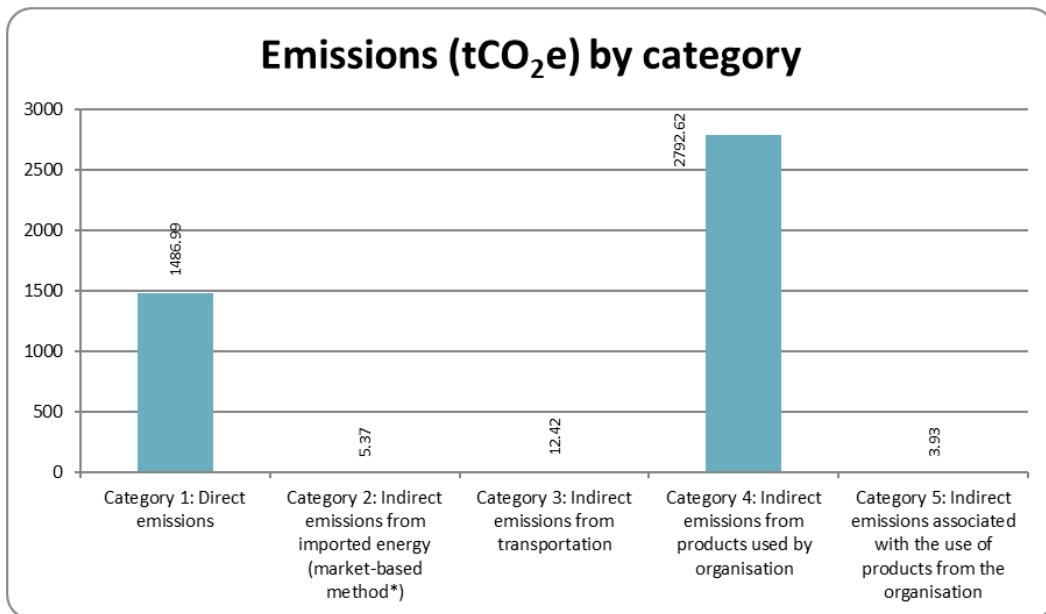
There are systems and procedures in place that will ensure applied quantification methodologies will continue in future GHG emissions inventories.

# GHG emission calculations and results

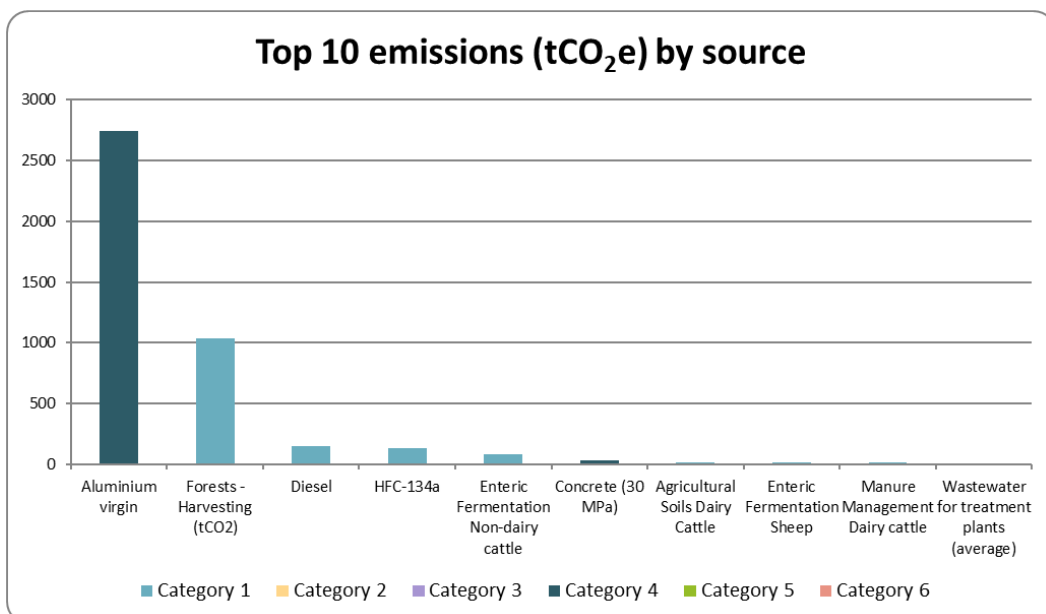
GHG emissions for the organisation for this measurement period are provided in the GHG Inventory summary section at the start of this report.

Figures 2 and 3 give an overview of where the emissions are occurring across the organisation. For more detail, see the [Example GHG inventory](#).

**Figure 2: Emissions (tCO<sub>2</sub>e) by Category for this measurement period**



**Figure 3: Top 10 GHG emissions (tonnes CO<sub>2</sub>e) by source**



# Liabilities

## GHG stocks held

Refrigerants and fuels may be stored on site, but their accidental leakage or release could result in a large increase in emissions for that period. Refrigerants such as HFCs, PFCs and SF<sub>6</sub> are GHGs with high global warming potentials, so material volumes of these or fuel are reported as potential liabilities.

