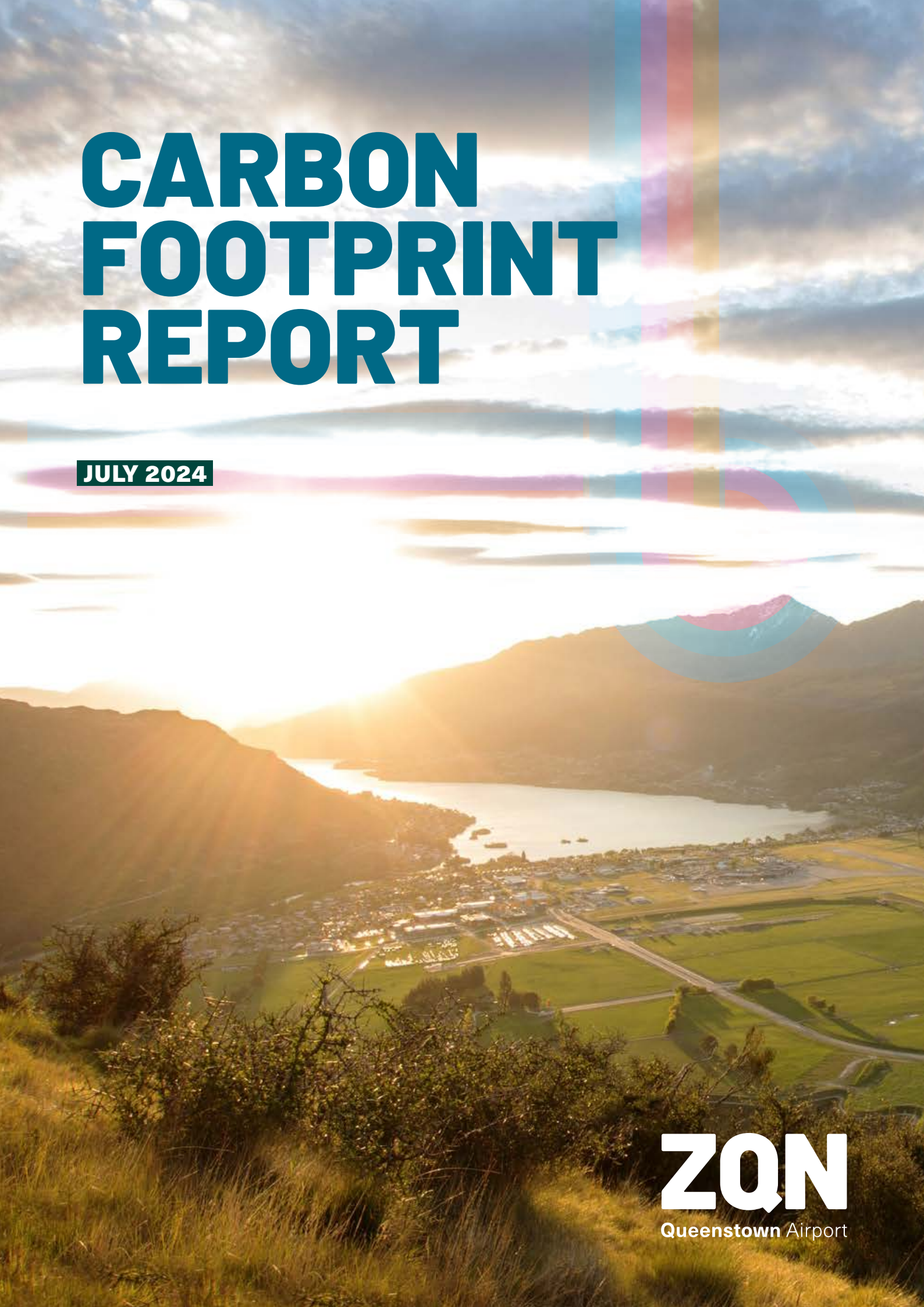
CARBON FOOTPRINT REPORT

JULY 2024



ZQN
Queenstown Airport

QAC'S REGISTERED OFFICE

Sir Henry Wigley Drive
Frankton
Queenstown 9300
New Zealand

Telephone +64 3 450 9031
Email admin@queenstownairport.co.nz
Websites www.queenstownairport.co.nz
www.wanakaairport.com

ZQN
Queenstown Airport

PURPOSE OF THIS DOCUMENT

This document provides an overview of Queenstown Airport Corporation's (QAC) greenhouse gas (GHG) emissions inventory for the 2024 financial year (FY24), outlining key data regarding the airport's carbon footprint and its progress toward long-term sustainability targets. It has been prepared in accordance with the requirements of the Airport Carbon Accreditation (ACA) programme at Level 4+ - Transformation, one of the highest levels of carbon management certification.

The carbon footprint presented in this report aligns with the GHG Protocol: A Corporate Accounting and Reporting Standard (2004). All data has been independently verified to ensure accuracy and compliance with all ACA program requirements.

