

WELLINGTON  
AIRPORT



**WELLINGTON AIRPORT**  
**GREENHOUSE GAS INVENTORY REPORT FY24**



Executive summary	3
GHG emissions summary	4
1 Introduction	5
• 1.1 Statement of intent	5
• 1.2 Purpose of this document	5
• 1.3 Intended uses and users	6
• 1.4 Persons responsible and quality control	6
• 1.5 Targets	6
2 Description of Wellington International Airport	7
• 2.1 Physical description	7
• 2.2 Organisational boundary	8
• 2.3 Facilities and assets	9
• 2.4 Boundary exclusions	10
• 2.5 Base year selection	10
• 2.6 Recalculating emissions for a period	10
3 Methodology	11
• 3.1 Accreditation and required reporting	11
• 3.2 Materiality	12
• 3.3 GHG emissions source inclusions and Scope definitions	12
• 3.4 GHG emissions source exclusions	16
• 3.5 Rounding	17
• 3.6 Data collection and uncertainties	18
4 GHG emissions calculations and results	22
• 4.1 Biogenic emissions	28
• 4.2 Comparison to previous years and baseline year	28
• 4.3 Data analysis	29
• 4.3.1 Scope 1 and Scope 2 emission sources	29
• 4.3.2 Scope 3 emissions – largest emission sources	30
• 4.3.3 Scope 3 emissions – remaining emission sources	30
• 4.4 Subsidiaries	32
• 4.5 Key changes to previous and baseline year	32
• 4.6 RECs and offsets	33
• 4.7 Verification of GHG inventory	33
• 4.8 Summary	33
5 Glossary	34
References	35



This document is the annual greenhouse gas (GHG) emissions inventory for Wellington International Airport Ltd (Wellington Airport). It covers GHG emissions in the financial year 1 April 2023 to 31 March 2024 (FY24).

**Wellington Airport’s total emissions for FY24 were 253,152 tonnes of carbon-dioxide equivalent (tCO<sub>2</sub>-e) using a location-based approach, and 252,614 tCO<sub>2</sub>-e using a market-based approach.<sup>1</sup>**

Scope 1 and Scope 2 emissions (those which are a direct result of Wellington Airport operations) accounted for 1,016 tCO<sub>2</sub>-e using a location-based approach, and 478 tCO<sub>2</sub>-e using a market-based approach. Aircraft full-flight emissions (those that arise from aircraft leaving Wellington Airport) accounted for the vast majority of emissions at 221,369 tCO<sub>2</sub>-e.

Intent on providing transparent, high quality GHG reporting, Wellington Airport has prepared this report in accordance with the Airport Carbon Accreditation (ACA) and the External Reporting Board’s (XRB) Climate Standards 1-3 requirements. It is formatted to adhere to the *Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)* (GHG Protocol) and the

*Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011)* (GHG Protocol: Scope 3) standards.

In accordance with the above documentation, this document discloses all of Wellington Airport’s scope 1, scope 2, and scope 3 GHG emissions. This document also details the calculation and reporting methodology, activity data, reasons for excluded data, assumptions, limitations, and estimations methodology.

The ACA accreditation process requires airports to measure and disclose their GHG emissions to varying degrees, depending on the level being accredited for. Wellington Airport has measured and disclosed its emissions to achieve Level 2 certification previously, however this report is its first GHG inventory report. For FY24, Wellington Airport has further broadened its included GHG emissions to include several additional scope 3 emissions, including aircraft full flight emissions, in alignment with ACA Level 4.

1. Market-based and location-based are two different methods of calculating emissions from electricity usage. The location-based method uses an emission factor calculated from all electricity delivered to the grid in a year or quarter, while the market-based method uses contractual instruments which reflect emissions from renewable electricity generation that companies have purposefully chosen. See glossary on page 34 for a more detailed description.





Emissions data for Wellington Airport’s GHG emissions in FY24 is summarised below.

**Table 1 shows the GHG emissions broken down by category, as defined in the GHG Protocol. It presents emissions using both location-based and market-based methodologies. Full results are in section 4.**

Emission Source	tCO <sub>2</sub> -e (location based)	tCO <sub>2</sub> -e (market based)
Scope 1: Natural Gas	322	322
Scope 1: Airport Vehicles and LPG	78	78
Scope 1: Refrigerants	78	78
Scope 2: Purchased Electricity	538	0
Scope 3, Category 1: Purchased Goods and Services	2,459	2,459
Scope 3, Category 2: Capital Goods	868	868
Scope 3, Category 3: Fuel and Energy Related Activities	92	92
Scope 3, Category 5: Waste Generated in Operations	151	151
Scope 3, Category 6: Business Travel	154	154
Scope 3, Category 6: Business Travel (Meitaki Ltd)	7	7
Scope 3, Category 7: Employee Commuting/Working from Home	246	246
Scope 3, Category 11: Use of Sold Products	247,765	247,765
Scope 3, Category 13: Downstream Leased Assets	393	393
<b>Total</b>	<b>253,152</b>	<b>252,614</b>

**Table 1. GHG emissions by category (tCO<sub>2</sub>-e)**



## 1.1 Statement of intent

Wellington Airport is committed to preparing transparent and consistent carbon accounting and reporting in line with global best practice. Therefore, Wellington Airport’s GHG inventory has been prepared in accordance with the requirements of the GHG Protocol to be a fit for purpose, transparent, and comprehensive document.

## 1.2 Purpose of this document

This report is the annual greenhouse gas (GHG) emissions inventory report for Wellington Airport. The inventory is a complete and accurate quantification of the amount of GHG emissions that can be directly attributed to Wellington Airport’s operations within the declared boundary and scope for the specified reporting period.

The inventory has three key purposes:

1. Wellington Airport is certified by an ACA approved verifier as Level 2. The ACA program is a global carbon management certification program for airports, with the goal of assessing and recognising the emissions tracking and reduction efforts of airports. There are seven levels of certification and Wellington Airport current sits at Level 2. This report has been provided to support the maintenance of Wellington Airport’s Level 2 certification, as well as to allow Wellington Airport to progress to higher certification levels.
2. This report also serves to meet Wellington Airport’s disclosure requirements under the XRB’s Climate Standards, specifically regarding metrics and targets (paragraph 22a and 24 of NZCS1).
3. Beyond adherence to standards and accreditation requirements, this report serves to transparently disclose Wellington Airport’s GHG emissions and progress against its reduction targets. The purpose of this practice is to allow key stakeholders and interested parties to be informed about the impact of Wellington Airport operations on the climate and environment. Actions Wellington Airport is taking to reduce this impact is summarised in the FY24 Climate-Related Disclosures.



### 1.3 Intended uses and users

In line with this report’s purpose, there are several intended uses and users of this report.

Intended uses:

- Meet accreditation and disclosure requirements under ACA and XRB climate standards.
- Provide the public, staff, investors, and customers with confidence that Wellington Airport is accurately quantifying the amount of GHG emissions directly attributed to Wellington Airport’s operations within the declared boundary and scope for the specified reporting period.

Intended users:

- Wellington Airport investors and shareholders.
- Wellington Airport staff and executive leadership.
- Interested members of the public.
- Assurance (verification) providers.

### 1.4 Persons responsible and quality control

Wellington Airport’s GHG Inventory Report is prepared annually by the Sustainability Advisor. It has been reviewed and approved by the Sustainability Manager and General Manager Corporate Affairs.

This document has been prepared and reviewed in accordance with the internal procedure for preparation, review, and quality assurance document, where current persons in the relevant roles are listed.

### 1.5 Targets

Wellington Airport has committed to targets in relation to both GHG emissions reduction and raw resource consumption reduction. Wellington Airport’s targets are as follows:

- Net Zero by 2030 for Wellington Airport’s direct operations, i.e. Scope 1 and Scope 2 emissions.
- Scope 1 and Scope 2 absolute emissions are 30% below the FY17 baseline by 2030.
- Reducing waste-to-landfill by 30% compared to FY17 baseline, by FY30.
- Reducing terminal potable water use by 30% compared to FY17 baseline by FY30.
- Absolute Zero emissions by 2050.

On top of emissions reduction targets, Wellington Airport has also taken a number of other steps to both assist in achieving the above targets, while ensuring effective, climate-related strategy is incorporated as an integral part of its culture. These steps are:

- Committing to the Science Based Targets Initiative.
- Continual ACA accreditation improvements.
- Tracking embodied carbon emissions in construction projects.
- Expanding scope 3 emissions profile for all material emission sources.
- Purchase high-quality offsets for residual emissions.
- Sustainability inductions for every new staff member.
- Achieve at least 90/100 GRESB rating.



Figure 1. Wellington Airport boundary as of 29 September 2023

### 2.1 Physical description

Wellington International Airport is located about 5km southeast of Wellington CBD. It is situated on the isthmus that connects the Miramar peninsula to the rest of Wellington. It is flanked by the Cook Strait to the south and Wellington harbour to the north. The airport occupies approximately 130 hectares of land – making it geographically very small relative to its operations and passenger numbers (around six million passengers per year and growing). Wellington Airport is the third largest airport in New Zealand by passenger traffic and is the major node of connection to the domestic and international air travel network for the Wellington Region.

