FINAL REPORT

Tourism Cabon Footprint Project

NorthlandInc
Growing Northland's Economy
Kia tupu ai te ōhanga o Te Tai Tokerau

Northland
REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

CarbonTrail

DESTINATION CAPACITY LTD

1. Project overview

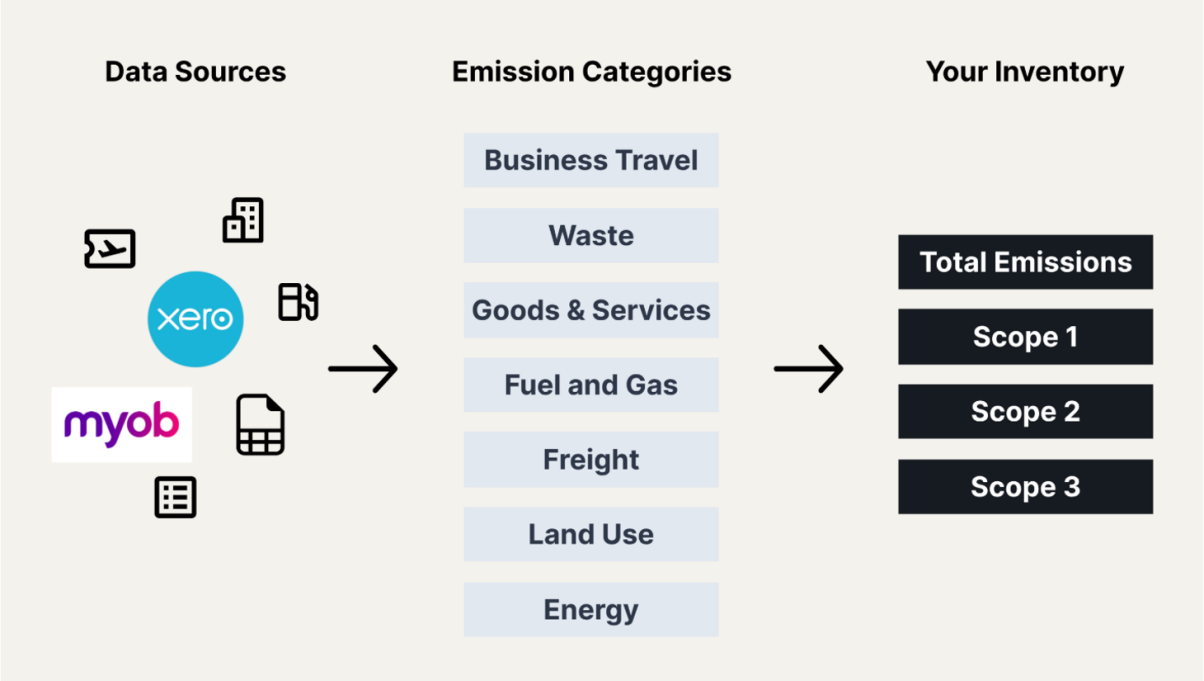
The Tourism Carbon Footprint Project recruited a cohort of Northland tourism operators to measure and reduce their operational carbon footprint, while providing regional insights to drive collective sustainability improvements. This Northland Inc. initiative was supported by Northland Regional Council funding and delivered using CarbonTrail's AI-driven emissions measurement tool, with support from Destination Capacity for workshops and reporting.

CarbonTrail's AI-powered software automatically connected with most participating operators' accounting systems, extracting data across key spend categories, including electricity, fuel and gas, waste, and goods & services, to calculate individual carbon footprints for each business. Each operator received an annual unverified carbon footprint for their past financial year, providing an indication of their total operating emissions.

This measurement is in line with the Greenhouse Gas Protocol which groups a business's emissions sources into three scopes.

- Scope 1: Direct greenhouse gas emissions – emissions sources that are owned by the company, e.g. vehicles, boilers, furnaces.
- Scope 2: Electricity indirect greenhouse gas emissions – emissions from the generation of purchased electricity.
- Scope 3: Other indirect greenhouse gas emissions – optional reporting category that captures all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company but occur from sources not owned or controlled by the company, e.g. waste, freight, purchased good and services.

Figure 1: Carbon Trail measurement process



At the regional level, Northland Inc. gained access to a consolidated dashboard revealing performance patterns and emission hotspots across participating businesses. This dual-level reporting structure empowered individual operators to change their own footprints for greater efficiency while allowing regional stakeholders to make informed decisions about sustainability investments and initiatives that will support multiple operators. It is important to note that this calculation did not include the emissions created by visitors travelling to and from the destination, unless this was paid for by the operators.