This report aims to provide stakeholders, including regulators, business partners, and the public, with a concise summary of QAC's carbon footprint. It highlights the emissions across Scopes 1, 2, and 3, providing insights into the airport's progress in achieving its decarbonisation objectives. For further details, readers are encouraged to refer to QAC's Sustainability Report for comprehensive climate-related disclosures and the Annual Report for additional operational context. Both documents are accessible on QAC's website.

ORGANISATIONAL BOUNDARY

PHYSICAL DESCRIPTION

Queenstown Airport is located on 153.5 ha of land in the Frankton Flats, approximately 350m to the east of Lake Wakatipu. Approximately 136.9 ha of our land is designated for aeronautical purposes.

Queenstown Airport is New Zealand's fourth busiest airport by passenger numbers, with daily scheduled flights from Auckland, Wellington, Christchurch and the east coast of Australia. ZQN serves a steadily growing catchment of more than 70,000 people. It is the gateway to the lower South Island for visitors, providing easy access to some of New Zealand's most iconic destinations, including Queenstown, Wānaka, Fiordland and Central Otago. It is also the home base for a range of helicopter and fixed-wing operators offering scenic flights and other tourism activities.

Total annual passenger numbers for FY24 were 2.49 million (June 2024) and are 5% above FY23 (2.37m). This year, FY24 passenger movements have increased to 107% of pre-covid passenger numbers (FY19) made up of approximately 65% domestic and 35% international.

ORGANISATIONAL BOUNDARIES

This GHG inventory and ACA certification exercise are specific to Queenstown Airport. Figure 1 below provides an insight into the day-to-day activities of our airport and associated sources of emissions that are captured in our GHG inventory.

As an entity, we are 75.01% owned by Queenstown Lakes District Council and 24.99% owned by Auckland International Airport. Our business activities are generally limited to the operations of Queenstown Airport and commercial development across our land holdings, as summarised below:

Figure 1: Organisational Boundaries and Operational Divisions of QAC

EXCLUDED BUSINESS UNITS

The following business units are excluded from our GHG inventory for the following reasons:

- Wānaka Airport and Glenorchy Airfield are excluded from the FY24 GHG inventory as they fall outside the scope of this undertaking. QAC manages day-to-day operations at Wānaka Airport on behalf of the owner, QLDC under a management services agreement. Wānaka Airport is not included within the boundaries of this GHG inventory or ACA certification.
- The compost facility on-site at Queenstown Airport enables us to divert organic waste from landfill for a large portion of the terminal. The emissions associated with composting are de minimis (they form less than 1% of our total inventory).