In serving this purpose, Wellington Airport maintains the following critical physical infrastructure:

- Operation of an extensive terminal complex on the Eastern section of the airport campus.
- Operation of a single Instrument Landing System capable runway.
- Operation of an on-site car parking complex.
- Maintenance of a Facilities Hub office located South on the Western side of the airport site on freight drive.
- An Airport Fire Service station north of the terminal complex on the Eastern Apron.

## 2.2 Organisational boundary

The organisational boundary of a GHG inventory determines which aspects of the organisation are included within the GHG inventory. The GHG Protocol allows two distinct approaches to consolidate GHG emissions: the equity share and control (financial or operational) approaches. Wellington Airport uses an operational control consolidation approach to account for emissions. Under the definition of operational control, as defined by the GHG protocol, Wellington Airport will take responsibility for emissions from all activities it has the full authority to introduce and implement its operating policies over the operation.

Wellington Airport has three wholly owned subsidiary companies it has considered when defining the organisational boundary.

- Where Manaakitanga Limited is the holding company for Wellington Airport’s hotel, which is independently operated and managed by Noahs Hotels (NZ) Limited under the Rydges brand. Noahs Hotels is wholly owned by EVT limited group. EVT reports scope 1 and scope 2 emissions for its New Zealand operations and is assessing and expanding its scope 3 emissions. As such, the hotel is considered outside Wellington Airport’s operational control and so only its electricity usage will be reported in Scope 3, Category 13 – Downstream Leased Assets, alongside Wellington Airport’s other tenants.
- Wellington Airport Noise Treatment Limited (WANT Limited) provides noise mitigation activities to manage the impact of noise generated from the airport on the surrounding community, part of the [Quieter Homes Programme](#). The Quieter Homes Programme is an initiative by Wellington Airport to carry out acoustic mitigation treatment work on homes within its Air Noise Boundary.
- Meitaki Limited is a captive insurance company incorporated in the Cook Islands. For the purposes of emissions accounting, this subsidiary has a very small footprint, consisting largely of a few business travel flights per year. This is incorporated into Wellington Airport’s footprint.

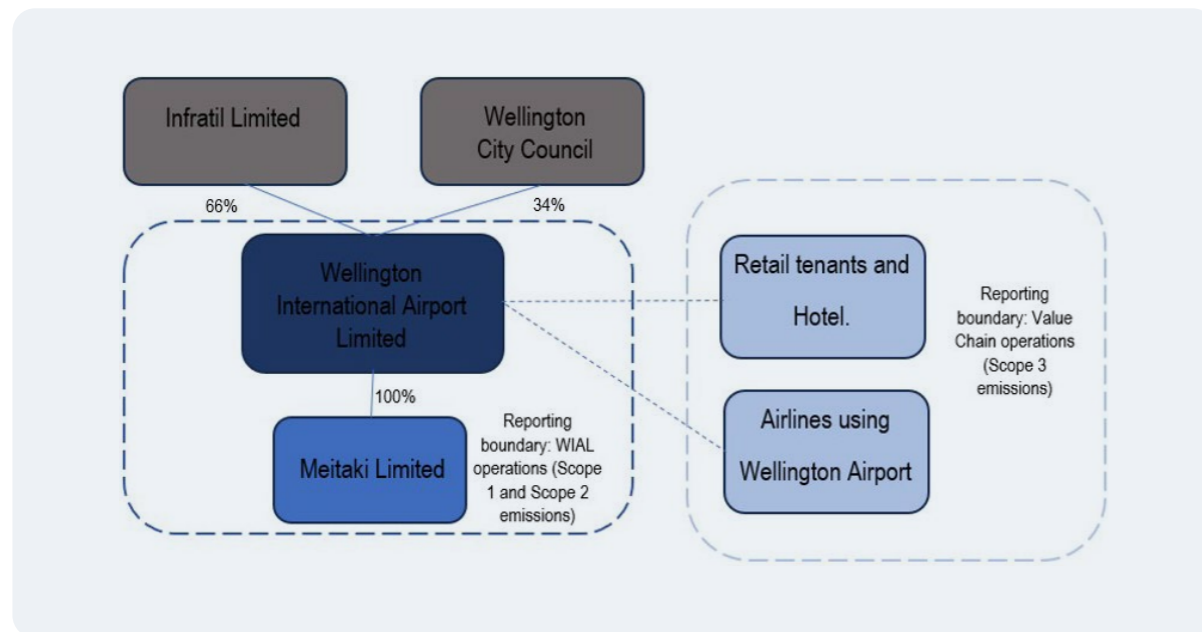


Figure 2. Reporting boundary chosen for accounting for Wellington Airport’s emissions profile

## 2.3 Facilities and assets

Wellington Airport operates a number of facilities and assets. Emissions captured within this GHG inventory are from activities on or in all airfield assets owned and maintained by Wellington Airport. Due to the range of services supported or offered by Wellington Airport, the asset portfolio is extremely diverse. These assets and facilities are described below.

### AIRFIELD

- Over 440,000m<sup>2</sup> of flexible and rigid airfield pavement with a focussed long-term maintenance and renewal programme.
- Approximately 450 airfield ground lighting units and 28 apron floodlight poles ranging from 18 – 28 metres tall.

### FACILITIES

32 buildings and 114 hectares of airport precinct, including over 10,000m of perimeter fencing supporting:

- Domestic/international terminal including retail, food court, passenger and baggage screening, and baggage handling
- Carparking and roadways
- Hotel accommodation
- Airport Fire Service station
- Retail/commercial/food and beverage leasing
- Hangars for private, aero club and essential services
- Industrial accommodation for freight and airline support services
- Plant and equipment including a baggage handling system, aerobridges, and life safety systems.

### TENANTS

Wellington Airport also has a portfolio of residential housing. The portfolio consists of 31 residential properties, and they are externally managed by a property management company. The property management company has operational control for instructing any maintenance or building works required.

### MARINE DEFENCES

1km of seawall and breakwater structures to protect land and assets from erosion, with each concrete block unit weighing at least 10 tonnes.

### TECHNOLOGY

Networking infrastructure, cabling, servers, and specialist assets such as FID screens, earthquake sensors, and runway surface monitoring infrastructure to support Wellington Airport operations, emergency response and security. Digital devices such as laptops, PCs and smartphones ensure Wellington Airport staff can work and collaborate effectively.

### VEHICLES

A fleet of four firefighting appliances, two boats, and 17 general vehicles for landside and airside use. We also provide airside facilities to support more than 40 airline and partner vehicles, both EV and petrol/diesel.



## 2.4 Boundary exclusions

In this year’s GHG inventory, Wellington Airport has excluded WANT Limited’s operations. This is due to the primary emissions from WANT coming only from embodied carbon of materials which Wellington Airport has not quantified (outside of large projects) as part of its FY24 GHG inventory and are expected to be minor as a percentage of the total inventory. Wellington Airport is intending on expanding its Scope 3 emissions to include embodied carbon for FY25, which would provide a more accurate emissions estimate for WANT Ltd.

## 2.5 Base year selection

Wellington Airport’s base-year for GHG emissions tracking, against which it sets most of its targets is FY17 (1 April 2016 to 31 March 2017). This year was chosen because as it is the most comprehensive set of emissions data that has been collated thus far. This is in line with the ACA guidelines which state “...it is recommended to choose the most recent year for which the most data is available...”. The FY17 GHG inventory report by Beca provides a good set of data to compare for future years. Additionally, FY17 represents a good baseline for airport operations, as it was before any disruptions caused by the Covid-19 pandemic.

## 2.6 Recalculating emissions for a period

There are certain situations in which Wellington Airport may need to recalculate emissions for a particular reporting period or its base year.

Wellington Airport aligns with the ACA standards recalculation policy, which is derived from the GHG Protocol. Any mergers, acquisitions, or divestments that are not considered a standard contraction or expansion of Wellington Airport operations, will trigger a recalculation in order to maintain parity in comparisons from year to year. Additionally, should any significant changes in emissions factors, calculation methodologies, or errors come to light, a recalculation will occur.

The materiality threshold Wellington Airport is ascribing to changes that will trigger a recalculation, is 5%. In other words, if any of the above conditions occur that result in an emissions estimation change of 5% or more for a particular period, Wellington Airport will recalculate the period. Wellington Airport may choose to recalculate a period for a change of less than 5% in certain circumstances.