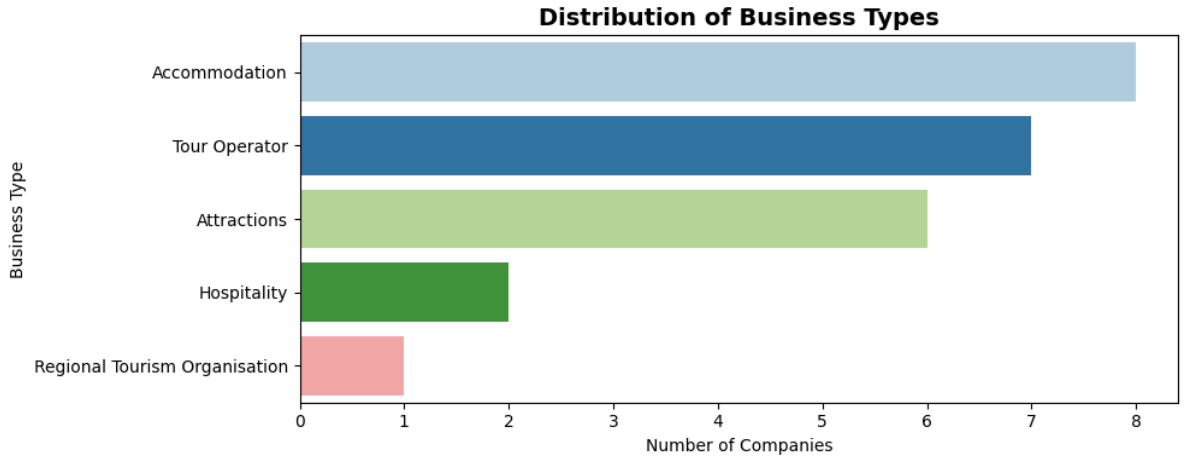
In-person workshops were held in Whangārei and Paihia to help operators understand their results, learn from one another, and collectively identify activities to reduce their carbon emissions. The program directly addressed growing customer expectations for environmental accountability while providing the tourism sector with credible data to demonstrate progress. By establishing baseline measurements and testing CarbonTrail as a provider for ongoing monitoring, the project laid the groundwork for sustained emission measurement aligned with international reporting standards.

2. Key Results

2.1 Participation and engagement

The program successfully engaged 27 tourism operators across Northland, representing 54% of the initial target of 50 operators. Participating businesses spanned accommodation, activities, hospitality, tour operation, and regional tourism planning, providing a pilot sample of the region's tourism economy (see Figure 2). Of the 27 submissions, 24 were included in the final analysis, with two excluded due to incomplete data submission and one excluded as a statistical outlier that was not representative of the sample. The automated data collection process significantly reduced administrative burden compared to manual reporting methods, though some operators required technical support during the integration phase.

Figure 2: Business types in cohort



2.2 Emissions calculation approaches and data quality

The project utilised a tiered approach to emissions calculations, with the primary goal of establishing Tier 1 baseline footprints for all participating operators, then progressively enhancing data quality through Tier 2 activity-based inputs. Table 1 shows an overview of the tiers, and the following sections explain the process in more detail.

Important Notice - These results are presented as UNVERIFIED. They have not been assured externally. The results must be used in line with CarbonTrail's Sponsored Measurement Terms, and general terms and conditions.[1]

[1] https://carbontrail.co/legal/terms-and-conditions

Table 1: Data quality tiers

Progression	Method	What's Included	Outcome
Tier 1 – START HERE	Automated spend-based calculations **Example:** $200 spent at a fuel station	Automated data extraction, based on NZ standard emissions factors, conservative estimates per $ spent per category	Baseline carbon footprint for strategic decisions
Tier 2 – THEN ENHANCE	Activity-based data additions **Example:** 100 litres of 91 Octane petrol	Actual consumption volumes, specific fuel/energy types, travel distances	More accurate footprint (typically lower than Tier 1)
Tier 3 - OPTIONAL STEP (Not included in the project)	Third-party verification	Independent audit, full documentation review, international standards alignment	Verified footprint for certification/public disclosure

Tier 1: Automated Spend-Based Calculations

The foundation of this programme was automated spend-based calculation, where CarbonTrail's platform automatically extracted financial transaction data from operators' accounting systems and applied New Zealand standard emissions factors published by the Ministry for the Environment and other recognised authorities. This approach provided all 24 participating operators with baseline carbon footprints with minimal effort, making it ideal for establishing initial measurements and identifying primary sources of emissions.

Spend-based emissions factors are intentionally conservative, often resulting in higher estimated emissions than actual consumption would generate. This ensures organisations do not underestimate their environmental impact, though it can overstate emissions where actual efficiency or purchasing patterns differ from average assumptions.