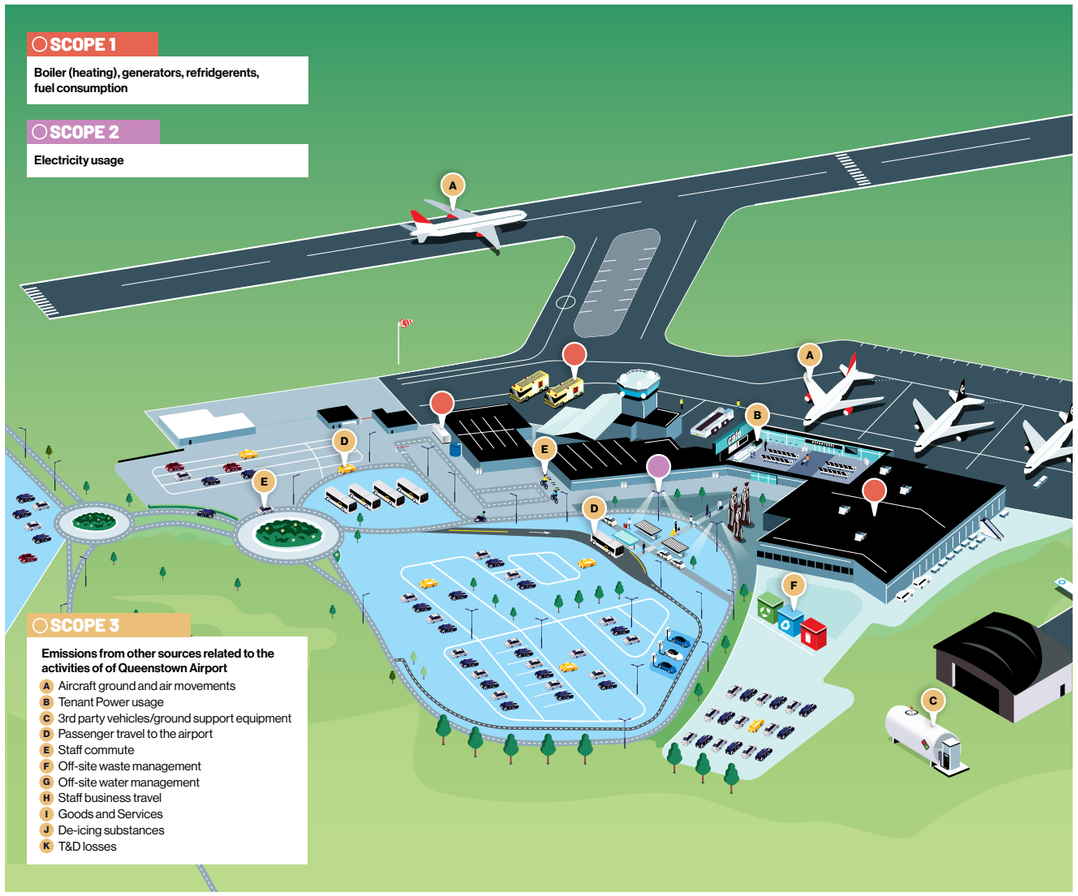


Figure 2: Boundary of QAC emissions inventory

SUMMARY OF EMISSIONS INVENTORY

SCOPE	CATEGORY	2024 EMISSIONS (tCO2e) location based	2024 EMISSIONS (tCO2e) market based
Direct emissions (Scope 1)	Diesel – stationary	84.68	84.68
	Diesel & petrol transport	31.42	31.42
	Fire extinguishers	0	0
	Refrigerants	0	0
	Total Scope 1	**116.11**	**116.11**
Indirect emissions (Scope 2)	Purchased electricity	188.78	0
	Total Scope 2	**188.78**	**0**
Indirect emissions (Scope 3)	Category 1:		
	• Water supply	1.44	1.44
	• Purchased goods & services	256.00	256.00
	• Fire training fuels	4.51	4.51
	• Park & Ride diesel bus	51.40	51.40
	Category 2:		
	• Construction materials	3.32	3.32
	Category 3:		
	• Electricity T&D losses	21.95	21.95
	Category 5:		
	• Waste landfilled from terminal operations and construction activities	5.60	5.60
	• Wastewater discharged	18.80	18.80
	Category 6: Business travel	63.00	63.00
	Category 7: Employee commuting / working from home	60.21	60.21
	Category 11: Passenger ground transport emissions	13,281.00	13,281.00
	Category 11: Aircraft full flight	261,757.00	261,757.00
	Category 13:		
	• Tenant electricity usage	116.06	116.06
	• On-sold diesel	104.69	104.69
	• Tenant purchased natural gas	10.14	10.14
	• Downstream leased assets	205.11	205.11
	Total Scope 3	**275,961.00**	**275,845.00**
	Total emissions (1, 2 & 3)	**276,266.00**	**275,961.00**

Queenstown Airport is proud to have achieved ACA Level 4+ - Transformation. In accordance with the ACA programme requirements, we have demonstrated progress towards achieving net zero emissions by meeting emission reduction targets and aligning our trajectory with the goal of net zero across Scopes 1, 2, and selected Scope 3 emissions, building on the reductions achieved since our baseline year and FY23[1].

It has been our intention to expand the range of emission sources included in our inventory. Joining the ACA programme has enabled us to do so. This includes reporting on aircraft and passenger ground transport emissions, providing a more comprehensive picture.

SCOPE 1 AND 2 EMISSIONS

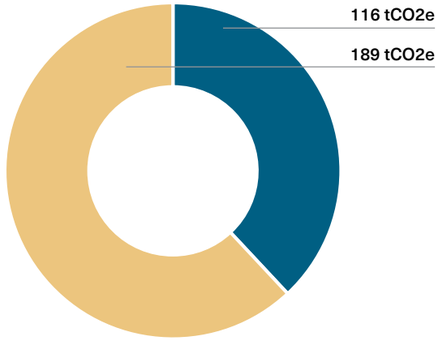


Figure 3: QAC Scope 1 and 2 emissions using the market based approach

SCOPE 3 VS SCOPE 1 & 2

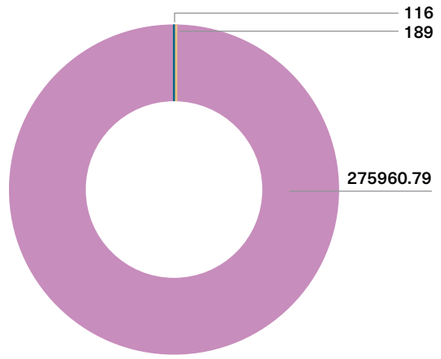


Figure 4: QAC total emissions across Scopes 1, 2 and 3 using the market-based approach