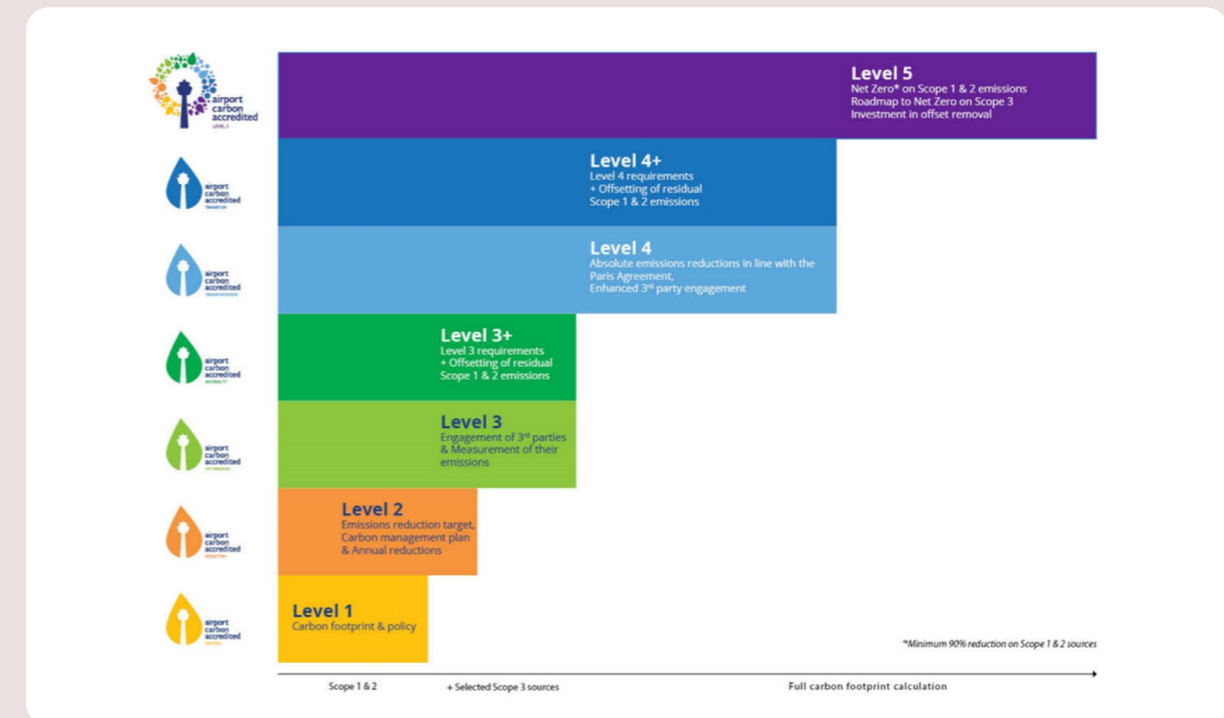


Figure 3. Main requirements for different levels of ACA

## 3.1 Accreditation and required reporting

There are two major drivers that govern how Wellington Airport reports its annual GHG emissions: the ACA and XRB.

The ACA is an international accreditation body for airports. It was developed and launched in Europe by Airports Council International (ACI) Europe in 2009. As of late 2014, Airport Carbon Accreditation had expanded world-wide to all ACI regions. It is the only voluntary global carbon management standard for airports. The aim of ACA is to encourage and enable airports to implement best practices in carbon management and achieve emissions reductions. Accreditation provides the opportunity for airports to gain public recognition for their achievements, promotes efficiency improvements, encourages knowledge transfer, raises an airport’s profile and credibility, encourages standardisation, and increases awareness and specialisation.

Airports can be accredited to one of seven levels, each of which requires airports to have more comprehensive carbon measurement, reduction, and offsetting systems than the previous. Wellington Airport is currently accredited at Level 2, which is known as “Reduction”, indicating Wellington Airport has been shown to have comprehensive carbon reduction plans and is actively reducing emissions. (See Figure 3.)

Wellington Airport is also subject to requirements by the XRB. The XRB was tasked with creating the *Aotearoa New Zealand Climate Standards*. The requirement for a comprehensive GHG inventory come specifically from paragraph 22a and 24 of NZ CS 1.

The aim of Aotearoa New Zealand Climate Standards is to support the allocation of capital towards activities that are consistent with a transition to a low-emissions, climate resilient future. In providing a consistent framework for entities to consider the climate-related risks and opportunities that climate change presents for their activities over the short, medium and long term, the objective of the standards is to enable primary users to assess the merits of how entities are considering those risks and opportunities, and then make decisions based on these assessments.

Part of these disclosure standards (alongside the risk management, governance, and strategy disclosures that enable stakeholders to make decisions regarding the potential impact of climate change on the organisation), is the need to disclose GHG emissions.

### 3.2 Materiality

Wellington Airport has used the ACA standards as a guide when it comes to prioritising and disclosing emission sources. ACA is specifically designed to help airports disclose their most important emissions first, with the aim of transitioning to disclosing all emissions that fall within their operational boundary, as they go up the levels of accreditation.

This approach is important, as for most airports the vast majority of emissions within their complete emissions profile, will be emissions from airlines landing and taking off at the airport. In many cases, this could be more than of 90% of total emissions. The result makes determining materiality from a quantitative perspective, very difficult. Most reasonable materiality thresholds could result in all except airline flight emissions, being deemed immaterial.

As such, the ACA standards provide a logical progression of emission source inclusions, that stem more from a qualitative perspective, than strictly quantitative. They start with the airport’s direct operations, then expand to include commonly disclosed value chain emissions that airports are likely to have a greater degree of control over, and finally look to disclose all emissions that can be reasonably assumed to adhere to the concept of completeness, for an airport. Wellington Airport intends on following the ACA standards when it comes to determining materiality. It also makes its own value judgements when considering the principles of relevance, completeness, consistency, transparency, and accuracy, which are laid out in the GHG protocol.

It is worth noting that the question of materiality with regards to emission inclusions within this report, is different to the question of material change that will result in a recalculation, as defined in Section 2.5.

### 3.3 GHG emissions source inclusions and Scope definitions

The ACA standards offer guidance with emission source identification and inclusion, based on which level of accreditation is being sought. Ultimately, the identification process is derived from the GHG Protocol, utilising the Scopes and Categories defined there. The ACA then elaborates on what airport-specific emission sources are typically found under each of these Scopes and Categories. Below is a diagram of a typical airport and the emission sources usually found as part of its operations.

It is worth noting that only the direct emissions of sources not under the operational control of the reporting organisation are included in Scope 3. In other words, “Scope 3 of Scope 3 sources” are not required to be reported but can voluntarily be reported if deemed appropriate.

The table on the following page shows which emission sources are included as part of this GHG inventory. More details on these emission sources and how data is obtained, can be found in Wellington Airport’s Summary Methodology document.



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Figure 4. Typical emission sources and their Scopes

Scope and Category	Wellington Airport Emission Source	Emission Source Description
Scope 1	Natural Gas	Natural gas is currently used throughout the terminal for heating and cooling as part of its operations. Tenant emissions from natural gas use are reported under Scope 3 Category 13.
Scope 1	Mobile Fuel Combustion: Airport Vehicles	Wellington Airport owns and operates some vehicles at the airport precinct. Though many have already been electrified, there are still some vehicles that use diesel or petrol. There is also a small amount of LPG used under this category, for barbeques.
Scope 1	Refrigerants	Wellington Airport requires refrigerants for its cooling systems. Over time, these refrigerants can slowly leak and require topping up. Wellington Airport reports on these top up amounts within the year that the top up occurred.
Scope 1	Fire Training	Wellington Airport is also required to report on emissions from fire-services training, such as the use of CO <sub>2</sub> extinguishers. The Wellington Airport Fire Service doesn't use live extinguishers for training, instead using a digital, training extinguisher which emits no emissions. There has been no live extinguisher use in FY24.
Scope 2	Purchased Electricity	Purchased electricity is used throughout Wellington Airport facilities for direct Wellington Airport operations. Tenant emissions from purchased electricity usage are reported in Scope 3 Category 13.
Scope 3, Category 1	Purchased Goods and Services	There are several purchased goods and services Wellington Airport reports on within its emissions profile: <ul style="list-style-type: none"> <li>• Water: Wellington Airport uses potable water throughout its buildings. It reports on emissions associated with the treatment and supply of water to its buildings.</li> <li>• General spending: To disclose as much of its emissions profile as possible, Wellington Airport has also looked at its operational expenses and assigned emissions factors to these dollar values. They include all kinds of services and products, from legal services to cleaning products.</li> </ul>
Scope 3, Category 2	Capital Goods	There have been two large capital projects Wellington Airport has undertaken in FY24. Emissions from these projects are broken down into the following: <ul style="list-style-type: none"> <li>• Fuel used in construction: The fuel used in these projects are part of the construction service, and thus reported within the emissions profile.</li> <li>• Embodied carbon within material use: materials used in surface replacement have had their embodied carbon calculated and included within the inventory.</li> </ul>
Scope 3, Category 3	Fuel and energy related activities	This category covers the upstream emissions that are a result of Wellington Airport's fuel, natural gas, and purchased electricity. These emissions are: <ul style="list-style-type: none"> <li>• Transmission and Distribution losses from electricity usage.</li> <li>• Transmission and distribution losses from natural gas usage.</li> <li>• Well-to-tank emissions from fuel used in airport vehicles (Scope 1 only).</li> </ul>
Scope 3, Category 5	Waste Generated in Operations	Waste is generated by Wellington Airport's operations, as well as by tenants and customers throughout the terminal. This category covers all waste generated at the Wellington Airport terminal, that is sent to landfill. Only waste to landfill is included for the purposes of the carbon inventory. Emissions from other waste streams are not included within this inventory.  Wastewater is generated throughout Wellington Airport's buildings. Emissions from the treatment of this wastewater is included within the profile.
Scope 3, Category 6	Business Travel	As part of its business operations, Wellington Airport sometimes require its staff to travel off-site. This category captures the emissions as a result of this travel, from flights, taxis, and Ubers.  Miscellaneous travel spending not captured by the above activities has been included by using a spend-based factor.  Wellington Airport also wholly owns Meitaki Ltd, whose emissions activity consists of a small amount of business travel annually.
Scope 3, Category 7	Employee Commuting	Wellington Airport captures emissions from its staff commuting to work at Wellington Airport.  Emissions that arise from staff working from home (heating, electricity usage, etc), are estimated and captured based on the number of "employee-workdays".