Spend-based measurement also introduces additional uncertainty in year-on-year comparisons, as fuel prices may rise while a business's actual fuel consumption decreases. As a result, a spend-based approach could indicate increasing emissions, when in reality emissions are falling because they are determined by the combustion of fuel, not its cost.

Tier 2: Activity-Based Data with Enhanced Specificity

Following baseline establishment, operators were encouraged to enhance accuracy by providing specific operational details, such as the actual amount of fuel consumed, the type of fuel used, the exact kilowatt-hours of electricity used, or the travel distances for flights.

For example, rather than estimating emissions from a $200 fuel station spend, which could include a variety of items, fuel types and estimates on the price per litre, an activity-based calculation uses the actual litres of diesel consumed multiplied by the specific emissions factor for diesel fuel.

Businesses that added activity data recorded reduced emissions compared to their initial spend-based estimates. This reduction reflects a more accurate measurement rather than actual emissions reduction, highlighting the value of investing effort in activity-based data collection. Operators who supplemented automated spend-based data with activity-based details—such as uploading utility bills showing actual kWh consumption or recording specific fuel volumes—achieved more precise carbon footprints in those categories.

Activity-based data in this programme was calculated in line with the Ministry of Environment (MfE) guidance[2]. This operational focus aligns with the standard Scope 1 and 2 reporting boundaries, providing practical emissions data for day-to-day decision-making.

Tier 3: Third-Party Verified Carbon Footprints (Optional Next Step)

Third-party verification by accredited auditors represents an optional next step for operators seeking the highest level of credibility for their emissions reporting. Verified carbon footprints are typically required for carbon-neutral certification schemes, participation in emissions trading programmes, or detailed public disclosure to stakeholders with high accountability expectations.

The verification process involves additional costs that vary depending on organisational complexity and requires comprehensive documentation of data sources and calculation methodologies. While not included in this programme, operators who wish to pursue verification can use their CarbonTrail footprints as a foundation. Northland Inc. could explore partnerships with verification bodies to offer preferential rates for regional operators seeking this additional assurance level for serious operators.

[2] Ministry of Environment (MfE) guidance - https://environment.govt.nz/publications/measuring-emissions-guide-2025/

Figure 3: Data quality

This project established Tier 1 spend-based footprints for all 24 operators, with varying levels of Tier 2 activity-based data enhancement as shown in Figure 3. No data means that the operator did not record any spending in that category. As operators implement reduction initiatives and seek to demonstrate measurable progress, transitioning to activity-based data for major emission categories will improve the precision of year-over-year comparisons and strengthen the evidence base for reduction claims. Future programme iterations could incentivise activity-based data submission for high-impact categories identified through initial spend-based analysis, with the added benefit that operators will likely see their reported emissions decrease as measurement precision improves.

2.3 Emissions analysis

2.3.1 Emissions by scope

Collective carbon footprint calculations revealed total emissions of 2,126.18 tonnes CO2e across the 24 participating operators included in the final analysis. These emissions were distributed across the three greenhouse gas protocol scopes: Scope 1 (direct emissions from owned or controlled sources) totalled 426.53 tonnes CO2e, Scope 2 (indirect emissions from purchased electricity) totalled 188.92 tonnes CO2e, and Scope 3 (other indirect emissions in the value chain) totalled 1,510.74 tonnes CO2e. The primary emissions scope for all operator types was Scope 3, which is typical for a vast majority of carbon footprints due to businesses relying on products and services from others to operate. This means that the value chain presents a great opportunity for reductions, but it is still vital for every operator to reduce their Scope 1 and 2 emissions as much as possible at the same time.

Figure 4 shows the emissions across the three scopes by business type. There is some variation in the breakdown of emissions across the three scopes depending on the type of business, which is explained by the different business models and operating inputs.