QAC PATHWAY TO NET ZERO

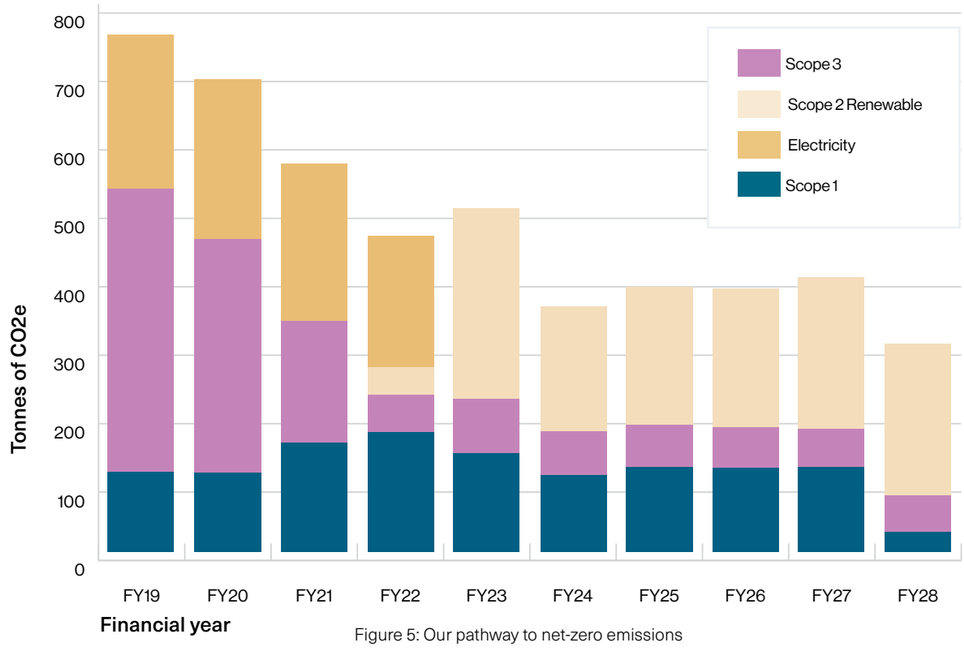


Figure 5: Our pathway to net-zero emissions

1. Queenstown Airport purchases certified renewable energy from our power supplier, Meridian Energy, which allow us to report our Scope 2 emissions as zero using the location-based methodology. The use of renewable energy certificates and the associated reporting methodology is accepted by Airports Council International under the ACA programme.

FINANCIAL YEAR	TOTAL EMISSIONS IN tCO2e (Scopes 1, 2 and limited Scope 3*)	REDUCTIONS ACHIEVED AS A PERCENTAGE OF TOTAL EMISSIONS
FY19 (baseline)	857	N/A
FY23	289	• 65% reduction against baseline
FY24	245	• 71% reduction against baseline • 15% reduction against FY23

Table 1 Comparison of emissions against baseline year and FY23

*Scope 3 emissions are limited to those emission sources measured in 2019 which include:

- Transmission and distribution losses
- Staff business travel
- Waste to landfill

OUR TARGET	RESULT
2028 Target: 85% absolute emission reduction against baseline across Scope 1, 2 and limited Scope 3 emissions	On Track 71% reduction in emissions achieved this year

SCOPE 3 EMISSIONS: SOURCES AND REDUCTION STRATEGIES

Our Scope 1 emissions originate from our utility and emergency vehicles, generator and boiler; we have one electric and one hybrid vehicle. QAC has already decided not to use our generator for 'load shedding' purposes during peak usage periods in winter months, to reduce the pressure on the supply network. The decision to continue to draw from the grid during periods of peak power use incurs financial penalties for QAC which are greater than the price of fuel, however, we remain committed to prioritising sustainable practices and reducing our GHG emissions.

Our diesel boiler will be phased out as we stage the replacement of our air conditioning units. This transition and the subsequent decommissioning of the diesel boiler will be completed by June 2027.

Our vehicle replacement strategy is being staged, as viable replacement options become available on the market. As a lifeline utility operator, we must have emergency and four-wheel drive vehicles that can operate in variable conditions. Currently, there are no suitable electric vehicle models on the market that can meet our operational requirements. Therefore, we have purchased more efficient vehicles until suitable fully electric utility and emergency vehicles are available.

Electrification is required to decarbonise, as well as increasing energy efficiency to reduce the overall demand for energy. As we replace our fossil fuel reliant assets, we will likely increase our energy demand. We are conscious of the importance of selecting energy efficient utilities and adjusting our building systems to reduce energy consumption as captured in the Strategic Asset Management Plan. Examples include sensor-operated lighting and consistent optimal temperature setting of our air conditioning systems.

As a result of our efforts, our Scope 1 and 2 emissions have reduced by 67% in comparison to our baseline year as can be seen in Table 2 below.