**Table 6: Total storage as of year end with potential GHG emissions liabilities**

| GHG gas stock held               | Quantity | Unit      | Potential liability (tCO <sub>2</sub> e) |
|----------------------------------|----------|-----------|--|
| Diesel                           | 500.00   | litres    | 1.35                                     |
| Diesel commercial                | 500.00   | litres    | 1.33                                     |
| Petrol                           | 250.00   | litres    | 0.61                                     |
| Petrol premium                   | 250.00   | litres    | 0.62                                     |
| R-11                             | 50.00    | kilograms | 237.50                                   |
| <b>Total potential liability</b> |          |           | <b>241.41</b>                            |

## Land-use change

Organisations that own land subject to land-use change may achieve sequestration of carbon dioxide through a change in the carbon stock on that land. Where sequestration is claimed, then this also represents a liability in future years should fire, flood, management activities or other intentional or unintentional events release the stored carbon.

**Table 7: Land-use liabilities (total)**

| Site name            | Total sequestration during reporting period (tCO <sub>2</sub> e) | Contingent liability (tCO <sub>2</sub> e) | Total potential liability (tCO <sub>2</sub> e) |
|----------------------|--|---|--|
| OPQ Construction Ltd | -1450  | 0   | 0  |

# References

International Organization for Standardization. 2018. ISO14064-1:2018. Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas GHG emissions and removals. Geneva: ISO.

World Resources Institute and World Business Council for Sustainable Development. 2004. *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard* (revised). Geneva: WBCSD.

# Appendix 1

## GHG emissions data summary

Additional inventory details are disclosed in the tables below, and further GHG emissions data are available on the [accompanying spreadsheet to this report](#).

**Table 8: Direct GHG emissions and removals, quantified separately for each applicable gas**

| Category   | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | NF <sub>3</sub> | SF <sub>6</sub> | HFC    | PFC  | Desflurane | Sevoflurane | Isoflurane | Emissions total (tCO <sub>2</sub> e) |
|--|-----------------|-----------------|------------------|-----------------|-----------------|--------|------|------------|-------------|------------|--------------------------------------|
| Stationary combustion                                      | 3.56            | 0.01            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 3.57                                 |
| Mobile combustion (incl. company owned or leased vehicles) | 157.98          | 0.67            | 2.99             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 161.63                               |
| Emissions - Industrial processes                           | 5.81            | 0.02            | 0.02             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 5.85                                 |
| Removals - Industrial processes                            | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 0.00                                 |
| Leakage of refrigerants                                    | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 130.00 | 0.72 | 0.00       | 0.00        | 0.00       | 130.72                               |
| Treatment of waste   | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 0.00                                 |
| Fugitive Emissions   | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 0.00                                 |
| Treatment of wastewater                                    | 0.26            | 0.84            | 1.05             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 2.15                                 |
| Emissions - Land use, land-use change and forestry         | 1,040.00        | 0.00            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | 1,040.00                             |
| Removals - Land use, land-use change and forestry          | -1,450.00       | 0.00            | 0.00             | 0.00            | 0.00            | 0.00   | 0.00 | 0.00       | 0.00        | 0.00       | -1,450.00                            |

Example report

| Category                                  | CO <sub>2</sub> | CH <sub>4</sub> | N <sub>2</sub> O | NF <sub>3</sub> | SF <sub>6</sub> | HFC           | PFC         | Desflurane  | Sevoflurane | Isoflurane  | Emissions total (tCO <sub>2</sub> e) |
|---|-----------------|-----------------|------------------|-----------------|-----------------|---------------|-------------|-------------|-------------|-------------|--------------------------------------|
| Fertiliser use                            | 0.00            | 0.00            | 4.80             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 4.80                                 |
| Addition of livestock waste to soils      | 0.00            | 12.33           | 21.02            | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 33.35                                |
| Addition of crop residue to soils         | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                                 |
| Addition of lime to soils                 | 3.52            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 3.52                                 |
| Enteric fermentation                      | 0.00            | 101.39          | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 101.39                               |
| Open burning of organic matter            | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                                 |
| Electricity generated and consumed onsite | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                                 |
| Medical gases                             | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                                 |
| Exported electricity                      | 0.00            | 0.00            | 0.00             | 0.00            | 0.00            | 0.00          | 0.00        | 0.00        | 0.00        | 0.00        | 0.00                                 |
| <b>Total net emissions</b>                | <b>-238.87</b>  | <b>115.25</b>   | <b>29.69</b>     | <b>0.00</b>     | <b>0.00</b>     | <b>130.00</b> | <b>0.72</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>36.99</b>                         |

**Table 9: Non-biogenic, biogenic anthropogenic and biogenic non-anthropogenic CO<sub>2</sub> emissions and removals by category**

| Category   | Anthropogenic biogenic CO <sub>2</sub> emissions | Anthropogenic biogenic (CH <sub>4</sub> and N <sub>2</sub> O) emissions (tCO <sub>2</sub> e) | Non-anthropogenic biogenic (tCO <sub>2</sub> e) |
|--|--|--|---|
| Category 1: Direct emissions   | 38.20  | 137.48   | 0.00  |
| Category 2: Indirect emissions from imported energy                                      | 0.00   | 0.00   | 0.00  |
| Category 3: Indirect emissions from transportation                                       | 0.00   | 0.00   | 0.00  |
| Category 4: Indirect emissions from products used by organisation                        | 0.00   | 8.95   | 0.00  |
| Category 5: Indirect emissions associated with the use of products from the organisation | 0.00   | 0.00   | 0.00  |
| Category 6: Indirect emissions from other sources  | 0.00   | 0.00   | 0.00  |
| <b>Total gross emissions</b>   | <b>38.20</b>                                     | <b>146.42</b>  | <b>0.00</b>                                     |