Scope and Category	Wellington Airport Emission Source	Emission Source Description
Scope 3, Category 11	Use of Sold Products	<p>The ACA definition of an airport’s “product sold” is the infrastructure and service (runways, stands, parking, etc.) that third parties can use for the purpose of air travel. Therefore, there are three major emission sources relevant to Wellington Airport that arise from this category:</p> <ul style="list-style-type: none"> <li>• Aircraft full flight emissions, the emissions from aircraft flying from Wellington Airport to their destination airport. Full flight emissions are a development from “landing and take-off cycle” emissions and are required to be reported under higher ACA levels (four and up). Because Wellington Airport uses fuel uplifted at the airport to estimate these emissions, all other aircraft activities that use fuel on the ground will also be captured.</li> <li>• Scope 1 emissions from fuel, refrigerant, and de-icing use of tenants and partners of Wellington Airport, such as airline ground vehicles.</li> <li>• Surface access traffic from airport visitors, passengers, and tenants (land-based travel to/from the terminal). This data is gathered via a travel survey conducted by Kantar. The data can then be extrapolated, based on the number of passengers passing through Wellington Airport annually. Emissions are calculated based on vehicle type averages and average distances to/from destination/origin suburbs.</li> <li>• Emissions from freight to and from the airport have been estimated based on truck/van movements.</li> </ul>
Scope 3, Category 13	Downstream Use of Leased Assets	<p>This category includes the electricity and natural gas use of Wellington Airport’s tenants (including the hotel operated by Whare Manaakitanga Limited). This category also includes tenants’ transport to and from the airport, as ACA defines this as ‘surface access’.</p>

**Table 2. Individual emission sources included within the inventory, listed by Scope and Category**

### 3.4 GHG emissions source exclusions

Wellington Airport is committed to measuring and disclosing the full breadth of its GHG emissions sources, so that appropriate reduction actions can be taken. For this year’s carbon inventory report, the following emission sources have been excluded.

Scope and Category	Emission Source	Reason for Exclusion
Scope 3, Category 4	Upstream Transportation and Distribution	Not applicable
Scope 3, Category 8	Upstream Leased Assets	Not applicable
Scope 3, Category 9	Downstream Transportation and Distribution	Not applicable
Scope 3, Category 10	Processing of Sold Productions	Not applicable
Scope 3, Category 12	End of Life Treatment of Sold Products	Not applicable
Scope 3, Category 14	Franchises	Not applicable
Scope 3, Category 15	Investments	Not applicable

**Table 3. GHG Inventory exclusions and reasoning**

### 3.5 Rounding

Many emissions calculations result in an amount of tCO<sub>2</sub>-e that isn’t a whole number. In these instances, standard rounding (0.50 or higher is rounded up, less than 0.50 is rounded down) is used so as to report figures to the nearest whole number. If the figure is less than 1, then three decimal places are reported. If the figure is less than 0.001, then it will be reported as <0.001.



### 3.6 Data collection and uncertainties

The table below provides detail of how data was collected for each GHG emissions source, the source of the data, and an explanation of any uncertainties or assumptions.

Scope and Category	Emission Source	Activity Data Unit and Provider	Assumptions, Uncertainties, Comments	Data Quality
Scope 1	Natural Gas	(kWh) Genesis	All data obtained has come from Genesis invoices. Measurements are received in GJ and converted to kWh before applying the appropriate emissions factor.	This data is directly measured so it is considered to be of a high quality.
Scope 1	Mobile Combustion and LPG	(L/kg) Z Energy	All data obtained comes from Z energy and are direct measurements of fuel consumption by fuel type.	This data is directly measured so it is considered to be of a high quality.
Scope 1	Refrigerants (fugitive emissions)	(kg) Aquaheat	Wellington Airport uses the “top-up” method, reporting emissions as systems are topped up. Measurements are accurate; however, the actual emissions will take place over time, between top ups, which can be several reporting periods apart. As such, the emissions reporting doesn’t accurately reflect when the emissions activity occurred. Nevertheless, all emissions are still ultimately accounted for.	This data is directly measured so it is considered to be of a high quality.
Scope 2	Purchased Electricity	(kWh) Mercury	All data obtained has come from Mercury invoices. This does not include transmission and distribution losses, which are reported in Scope 3.	This data is directly measured so it is considered to be of a high quality.
Scope 3, Category 1	Purchased Goods and Services – Water	(m <sup>3</sup> ) Wellington Water	All data obtained has come from Wellington Water invoices.	This data is directly measured so it is considered to be of a high quality.
Scope 3, Category 1	Purchased Goods and Services – Other expenses	(\$) Wellington Airport	Data is obtained via a financial expenditure summary. Emission factors from Market Economics are assigned based on a judgement call around the best representation of the activity the expenditure represents. These emissions are captured in the interest of completeness, and it is acknowledged that spend-based factors have inherent flaws. Wherever possible, more accurate activity data will be obtained, however in many instances the activities captured in this category, such as legal fees, will likely not have accurate emissions for a long time data due to the low emissions impact of the activity.	While the spend data is accurate, the emission factors are based on dollars spent, not any form of direct measurement or activity estimate. This data is considered satisfactory for the purposes of completeness.
Scope 3, Category 2	Capital Goods – Fuel use in construction projects	(L) Fulton Hogan	Fulton Hogan was contracted to perform construction works on a tarmac surface at Wellington Airport. Fuel use over the construction period was estimated and provided to Wellington Airport.  Additionally, fuel used as part of the hillock removal on the south side of Wellington Airport has been included.	This data is estimated for the period based on a monthly estimated. Due to the expertise of the contractor, this estimate is considered to be of a reasonable quality.
Scope 3, Category 2	Capital Goods – Material use in construction projects	(t) Fulton Hogan/ Estimate	Where available, quantities of materials used in both the hillock removal and surface replacement have been provided. In instances where this is unavailable, quantities have been estimated based on designs.	This data is estimated for the period based on a monthly estimated. Due to the expertise of the contractor, this estimate is considered to be of a reasonable quality.
Scope 3, Category 3	Fuel and Energy Related Activities	(kWh/L) Same as Scopes 1 and 2	This is the same activity data as in Scope 1 and Scope 2 but uses a lesser emissions factor to represent T&D losses for both natural gas and electricity and WTT emissions for fuel. WTT emission factors come from DEFRA (2023).	This data is directly measured so it is considered to be of a high quality.
Scope 3, Category 5	Waste Generated in Operations – Waste to Landfill	(Tonnes of waste) Waste Management	Currently all that is being reported is waste going to landfill. Recycling is not included as emissions factors are highly specific to a facility and are currently unavailable. Organic waste diverted to the Community Garden is assumed to be <i>de minimis</i> .  Emissions factor is using gas capture (Southern Landfill).	This data is directly measured so it is considered to be of a high quality.