SCOPE	FY19	FY20	FY21	FY22	FY23	FY24	REDUCTIONS ACHIEVED AGAINST BASELINE (%)
Scope 1	121	121	165	181	149	116	**4%**
Scope 2 location based	233	241	237	196	0	0	**100**
Scope 2 market based	233	241	237	44	288	189	**19%**
Total (market-based)	354	362	402	377	149	116	**67%**

Table 2: Record of annual emissions by scope

SCOPE 3 EMISSIONS: SOURCES AND REDUCTION STRATEGIES

Our Scope 3 emissions are harder to abate as we do not have direct control over these emission sources. However, they are significant and form 99% of our total reported footprint:

- Aircraft emissions on ground and in air: 95%
- Ground transport emissions (how people get to Queenstown Airport): 4%

As we deepen our understanding of the emissions associated with the activities that occur across the airport campus and airport owned land, we can develop more effective emission reduction strategies.

Aircraft emissions are considered 'hard-to-abate' due to the lack of scalable and cost-effective alternatives currently available. Sustainable aviation fuel (SAF) is widely recognised as a key solution for decarbonising air travel. However, current SAF production is only able to meet 0.2% of global SAF demand[2]. We will continue to work with the aviation sector, to advocate for regulatory changes needed to accelerate the adoption of decarbonisation technologies in the aviation industry. We also stand ready to meet the needs of airline partners as and when they transition to alternative fuels and aircraft technologies through the range of on-airport services provided.

QAC has reported on emissions associated with staff business travel, staff commuting and waste to landfill since our first reporting year. We have achieved a 79% emission reduction against our baseline year for the following measured emissions sources, by implementing the following measures:

EMISSION SOURCES	MITIGATION MEASURES
Waste to landfill	• New disposal bins with improved signage and variable apertures • Staff training sessions on waste and recycling sorting • An onsite composting scheme for organic waste • Liquid disposal stations at security screening for passengers • An onsite waste-sorting station to reduce contamination of recycling
Staff business travel	• Updates to the staff travel policy to encourage online meetings, ride sharing and public transport use where possible to reduce emissions • Off-setting flight emissions through airline programmes, where available, at the time of ticket purchase
Employee commuting	• This year we introduced a staff travel plan to incentive staff to opt for alternatives to private vehicle use for commuting, including subsidised bus cards and access to the WorkRide Scheme • Promotion of the Aotearoa Bike Challenge during February with additional prizes provided for participating members

Table 3: Scope 3 emission reduction strategies

2. GHD 2024 https://www.ghd.com/en/insights/sustainable-aviation-fuel---the-size-of-the-challenge-and-opportunity#:~:text=Significant%20progress%20has%20been%20made,support%20scheme%20expected%20by%202026.

OFFSETS

At Queenstown Airport, we offset our Scope 1 emissions and some Scope 3, in accordance with the ACA programme guidance; we do not offset our Scope 2 emissions or Scope 3 transmission and distribution losses, because the RECs we purchase allow us to account for these emissions using the market-based approach. We purchase domestic carbon credits from the voluntary carbon market, through the Climate Action Company. We ensure that the credits we purchase enable native reforestation in the Queenstown Lakes District. Table 4 identifies the emission sources we offset.

EMISSION SOURCE	TOTAL EMISSIONS FY24	TYPE OF OFF-SET USED
Scope 1 emissions – diesel and petrol used directly by QAC	116 tCO2e	Carbon Credits purchased from the Climate Action Company
Scope 3 Staff business travel	289	65% reduction against baseline
	63 tCO2e	Carbon credits from the Air New Zealand programme at the time of ticket purchase
Scope 3 waste to landfill	5.6 tCO2e	Carbon Credits purchased from the Climate Action Company
Total offsets purchased	**184.6 tCO2e**	

Table 4: summary of emissions offsets

QAC has chosen to focus on offsetting the emissions we have the greatest control over as this is where we can have the most significant impact. This approach also ensures that the same emissions are not offset twice as our Scope 3 emissions are typically the Scope 1 emissions of other businesses. For the emission sources we have less control over, including aircraft emissions and passenger ground transport emissions, we will focus on an approach of influence and collaboration.

DATA COLLECTION METHODOLOGIES AND UNCERTAINTIES

All relevant emission sources have been identified using the operational control and consolidation approach with the boundary of our operations and business units described above.

In preparing our inventory, emission factors were sourced from the following:

- The Detailed Guide 2023 (Ministry for the Environment)
- The Airport Council International's Airport Carbon and Emissions Reporting Tool ('ACERT'), for providing emission factors for capital and asset upgrades only.
- The ICAO CORSIA CO2 Estimation and Reporting Tool for all commercial, light and small aircraft, including helicopters.
- Expenditure-based or spend based emission factors from the Auckland Council Consumption Emissions Modelling completed by Market Economics Limited March 2023.
- BRANZ Carbon embodiment calculator for road construction emission factor

For aircraft emissions, ACA accepts two approaches; whole flight one way or half-way return. We adopted the whole flight approach, assessing emissions associated with all departing aircraft from Queenstown to their destination, including engine testing, taxiing, take-off and landing. Using the 'one way' approach, i.e. excluding incoming flights and only including outbound movements, ensures that emissions are not counted twice across airports worldwide[3].