Figure 4: Emissions scopes by business type

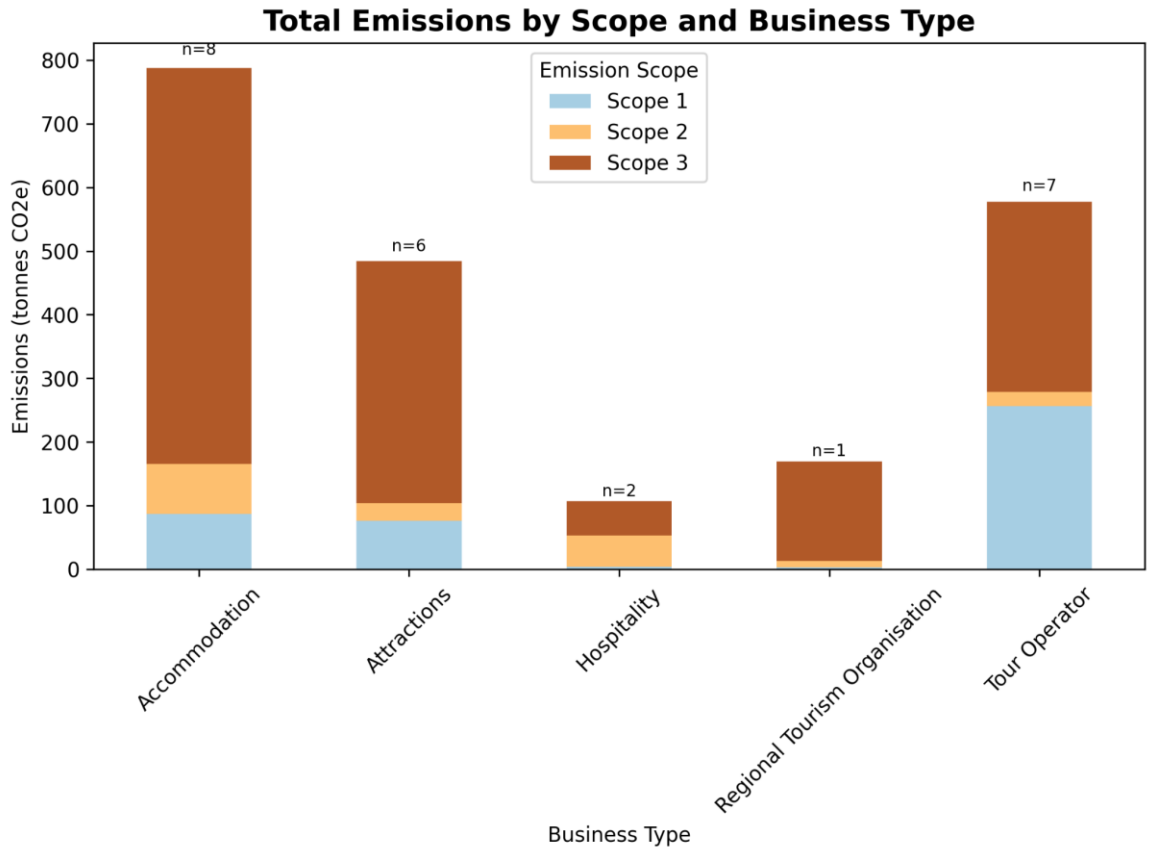
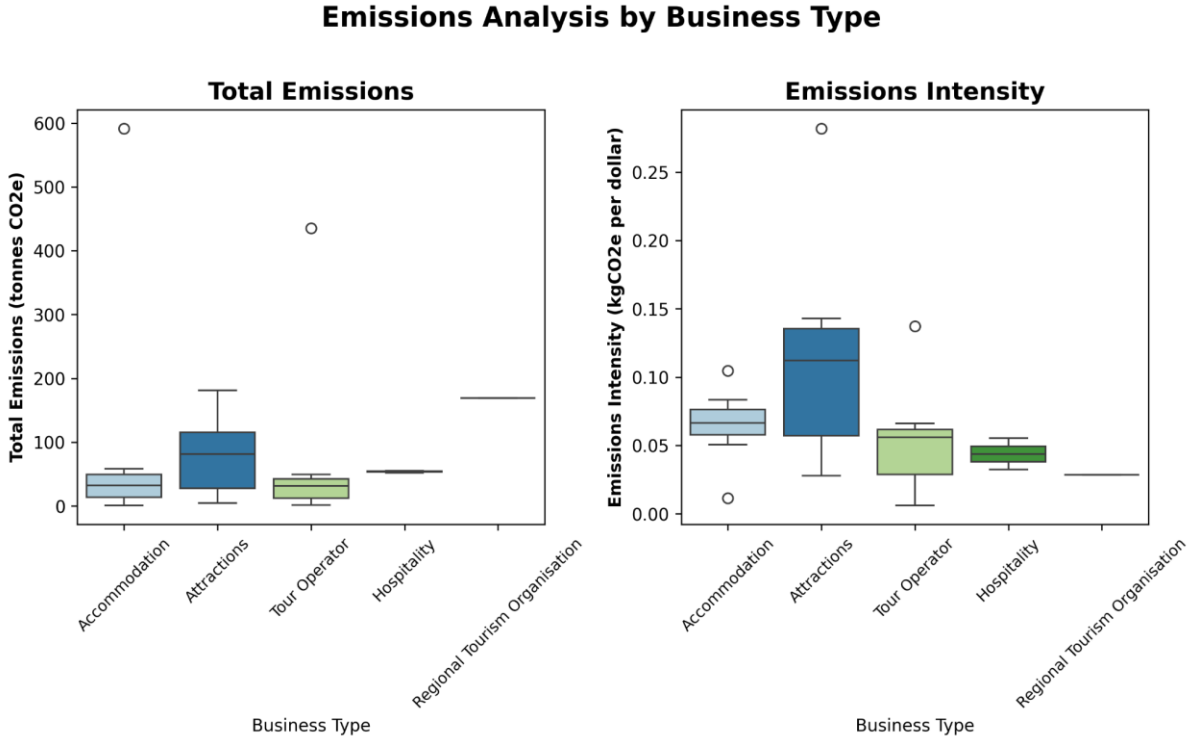