Scope and Category	Emission Source	Activity Data Unit and Provider	Assumptions, Uncertainties, Comments	Data Quality
Scope 3, Category 5	Waste Generated in Operations – Wastewater	(m <sup>3</sup> ) Wellington Water	All data obtained has come from Wellington Water invoices. Due to a lack of specific measurement of wastewater, total consumption of water by Wellington Airport was used. This will likely result in a large overestimation, which is preferable to attempting to estimate the activity data and potentially underestimate.	The data gathered is extrapolated from water consumption and considered to be of a reasonable quality. Emissions are likely overestimated.
Scope 3, Category 6	Business Travel	(pkm/\$) Air NZ, Jetstar, Qantas, Sounds Air, Uber, P Card Taxi data	All flight data is gathered on a passenger-kilometres (pkm) basis. Air NZ sends reports directly to Wellington airport, and non-Air NZ suppliers are collated by Wellington Airport based on booking receipts. Uber and taxi data is spend based, using a spend based emissions factor.  Flight data for Meitaki Ltd was also supplied by Air NZ to Wellington Airport. Additionally, hotel accommodation is included within Meitaki Ltd's emissions.	Flight data is estimated based on flight path distances between two airports. As these tend to be very accurate, the data is considered a high quality. Taxi and Uber data is spend-based and as such there is some inaccuracy expected. This data is considered to be of a reasonable quality.
Scope 3, Category 11	Use of Sold Products – fuel uplift (full flight emissions)	(L) Data is gathered based on invoicing received from aviation fuel providers (BP and Mobil) using Wellington Airport's joint fuelling infrastructure	These emissions are the full flight emissions from planes that fuel up at Wellington Airport. This methodology is different to "Landing and Take off" emissions, which some airports use, whereby airports are responsible for fuel use of aircraft landing into and taking off from their airport up to a specified height. Wellington Airport's methodology takes account of all the fuel uplifted by a plane; thus, it is responsible for the emissions from the plane's whole flight (outward), but not for inbound flights. This methodology is accepted by ACA and prescribed for higher (level 4 and 5) accreditation levels.	The data gathered is directly measured and considered to be of a high quality.
Scope 3, Category 11	Use of Sold Products – Surface access for passengers/visitors to the terminal	(pkm/km) Kantar	Emissions from passengers/visitors travelling to the terminal was estimated based on a survey conducted by Kantar. The survey was of 500 individuals and gathered information on their mode of transport, distance travelled, and type of vehicle used. Figures were averaged and extrapolated out to the 5,448,110 passengers for the year.	Emissions are based on a survey, so there is inevitably potential for error. The data is considered to be of a reasonable quality.
Scope 3, Category 11	Use of Sold Products – tenant staff travel to work	(pkm/km) Kantar/ Wellington Airport Staff Survey	Emissions from tenants' staff travel to work was estimated from the same passenger survey used in category 11. Numbers were adjusted for tenant numbers (2000 staff) and working days were estimated based on Wellington Staff employee commuting survey. Emissions were then estimated based on transportation type, vehicle type, distance travelled, and number of days travelled to work.	Emissions are based on a survey, so there is inevitably potential for error. Furthermore, the survey was not conducted specifically on tenant staff. The data is considered to be of a satisfactory quality.
Scope 3, Category 11	Use of Sold Products – Surface access for freight to the terminal	Estimated	Emissions from trucks and vans delivering goods to the airport has been estimated based on the opinions of the relevant tenants that receive/ship goods. An average distance to and from the airport was used, and emissions were considered for both directions.	This is a high level estimate, so there is inevitable a potential for error. The data is considered to be of a reasonable quality.
Scope 3, Category 11	Use of Sold Products – Tenant fuel, refrigerant use, and de-icing compounds	(L/kg) Air New Zealand/ Aquaheat/Internal figures/Other airlines	Air New Zealand and LSG Sky Chefs provided fuel use data of its on-site vehicles to Wellington Airport directly. Due to the unavailability of direct measurement data, the remainder of tenant on-site vehicle data is obtained by Wellington Airport and emissions estimated based on vehicle type and the fuel use data provided by Air New Zealand. Refrigerant data for tenant's is provided by Aquaheat. De-icing compound use are supplied by the airlines.	The emissions data provided by Air New Zealand and Aquaheat is directly measured and considered of a high quality. The emissions estimated based on vehicle type and Air NZ's fuel use data is considered of a reasonable quality.
Scope 3, Category 13	Downstream Leased Assets – tenant natural gas and electricity usage	(kWh) Tenco/Lumen	Wellington Airport has created an "embedded network", which is managed by Tenco and data is analysed and insights are provided by Lumen. Individual tenants are sub metered, with Wellington Airport being responsible for shared space usage (e.g. terminal lighting) in its Scope 2 emissions.	The data gathered is directly measured and considered to be of a high quality.

**Table 4. Uncertainties, assumptions, and data quality of all data sources**



**In FY24, Wellington Airport emitted a total of 252,614 tCO<sub>2</sub>-e as a result of its activities (market-based). Of this, 478 tCO<sub>2</sub>-e were a result of direct (Scope 1) activities. 538 tCO<sub>2</sub>-e were a result of purchased electricity (Scope 2), but by purchasing Renewable Energy Certificates (RECs) this total is brought down to 0 tCO<sub>2</sub>-e. 252,136 tCO<sub>2</sub>-e were a result of indirect value chain emissions (Scope 3).**

The table below summarises the total emissions. Note that if the activity data or emission factor is listed as NA, this is due to the activity being calculated by amalgamating multiple types of activity data which use multiple emission sources. Most emission factors were sourced from the Ministry for the Environment’s 2023 Measuring Emissions: A Guide for Organisations. Full reference for emission factor sources can be found in the glossary.



Scope and Category	Emission Source	Emission Factor Source	Activity Data	Emission Factor (unit/kgCO <sub>2</sub> -e)	tCO <sub>2</sub> (in tCO <sub>2</sub> -e)	tCH <sub>4</sub> (in tCO <sub>2</sub> -e)	tN <sub>2</sub> O (in tCO <sub>2</sub> -e)	tHFCs (in tCO <sub>2</sub> -e)	Total tCO <sub>2</sub> -e	Percentage of Total Inventory (market based)
Scope 1	Natural Gas	MfE 2023	1,666,944 kWh	0.194	321	0.756	0.143	0	322	0.128%
Scope 1	Mobile Combustion - Diesel	MfE 2023	23,074 L	2.71	62	0.092	0.872	0	63	0.025%
Scope 1	Mobile Combustion – Regular Petrol	MfE 2023	2,488 L	2.46	6	0.077	0.177	0	6	0.002%
Scope 1	Mobile Combustion – Premium Petrol	MfE 2023	3,610 L	2.46	9	0.111	0.256	0	9	0.004%
Scope 1	Stationary Combustion - LPG	MfE 2023	18 kg	2.97	0.053	<0.001	<0.001	0	0.053	<0.001%
Scope 1	Refrigerants – R32	MfE 2023	0.22 kg	677	0	0	0	0.149	0.149	<0.001%
Scope 1	Refrigerants – R410a	MfE 2023	3 kg	1923.5	0	0	0	7	7	0.003%
Scope 1	Refrigerants – R407c	MfE 2023	44 kg	1624.21	0	0	0	71	71	0.028%
<b>Scope 1 total</b>					<b>398</b>	<b>1</b>	<b>1</b>	<b>78</b>	<b>478</b>	<b>0.189%</b>
Scope 2	Purchased Electricity (location-based)	MfE 2023	7,251,931 kWh	0.0742	523	14	1	0	538	0.212%*
Scope 2	Purchased Electricity (market-based, 100% renewable electricity)	NA	7,251,931 kWh	0	0	0	0	0	0	0%
<b>Scope 2 total (market-based)</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0%</b>

\*Calculated on location-based total



Scope and Category	Emission Source	Emission Factor Source	Activity Data	Emission Factor (unit/kgCO <sub>2</sub> -e)	tCO <sub>2</sub> (in tCO <sub>2</sub> -e)	tCH <sub>4</sub> (in tCO <sub>2</sub> -e)	tN <sub>2</sub> O (in tCO <sub>2</sub> -e)	tHFCs (in tCO <sub>2</sub> -e)	Total tCO <sub>2</sub> -e	Percentage of Total Inventory (market based)
Scope 3, Category 1	Purchased Goods and Services - Water	MfE 2023	123,819 m <sup>3</sup>	0.0369	4	0.120	0.010	0	5	0.002%
Scope 3, Category 1	Purchased Goods and Services – Operational Spending	Market Economics 2023	\$23,530,033	NA	NA	NA	NA	NA	2,454	0.971%
Scope 3, Category 2	Capital Goods – Fuel Used in Construction Projects	MfE 2023	94,888 L	2.71	254	0.379	4	0	258	0.102%
Scope 3, Category 2	Capital Goods – Materials Used in Construction Projects	PEET tool, Waka Kotahi	8,944 tonnes of material	NA	NA	NA	NA	NA	611	0.242%
Scope 3, Category 3	Fuel and Energy Related Activities (T&D Losses) - Electricity	MfE 2023	7,251,931 kWh	0.0086	61	2	0.133	0	62	0.025%
Scope 3, Category 3	Fuel and Energy Related Activities (T&D Losses) – Natural Gas	MfE 2023	1,666,944 kWh	0.00713	0.096	12	0	0	12	0.005%
Scope 3, Category 3	Fuel and Energy Related Activities (Well-to-Tank) - Diesel	DEFRA 2023	23,074 L	0.62409	NA	NA	NA	NA	14	0.006%
Scope 3, Category 3	Fuel and Energy Related Activities (Well-to-Tank) - Petrol	DEFRA 2023	6,098 L	0.60664	NA	NA	NA	NA	4	0.001%
Scope 3, Category 5	Waste Generated in Operations – Waste to Landfill	MfE 2023	380,125 kg	0.232	0	88	0	0	88	0.035%
Scope 3, Category 5	Waste Generated in Operations – Wastewater	MfE 2023	123,819 m <sup>3</sup>	0.508	8	24	31	0	63	0.025%
Scope 3, Category 6	Business Travel – Air travel Domestic	MfE 2023	92,068 pkm	0.306	28	0.102	0.405	0	28	0.011%
Scope 3, Category 6	Business Travel – Short Haul Economy	MfE 2023	32,925 pkm	0.151	5	<0.001	0.025	0	5	0.002%
Scope 3, Category 6	Business Travel – Short Haul Business	MfE 2023	9,548 pkm	0.227	2	<0.001	0.011	0	2	0.001%
Scope 3, Category 6	Business Travel – Long Haul Business	MfE 2023	240,521 pkm	0.429	103	0.005	0.510	0	103	0.041%
Scope 3, Category 6	Business Travel – Taxi and uber	MfE 2023	\$17,716	0.0514	0.881	0.008	0.021	0	0.910	<0.001%
Scope 3, Category 6	Business Travel – Meitaki Ltd	MfE 2023	41,928pkm 9 hotel nights	0.151 (air travel) 54.8 (hotel nights)	7	<0.001	0.031	0	7	0.003%