Our Scope 2 emissions have been reported using both the location and market-based approaches. Certified renewable energy is purchased from our power supplier, Meridian Energy, which allow us to report our Scope 2 emissions as zero using the location-based methodology. The use of renewable energy certificates and the associated reporting methodology is accepted by Airports Council International under the ACA programme.

3. Our approach to calculating aircraft emissions captures international as well as domestic aircraft movements. As a result, our numbers may appear slightly different to other domestic reporting entities, including Central Government, which calculates emissions from domestic aircraft movements.

EMISSIONS SOURCE	DATA SOURCE	DATA COLLECTION METHODOLOGY & UNCERTAINTIES
Scope 1: Diesel and petrol	Monthly supplier invoices	Data records for fuel consumption are considered accurate and complete as verified by both usage data and supplier invoices. Stationary fuel is assumed to be total fuel consumption less fuel used by tenants and airport emergency services vehicles.
Scope 1: Refrigerants	Monthly records from maintenance contractor	Data records for refrigeration are considered accurate and complete with monthly checks completed by our refrigerant maintenance contractors which include records of refrigerant stock held in air conditioning units and any losses that have occurred.
Scope 1: Fire extinguisher	Annual audit records from the Airport Emergency Services (AES) team	Data records are considered accurate and complete with our AES Team completing an annual audit of fire extinguishers, recording stock levels.
Scope 2: Purchased electricity	Monthly supplier invoices	Data records are considered mostly accurate and complete as recorded via monthly invoices from our energy supplier, Meridian Energy. Energy used by QAC is calculated by deducting the amount used by tenants from the total consumed; Tenants electricity is metered at the point of supply to their tenancy. As tenancies change and building alterations occur, there are sometimes delays in connecting meters at the point of tenancy supply which can compromise data accuracy in the attribution of electricity consumption.
Scope 3, Category 1: Water supply	Electronic meter readings	An electronic water meter is fitted at the point of water supply to the airport. The meter transmits readings every 15 minutes to an online platform that records total and average flow. Data is considered accurate and complete. Occasional outages occur but any gaps are rectified by averaging out total water consumption across other periods.
Scope 3, Category 1: Fire training fuels	Supplier invoices	Records of fuel type and volume consumed during fire training exercises are collected and invoiced by the training provider. QAC has no means of verifying invoices and considers this data to be accurate and complete to the best of our knowledge.
Scope 3, Category 1: Purchased goods & services	Annual expenditure report from our finance team	Data availability is limited and is a focus for improvement. Expenditure records are collected by our finance team. Associated emissions are then calculated using an input and output approach methodology in lieu of actual GHG inventory records being provided by suppliers. This approach relies on assumptions and therefore contains a high level of uncertainty.
Scope 3, Category 1: Park & Ride diesel bus	Monthly supplier invoices	The supplier keeps a record of total monthly vehicle km's and provides these to QAC on request. QAC has no means of verifying invoices and considers this data to be accurate and complete to the best of our knowledge.

EMISSIONS SOURCE	DATA SOURCE	DATA COLLECTION METHODOLOGY & UNCERTAINTIES
Scope 3, Category 2: Construction materials	• Contractor records of waste to landfill • Expenditure reports	Construction contractors keep records of material purchased QAC capital projects and are supplied upon request. Emissions factors are taken from the BRANZ Embodied Carbon Calculator. This method has a high level of certainty. Where data is not available, expenditure records are provided by our accounts team and an emission factor applied based on value spend which has inherent uncertainties as assumptions are made about construction materials or waste produced.
Scope 3, Category 3: Electricity T&D losses	Monthly supplier invoices	Transmission and distribution losses are recorded in some monthly invoices from our supplier, Meridian Energy. Where T&D losses are not specified, assumptions are made based on total amount consumed.
Scope 3, Category 5: Waste landfilled from terminal operations and construction activity.	Monthly supplier invoices	Our waste care providers record the total amount of waste to landfill, as arising from business activity and terminal operations, in tonnes on monthly invoices, as weighed at the time of collection or deposition at the landfill. Records of construction waste to landfill for capital projects are kept by the construction contractor and provided to QAC on request. Emissions factors are taken from the BRANZ Embodied Carbon Calculator. This method has a high level of certainty.
Scope 3, Category 5: Wastewater	Electronic meter readings from water supply	Wastewater discharged is not metered. Industry methodology has been adopted to assume that 95% of water consumed in airport operations is discharged to wastewater treatment.
Scope 3, Category 6: Business travel	Monthly supplier invoices	Records of travel are maintained by our office manager as cross-referenced with invoices.
Scope 3, Category 7: Employee commuting / working from home	Quarterly staff surveys	Staff transport surveys are sent out quarterly to all staff, with records provided of approximate distance travelled, preferred mode of transport and number of days worked. Surveys have an average 25% response rate, so assumptions are made to determine commuting emissions across the whole QAC team.