Figure 4 shows the distribution of total emissions and emissions intensity across the cohort. Emissions intensity measures the tonnes of CO2e per dollar of revenue, enabling businesses to assess their carbon efficiency across varying levels of activity. For example, if a business has a financially more successful year (more bookings, more customers, more services delivered) then their total emissions will rise, but with the right mitigating actions, they can still reduce their carbon efficiency per dollar of revenue.

The efficiency number also allows for potential comparison between businesses, however the purpose of measuring a carbon footprint is to show the progress of the individual business not to compare with others, due to the unique nature of every business. For example, an accommodation business will have a significantly different total footprint and likely a different level of efficiency depending on whether it only provides accommodation or offers additional services, such as laundry, hospitality, events, or other services. This large variation between businesses within each category is shown in Figure 5.

Figure 5: Emissions analysis by business type



Average emissions intensity: .07 kgs of CO2e per dollar of revenue

Due to the small sample, the varied data quality, and the very different business models across the tourism sector, the average emissions intensity does not imply a benchmark for other businesses in the sector. It does provide a rough indication of the current carbon efficiency and if applied to the total 2025 visitor spend in Northland of 1.2 billion NZD[3] would estimate the carbon emissions associated to the sector at 84,000 tonnes of CO2e.

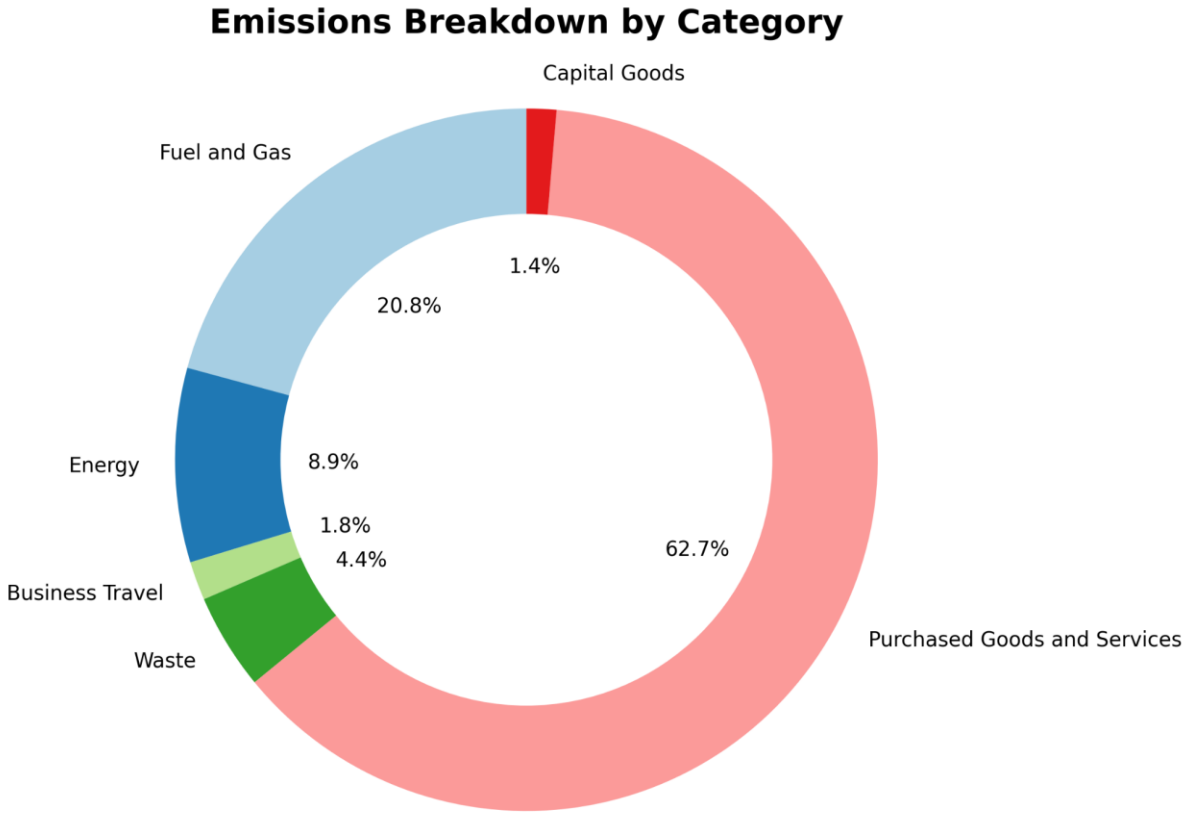
In future measurements, a larger sample and more activity data would lead to a more accurate dataset to the calculate the intensity and therefore a more accurate regional emissions estimate.