Scope and Category	Emission Source	Emission Factor Source	Activity Data	Emission Factor (unit/kgCO <sub>2</sub> -e)	tCO <sub>2</sub> (in tCO <sub>2</sub> -e)	tCH <sub>4</sub> (in tCO <sub>2</sub> -e)	tN <sub>2</sub> O (in tCO <sub>2</sub> -e)	tHFCs (in tCO <sub>2</sub> -e)	Total tCO <sub>2</sub> -e	Percentage of Total Inventory (market based)
Scope 3, Category 6	Business Travel – Misc	Market Economics 2023	\$100,776	0.14971	NA	NA	NA	NA	15	0.006%
Scope 3, Category 7	Employee Commuting	MfE 2023	NA	NA	238	3	4	0	245	0.097%
Scope 3, Category 7	Staff Working From Home	MfE 2023	NA	NA	0.768	0.021	0.002	0	0.790	<0.001%
Scope 3, Category 11	Use of Sold Products (full flight emissions) – Aviation Fuel (Kerosene)	MfE 2023	86,392,170 L	2.56	219,557	43	1,618	0	221,218	87.571%
Scope 3, Category 11	Use of Sold Products (full flight emissions) – Aviation Gas	MfE 2023	67,118 L	2.25	150	0.030	1	0	151	0.060%
Scope 3, Category 11	Use of Sold Products – Surface Access of Passengers to Terminal	MfE 2023	NA	NA	21,205	275	391	0	21,872	8.658%
Scope 3, Category 11	Use of Sold Products – Surface Access of Tenants to Terminal	MfE 2023	NA	NA	3,205	42	59	0	3,306	1.309%
Scope 3, Category 11	Use of Sold Products – Surface Access of Freight to Terminal	MfE 2023	NA	NA	188	0.310	3	0	191	0.075%
Scope 3, Category 11	Use of Sold Products – Tenant Refrigerant Use (r134a)	MfE 2023	4 kg	1300	0	0	0	4	4	0.002%
Scope 3, Category 11	Use of Sold Products – Tenant Fuel Use	MfE 2023	NA	NA	1,002	4	17	0	1,023	0.405%
Scope 3, Category 11	Use of Sold Products – Tenant De-icing Compounds Use	ACERT 2023	NA	NA	NA	NA	NA	NA	0.110	<0.001%
Scope 3, Category 13	Downstream Leased Assets (tenant’s electricity usage)	MfE 2023	4,491,031 kWh	0.0742	323	9	0.712	0	333	0.132%
Scope 3, Category 13	Downstream Leased Assets (tenant’s natural gas usage)	MfE 2023	309,496 kWh	0.194	60	0.140	0.027	0	60	0.024%
<b>Scope 3 total</b>					<b>246,401</b>	<b>502</b>	<b>2,130</b>	<b>5</b>	<b>252,136</b>	<b>99.811%</b>
<b>Total (location based)</b>									<b>253,152</b>	
<b>Total (market based)</b>									<b>252,614</b>	

**Table 5. Detailed GHG inventory emissions sources, activity data, emissions factors, and total emissions**

Note: Greenhouse gases have been reported by gas type (in CO<sub>2</sub>-e) where gas-specific emission factors are available. Where they aren’t available, only the total CO<sub>2</sub>-e emissions have been reported. As such, totals of individual gases for each scope will not add up to the overall total in CO<sub>2</sub>-e.



## 4.1 Biogenic emissions

Any biogenic emissions (emissions from biological sources) will be treated as per the GHG Protocol, and as such reported separately. CO<sub>2</sub> from burned biomass, such as wood, will be reported separately but excluded from the inventory total, as emissions would represent CO<sub>2</sub> sequestered during the growing period. As such, only CH<sub>4</sub> and N<sub>2</sub>O emissions will be reported under the GHG inventory.

There were no biogenic emissions during the FY24 period.

## 4.2 Comparison to previous years and baseline year

To track progress and trends over time, the table below provides information on how the current GHG inventory tracks against previous years. Note that only emission sources in which we have comparable data for previous years have been included. This will expand as years progress and more data is gathered.

Scope and Category	Emission Source	FY24 tCO <sub>2</sub> -e	FY23 tCO <sub>2</sub> -e	FY17 tCO <sub>2</sub> -e (baseline year)	% change since baseline year
Scope 1	Natural Gas	322	385	651	-50%
Scope 1	Fuel Combustion	78	89	127	-39%
Scope 1	Refrigerants	78	No data	79	-1%
Scope 2	Purchased Electricity (market based / location based)	0/538	841	916	-100% / -41%
Scope 3, Category 3	Fuel and Energy Related Activities (T&D Losses)	74	No data	151	-51%
Scope 3, Category 5	Waste Generated in Operations – Waste to Landfill	88	84	105	-16%
Scope 3, Category 6	Business Travel	154	92	61	152%

**Table 6. GHG emissions for FY24 as compared to FY23 and baseline year FY17**

## 4.3 Data analysis

### 4.3.1 SCOPE 1 AND SCOPE 2 EMISSION SOURCES

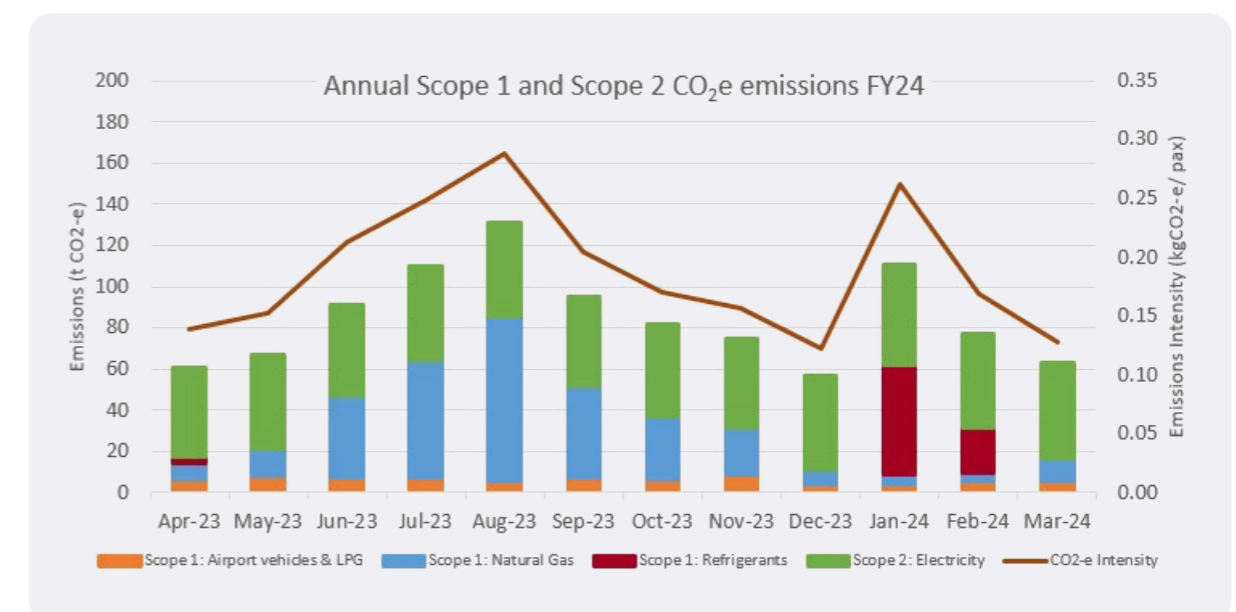
We have seen a downward trend across all Scope 1 and Scope 2 emissions from both our baseline year (FY17) and FY23. Emissions from natural gas are down by around 50% since the baseline year and airside vehicle fuel emissions are down by around 39%. We have updated the methodology for refrigerant emission calculations, so FY17 and FY24 are the only years this emissions source is quantified. Renewable Energy Certificates (RECs) have reduced emissions from purchased electricity down to zero. Overall Wellington Airport is tracking very well and has already hit its 30% reductions target, with a 43% reduction using a location-based approach and a 73% reduction using a market-based approach. Emissions intensity in FY24 from these emissions has decreased significantly compared to FY23, mostly due to the procurement of RECs. Figure 5 below shows emissions across the year using the market-based approach to electricity emissions.

	FY17	FY18	FY19	FY20	FY22	FY23	FY24
Scope 1 (tCO <sub>2</sub> -e)	857	577	827	690	375	473	478
Scope 2 (tCO <sub>2</sub> -e)	916	624	715	818	705	841	0*
<b>Total (tCO<sub>2</sub>-e)</b>	<b>1773</b>	<b>1201</b>	<b>1542</b>	<b>1508</b>	<b>1080</b>	<b>1314</b>	<b>478</b>
Emissions intensity (kgCO <sub>2</sub> -e/pax)	0.28	0.20	0.24	0.25	0.31	0.25	0.09

**Table 7. Scope 1 and Scope 2 emissions and their intensity over time**

\*Market based approach takes into account RECs.

Note: Emissions were not verified for FY21, so this year has been excluded from year-on-year comparisons for now.



**Figure 5. Monthly breakdown of Scope 1 and Scope 2 GHG emissions for FY24 – location based**

### 4.3.2 SCOPE 3 EMISSIONS – LARGEST EMISSION SOURCES

The largest emission source for Wellington Airport as a whole, is full flight emissions. This is followed by passenger surface access to the terminal. Together, these two emission sources make up 96.3% of the total inventory.