EMISSIONS SOURCE	DATA SOURCE	DATA COLLECTION METHODOLOGY & UNCERTAINTIES
Scope 3, Category 11: Passenger ground transport emissions	• Barrier arm entry counts • Ground counters • Public bus onboarding data • Scheduled bus services	• QAC has barrier arms preventing unauthorised access or ticketed access only to all commercial transfer or parking areas. Using this data, we can estimate the total number of vehicle movements associated with passenger operations. • To calculate vehicle movements in areas that are not controlled by barrier arms, such as the pick-up and drop-off zone, vehicle counts were completed over the months February – April. This data was then extrapolated out to estimate the number of annual movements. • Otago Regional Council is able to provide a record of ticket sales at the airport from their airport bus service upon request. • Several scheduled commercial bus services operate from Queenstown Airport. It is unknown how many passengers board these services at the airport, so assumptions are made. With private vehicle and scheduled bus movements, a number of assumptions have to be made on average trip distance, vehicle and fuel type and the number of passengers. We collected some survey data of a small portion of passengers to help inform our assumptions to increase reliability of data. However, as this data set is large and we cannot collect details on all vehicle movements, it is hard to improve data reliability so we must rely on the assumptions made.
Scope 3, Category 11: Aircraft full flight	Airways Corporation record of flight movements	Records of all flight movements are maintained by Airways Corporation, who control the airspace of our airfield. Airways record the aircraft type and destination, with records available to QAC upon request. QAC then calculates the full flight emissions for all departing aircraft using either the ICAO or ACERT tools which record the relevant emissions factor for each aircraft type using the full flight approach for all departing aircraft.
Scope 3, Category 13: Tenant electricity usage	Monthly supplier invoices	Meters are installed at the boundary of each tenancy, recording the total amount of power consumed each month. These records are then used for invoicing purposes. The amount of power consumed is cross-referenced against the invoice from the power provider, Meridian, which records the total amount consumed, as attributed to each ICP on the Queenstown Airport campus.
Scope 3, Category 13: Downstream leased assets	Records supplied by tenant	QAC owns150 ha of agricultural land which is then leased for grazing. The lessee keeps records of stock units grazed over the year with these supplied to QAC upon request. Emission factors based on stock type are sourced from MfE.
Scope 3, Category 13: On-sold diesel	Monthly supplier invoices	Queenstown Airport on-sells diesel to ground handlers for the fuelling of ground service equipment; aircraft refuelling is undertaken by refuelling companies and is managed directly by airlines. Ground handlers must use an access key before accessing the pump to ensure a record of fuel dispensed in litres is kept. These records are then used as the basis for invoicing by our accounts team.
Scope 3, Category 13: Tenant purchased natural gas	Records held by supplier	Our tenants hold the supply arrangement with the gas provider. Records of average monthly use are provided from the supplier to QAC on request; QAC cannot obtain records of actual consumption.

Table 5: List of emission source inclusions, data collection methodologies and uncertainties

BASE YEAR SELECTION

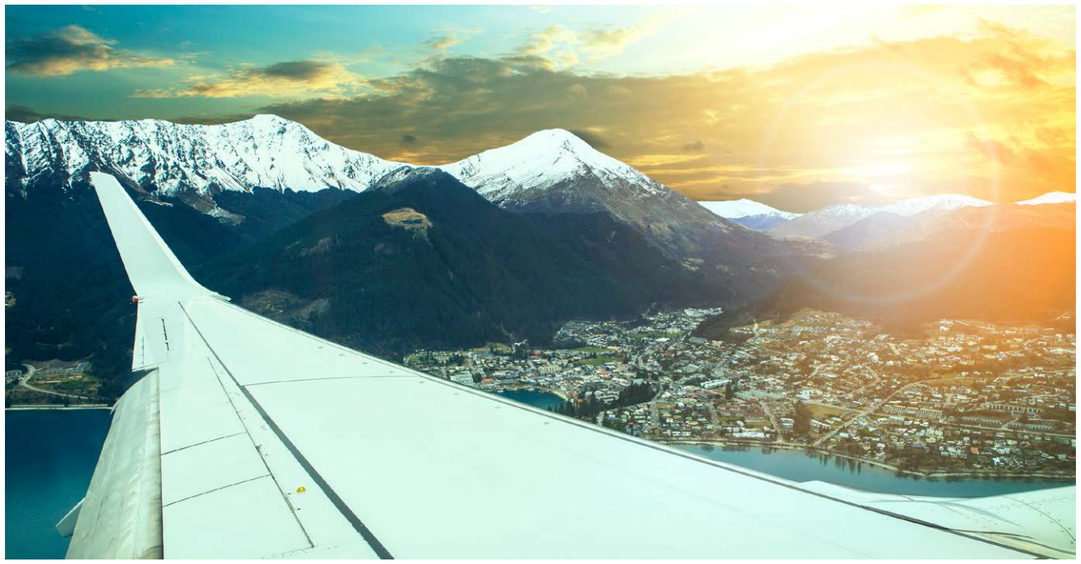
QAC's selection base year for the purpose of its GHG emissions inventory is FY19 as it is the first year we received independent verification of our GHG inventory, provided by Toitū Envirocare under the Toitū Carbonreduce programme.