2.3.2 Emissions by spend category

The breakdown by the more granular emissions categories in Figure 6 shows a similar picture, with the highest emissions (62.7%) coming from the Purchased Goods & Services category. Fuel and Gas (20.8%), Electricity (8.9%), and Waste (4.4%) are the other significant sources of emissions across the cohort.

[3] https://regions.infometrics.co.nz/northland-region/tourism/expenditure-by-category

Figure 6: Emissions by spend category



Purchased Goods and Services represented the largest emissions category at 1,325.80 tonnes CO2e, accounting for 62.7% of total emissions measured. This category includes emissions from items such as food and beverage supplies, cleaning products, linen and consumables, maintenance materials, and other operational inputs. Although these emissions are generated by suppliers within the business' value chain, they result from the business's own operations. As such, they are indirect and largely outside of the business's immediate control, but they present an opportunity to engage with suppliers and strengthen sustainable procurement practices and policies to encourage reductions within their supply chain.

Fuel and Gas Emissions totalled 439.40 tonnes CO2e (20.8% of total emissions), representing direct combustion of fossil fuels for heating, cooking, hot water systems, and vehicle operations. This category encompasses Scope 1 emissions under the operator's direct control and presents immediate opportunities for fuel switching, efficiency improvements, and electrification.

Emissions from purchased electricity accounted for 188.92 tonnes CO2e (8.9% of total emissions). While representing a smaller proportion than fuel and gas, electricity consumption remains a significant and highly actionable source of emissions. Although New Zealand's electricity grid is predominantly renewable, opportunities remain for energy efficiency improvements and shifting demand to match renewable generation peaks. Switching to more renewable electricity suppliers or investing in on-site generation can largely reduce Scope 2 emissions.

Waste Emissions contributed 93.50 tonnes CO2e (4.4% of total emissions), encompassing emissions from all types of waste disposal. This category reinforces the potential for reduction through better purchasing, waste minimisation at source and in the operation, improved recycling, and circular economy approaches. This presents another opportunity for supply chain engagement, requesting less or alternative packaging, where it can benefit both the supplier and consumer in reducing both costs and waste.

Business Travel Emissions totalled 37.71 tonnes CO2e (1.8% of total emissions), reflecting work-related travel including flights, rental vehicles, and accommodation. While relatively modest in proportion, business travel often represents discretionary emissions that can be reduced using virtual meeting technologies, trip consolidation, and modal shifts to lower-emission transportation options.

Capital Goods Emissions accounted for 29.01 tonnes CO2e (1.4% of total emissions), representing the embodied carbon in purchased equipment, furniture, vehicles, and infrastructure investments. This category captures the upfront emissions associated with business assets, highlighting the importance of considering lifecycle emissions in procurement decisions.

Figures 7, 8, and 9 show the differences in emissions by spend category for accommodation, attractions, and tour operators in the cohort. These findings are not generalisable to all businesses in these categories but show that different business models affect the individual business footprint. For example, accommodation providers have much higher electricity emissions, since they operate from a set location and take care of guests 24 hours a day. Tour operators on the other hand, including boat and vehicle operators, burn more fuel because they are moving visitors around.