Full flight emissions have been calculated by applying an emissions factor to the total jet fuel (Jet A1) and aviation gas uplifted from Wellington Airport. Being the first year Wellington Airport is reporting on full flight emissions using this methodology, there is no previous year data for comparison. These comprise 87.6% of total emissions from 86,459,288 litres of fuel.

Passenger surface access to the terminal has been calculated based on a survey with a sample size of 500 people. Mode of transport to the terminal, vehicle engine type (where applicable), and distance were the data points gathered, and this data was extrapolated out to the total passenger numbers for FY24 based on demographic information. At 8.7%, this is a significant emission source for Wellington Airport’s GHG inventory. Being the first year Wellington Airport is reporting on passenger surface access using this methodology, there is no previous year data for comparison.

Figure 6 displays the scale of emissions by proportion of the total and it is clear to see how much full flight emissions (in blue) and passenger surface access to the terminal (in green) comprise.

### 4.3.3 SCOPE 3 EMISSIONS – REMAINING EMISSION SOURCES

The remaining scope 3 GHG emission sources for Wellington Airport for its FY24 inventory, make up about 3.5% of the total inventory combined. This is, however, not to say they are insignificant and in many cases Wellington Airport has a greater degree of influence over some of these emission sources.

Wellington Airport has greatly expanded its scope 3 emissions profile as part of its ongoing ambition of disclosing all material emission sources. Additions to this year’s emissions profile (other than the aforementioned largest emission sources) include fuel used in construction projects, operational spending on goods and services not captured elsewhere, well to tank emissions for fuel, wastewater, Meitaki Ltd’s emissions, staff commuting, working from home, surface access for tenants to the terminal, tenants’ fuel and refrigerant usage, and tenants’ electricity and natural gas usage. (See Figure 7.)

Two scope 3 emission sources Wellington Airport has included in its emissions profile that it also has targets set against are water and waste. For water, FY24 shows a total of 123,819m<sup>3</sup> of water usage, which equates to 4.57tCO<sub>2</sub>-e, or a passenger intensity of 0.024m<sup>3</sup>/pax. Though this is not a significant emission source for Wellington Airport, there are co-benefits to water conservation as a vital resource. For wastewater, the total volume of water consumption was used to estimate emissions, due to a lack of specific measurement of wastewater. This will likely result in a large overestimation, which is preferable to attempting to estimate the activity data and potentially underestimate.

Around 380 tonnes of waste were sent to landfill in FY24, compared to 453 tonnes in FY17 – the baseline year for Wellington Airport’s waste reduction target. This is a 16.2% reduction in waste sent to landfill – good progress towards the overall 30% reduction goal. As a passenger intensity figure, FY24 saw waste at 0.07kg/pax vs 0.076/pax in FY17, an 8% reduction in intensity. As emissions are directly tied to weight of waste sent to landfill, comparable reductions will be seen in emissions across this period also. (See Figure 8.)

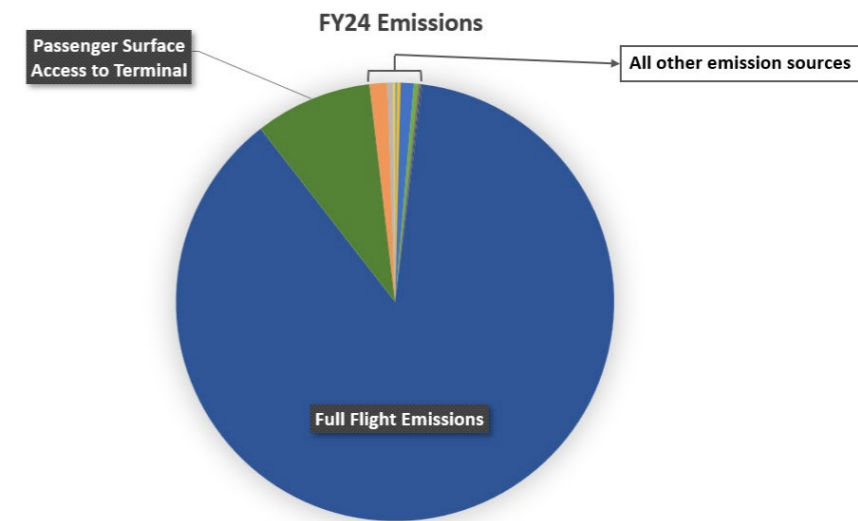


Figure 6. Proportion of Wellington Airport GHG emissions by activity for FY24

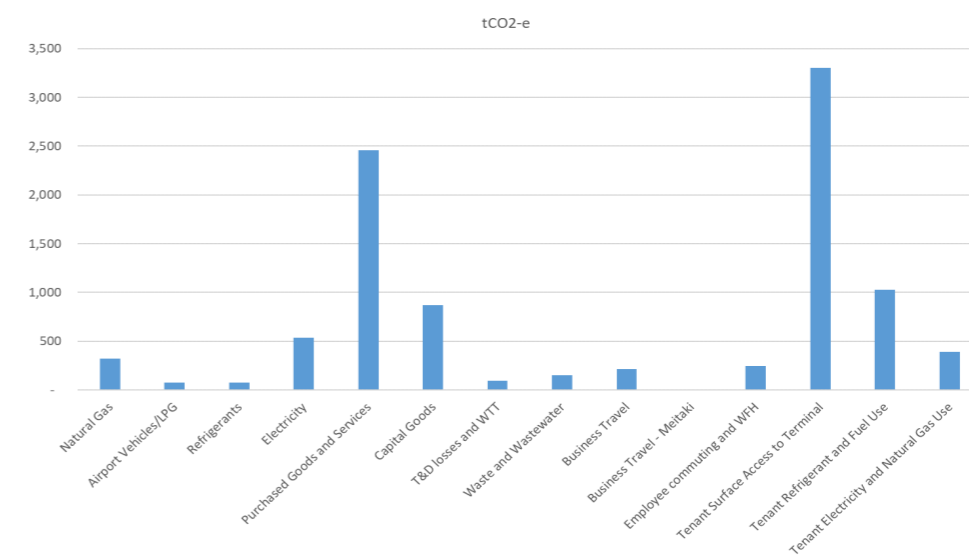


Figure 7. Scope 3 emission sources, excluding full flight and passenger surface access to terminal

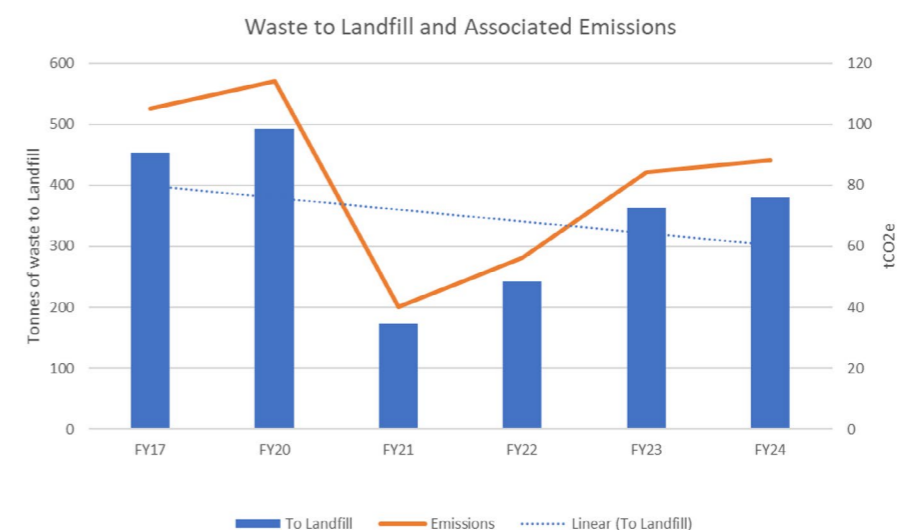


Figure 8. Waste to landfill by weight and its associated emissions



### 4.4 Subsidiaries

Wellington Airport has two wholly owned subsidiaries within its boundary. These are Meitaki Ltd and Whare Manaakitanga Ltd. Meitaki Ltd has a small amount of business travel as part of its operations and Whare Manaakitanga Ltd. operates the hotel at the airport. Emissions from both subsidiaries is reported under Scope 3.

### 4.5 Key changes to previous and baseline year

A notable inclusion in FY24’s scope 1 emissions profile is that of refrigerants. Previously, AquaHeat (Wellington Airport’s HVAC service provider) confirmed that no chillers have been recharged within the past 10 years, due to no leakage being recorded. No industry standard method exists for calculating refrigerant leakage for chiller units of the size in use at Wellington Airport. The general assumption of 8% leakage for smaller units, as per past Ministry for the Environment guidelines would not be appropriate to apply in this case.

Wellington Airport has now received data for an expanded inventory of chillers and units requiring refrigerants under our operational control. From FY24, we receive a summary of recharge per refrigerant type annually from AquaHeat. We can now apply the ‘top-up’ methodology, which assumes if a piece of equipment is ‘charged’ with refrigerant gas, any leaked gas must be replaced. Assuming that the system was at capacity before the leakage occurred and is full again after a top-up, the amount of top-up gas is equal to the gas leaked or lost to the atmosphere. Despite the addition of refrigerants in FY24’s emissions profile, combined Scope 1 and Scope 2 emissions continue to trend downwards.