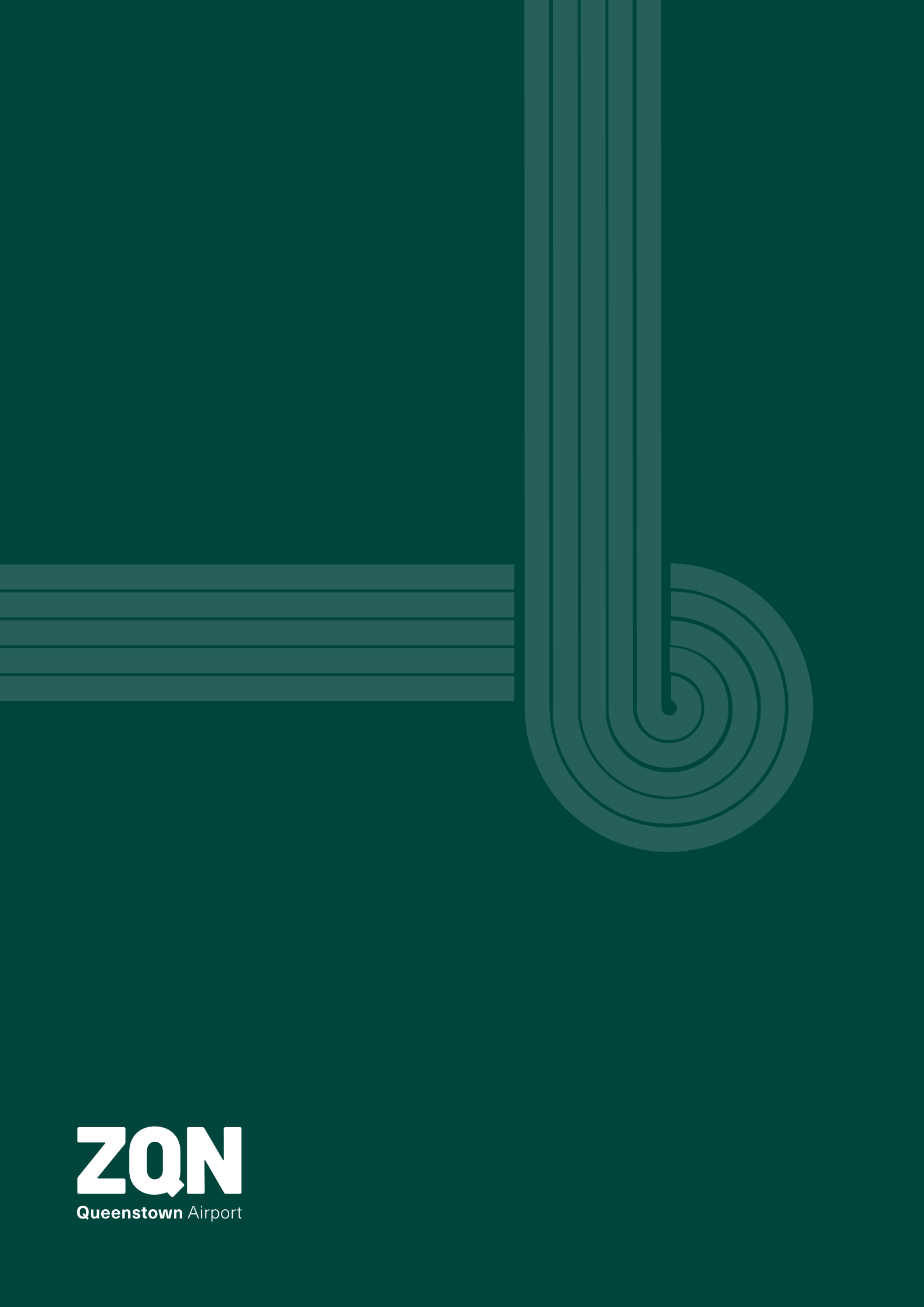
RECALCULATION POLICY

Base-year data should be revised when material changes occur and have an impact on calculated Scope 1-3 emissions. This includes:

- If additional sources are discovered and represent more than 5% of total Scope 1 and 2 emissions;
- If emission factors change substantially and are relevant to prior years (e.g. if the science behind a factor changed); or
- If the operational boundary changes significantly.

QAC is mindful of these and other requirements when completing our annual GHG inventory.




ZQN
Queenstown Airport