Figure 7: Accommodation emissions by spend category

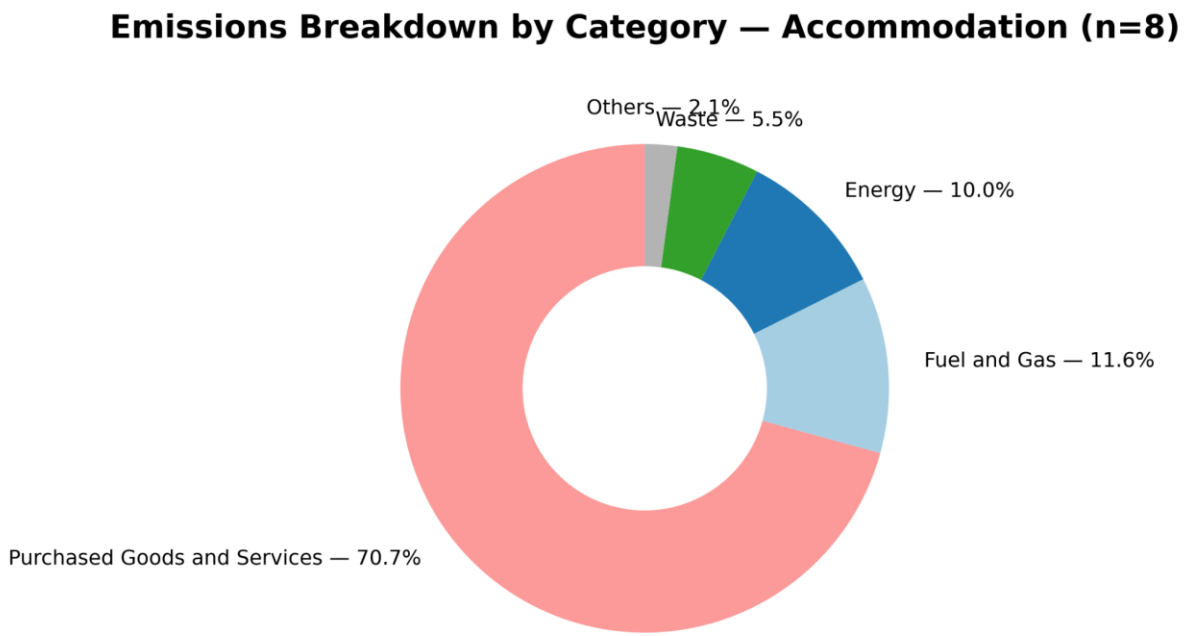


Figure 8: Attractions emissions by spend category

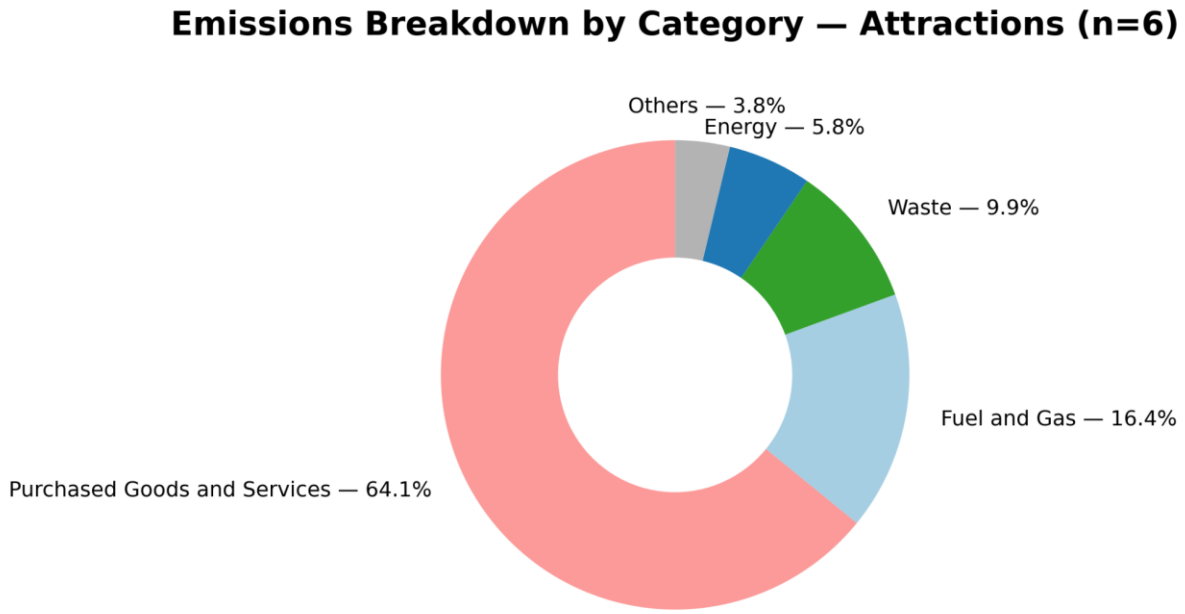
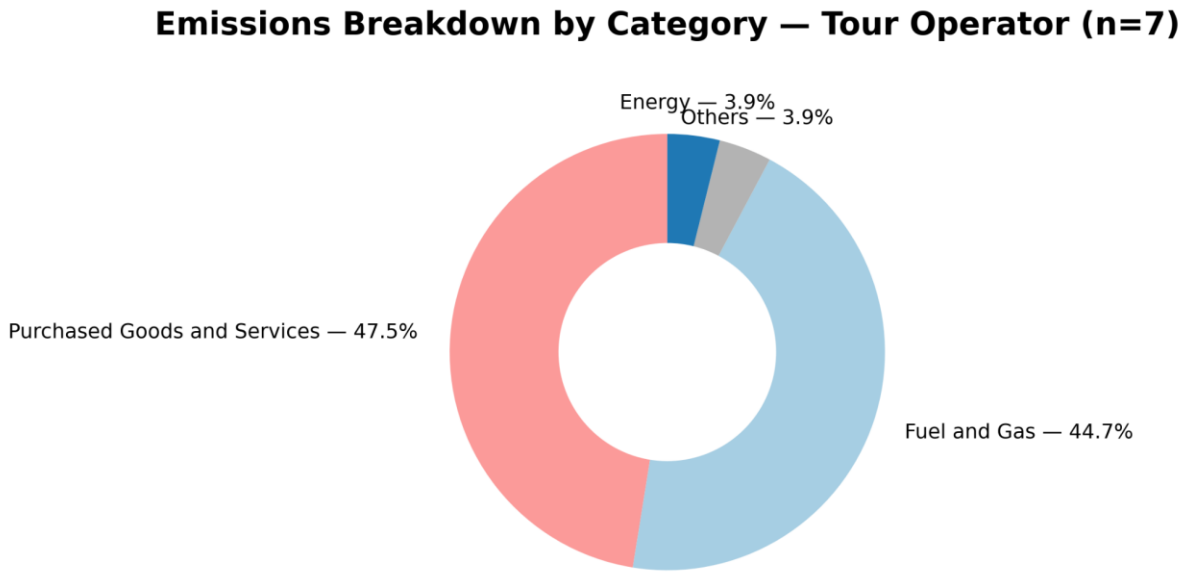