As mentioned in sections 4.2.2 and 4.2.3, Wellington Airport has drastically expanded its Scope 3 emissions profile. This is in line with progression through the ACA scheme. Refer to each section for details of the additions.

Finally, transmission and distribution losses for both natural gas and electricity have been reported separately from FY24. Though these have previously been included within electricity and natural gas reporting, they are now reported separately in Scope 3.

### 4.6 RECs and offsets

Wellington Airport currently utilises two market mechanisms to reduce its carbon footprint:

1. Renewable Energy Certificates (RECs) – Wellington Airport has purchased RECs to cover 100% of its electricity consumption, through its electricity supplier, Mercury Energy. The RECs ensure that the electricity purchased by Wellington Airport is certified 100% renewable, and that this electricity generation accreditation is removed from the residual electricity mix, so there is no double counting. After 1 April 2024, Wellington Airport is switching electricity suppliers to Ecotricity, which is a verified provider of 100% renewable energy.
2. Offsets – Wellington Airport will be purchasing carbon offsets to offset 100% of its Scope 1 emissions. It is sourcing offsets through the Climate Action Company, which uses Carbon Crop as a provider. Carbon Crop’s methodology ensure a high standard of offset, utilising only native forest that is not growing on arable land. Credits are only rewarded for genuine carbon sequestration that has occurred within the last 4 years, and sites are regularly monitored via satellite and site-visits, to provide up to date estimates of biomass and forest age, ensuring a highly accurate estimate of carbon sequestration.

With the purchase of the above RECs and offsets, Wellington Airport will be carbon neutral for its operations (Scope 1 and Scope 2 emissions) for FY24.

It is worth noting that Wellington Airport is aligning itself with Science Based Targets (SBT) methodology, and as such is not using offsets to count towards its Net Zero by 2030 goal. While offsets will continue to be purchased, they will not count towards the minimum 90% reduction in Scope 1 and Scope 2 emissions by 2030, that Wellington Airport has committed to. Renewable energy purchasing, however, is allowed to be used to reach Net Zero targets under the SBTi methodology, because it is not an offset, but rather a confirmation that a unit of purchased electricity has an emissions factor of zero. Wellington Airport will be counting this generation towards its Scope 2 reductions and Net Zero goal.

### 4.7 Verification of GHG inventory

Our FY24 carbon emissions have been prepared in accordance with the Greenhouse Gas Protocol, ISO 14064-1:2018 and are aligned with the requirements for ACA accreditation Level 4+.

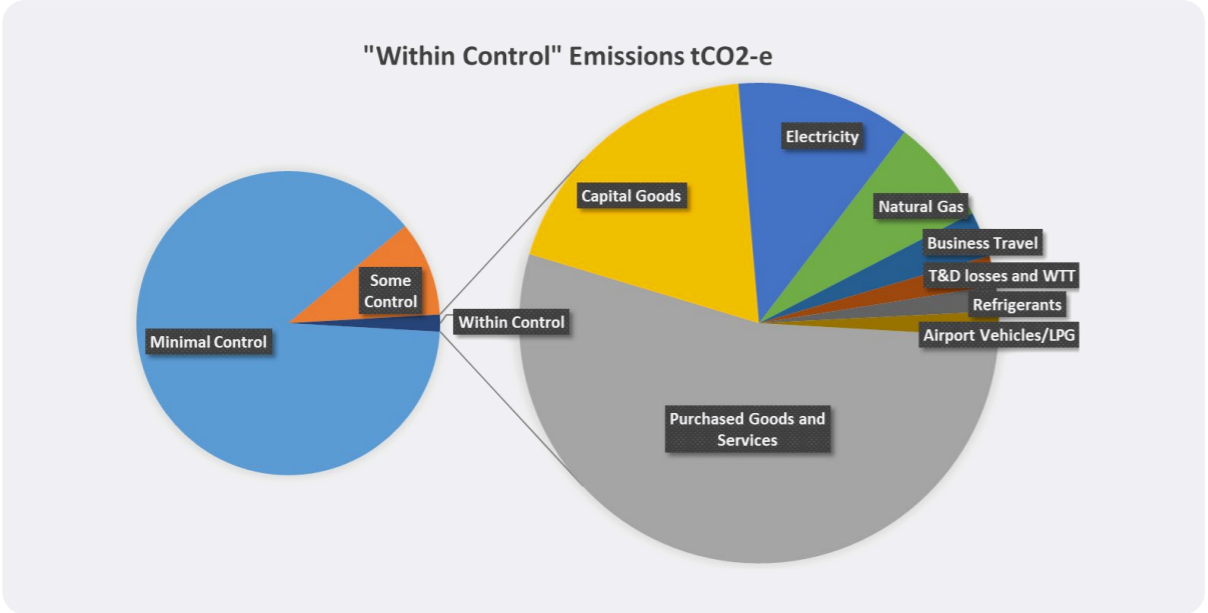
Wellington Airport’s GHG emissions were verified to reasonable assurance for scope 1 and 2 emissions and limited assurance for scope 3 emissions. Verification has been performed by Beyond Sustainable.

### 4.8 Summary

Wellington Airport continues to trend downward with its Scope 1 and Scope 2 emission sources, despite passenger numbers increasing. Emissions intensity in FY24 has decreased significantly compared to FY23. Swapping fleet vehicles and purchasing RECs have had the largest impact to date on overall Scope 1 and Scope 2 emissions.

Wellington Airport is in the process of expanding and understanding its Scope 3 emissions. The addition of full flight emissions enables Wellington Airport to clearly tackle challenges and opportunities. Full flight emissions account for around 89% of Wellington Airport’s emissions.

Finally, Wellington Airport will continue to expand the Scope 3 emissions incorporated into its GHG inventory with the ultimate aim of having only *de minimis* emission sources being excluded. Wellington Airport will continue to update its methodology for emissions calculations as it becomes available.



**Figure 9. Wellington Airport’s GHG profile broken down by degree of control over emission source (location-based)**



**Below are some frequently used terms. For further information on these terms and GHG reporting more generally, please refer to the documentation provided in the references.**

**GHG: GREENHOUSE GAS**

These the six gases covered by the United Nations Framework Convention on Climate Change: carbon dioxide (CO<sub>2</sub>); methane (CH<sub>4</sub>); nitrous oxide (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF<sub>6</sub>). These gases, when released, have an overall warming effect on the atmosphere.

**CO<sub>2</sub>-e**

The universal unit of measurement to indicate the global warming potential (GWP) of each greenhouse gas, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

**SCOPE 1 (DIRECT GHG EMISSIONS)**

Emissions from operations that are owned or controlled by the reporting company.

**SCOPE 2 (INDIRECT GHG EMISSIONS)**

Emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting company.

**SCOPE 3 (INDIRECT GHG EMISSIONS)**

All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

**EMISSIONS FACTOR**

A factor that converts activity data into GHG emissions data (e.g., kg CO<sub>2</sub>-e emitted per litre of fuel consumed, kg CO<sub>2</sub>-e emitted per kilometre travelled, etc.).

**TRANSMISSION AND DISTRIBUTION (T&D) LOSSES**

The losses that occur from transporting electricity or gas. These losses are counted separately (in Scope 3) to the generation-side emissions (Scope 1 and Scope 2).

**LOCATION-BASED METHOD FOR SCOPE 2 ACCOUNTING**

A method to quantify scope 2 GHG emissions based on average energy generation emission factors for defined locations, including local, subnational, or national boundaries.

**MARKET-BASED METHOD FOR SCOPE 2 ACCOUNTING**

A method to quantify scope 2 GHG emissions based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with instruments, or unbundled instruments on their own.



- GHG Protocol – The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004). [ghg-protocol-revised.pdf \(ghgprotocol.org\)](#)
- GHG Protocol, Scope 3 – The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011). [Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf \(ghgprotocol.org\)](#)
- ACA – Airport Carbon Accreditation. Application Manual, Issue 14 (2023)
- XRB NZ CS 1 – External Reporting Board. Aotearoa New Zealand Climate Standard 1: Climate-related Disclosures (2022)
- Science Based Targets Initiative – [sciencebasedtargets.org](#)
- MfE – Ministry for the Environment. Measuring emissions: A guide for organisations (2023). [Measuring Emissions Guidance Detailed Guide 2023 ME1764 \(environment.govt.nz\)](#)
- Climate Action Company – [climateactionco.com](#)
- Carbon Crop – Permanent Native Forest Restoration: Methodology and Basis (2022). [210f43\\_ea1fd88809464762be806ce5dec28b09.pdf \(carboncrop.com\)](#)
- Market Economics – Consumption Emissions Modelling (2023)
- DEFRA – Department of Energy Security and Net Zero: Conversion factors 2023, full set (2023)
- ACERT – Airport Carbon and Emissions Reporting Tool v7 2023\_ACERT\_v7.0-Brochure.pdf ([aci.aero](#))
- Waka Kotahi – PEET Tool Project emissions estimation tool (PEET) | NZ Transport Agency Waka Kotahi ([nzta.govt.nz](#))



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