Figure 9: Tour operator emissions by spend category



2.3.3 Top supplier analysis

In addition to the categories and scope analysis above, the project analysed the top 15 suppliers that contributed the most emissions across the cohort. This was done by adding up all the spending with a supplier across all participants and multiplying this by the emissions factor. This revealed critical insights into the carbon footprint structure of the regional tourism

sector. Across 15 key suppliers tracked through the programme, measured emissions reached 857.99 tonnes CO2e, representing 40.4% of total emissions across all scopes and all suppliers. This supplier-based analysis highlights the key commercial relationships that drive emissions, and therefore, the best leverage or intervention points for operators.

Table 2: Top 15 supplier categories and emission contribution

Supplier type	#	Total CO2e emissions from category (tonnes)	% of total emissions within top 15 suppliers	% of emissions overall
Energy	8	605.453	70.6%	28.5%
Waste management	2	96.705	11.3%	4.5%
Food/supplies	2	79.741	9.3%	3.8%
Construction	1	37.334	4.4%	1.8%
Marketing	1	19.877	2.3%	0.9%
Payroll/HR	1	18.878	2.2%	0.9%
Total		857.988	100%	40%

Energy suppliers dominated the emissions profile among tracked suppliers, accounting for 605.45 tonnes CO2e or 70.6% of the emissions from the top 15 suppliers (28.5% of total cohort emissions). These emissions spanned across eight energy provider relationships, encompassing both Scope 1 direct fuel purchases and Scope 2 electricity consumption. This concentration underscores energy procurement as the highest-leverage intervention points for regional reduction strategies.

Waste management emerged as the second-largest supplier category, contributing 96.71 tonnes CO2e, or 11.3% of the emissions from the top 15 suppliers (4.6% of total cohort emissions), through two waste service providers. This finding suggests significant potential for waste reduction, improvements in recycling, and circular economy initiatives across the sector. The relatively high emissions intensity from just two suppliers indicates potential economies of scale in pursuing more accurate activity data from those providers to improve the carbon efficiency of regional waste management solutions.

Food and supplies represented 79.74 tonnes CO2e, or 9.3% of the emissions from the top 15 suppliers (3.8% of total cohort emissions), through two key suppliers, reflecting the embedded carbon in procurement and supply chains. This category presents opportunities for sustainable sourcing initiatives, local procurement strategies, and supplier engagement on environmental performance.

Construction-related emissions contributed 37.33 tonnes CO2e (4.4% of the emissions from the top 15 suppliers, 1.8% of total), based on one project by one provider during the measurement period. Marketing services accounted for 19.88 tonnes CO2e (2.3% of the emissions from the top 15 suppliers), while payroll and HR services contributed 18.88 tonnes CO2e (2.2% of the emissions from the top 15 suppliers), each from a single supplier relationship.

The concentration of 70.6% of supplier-categorised emissions in energy-related suppliers provides a clear strategic direction for reduction efforts. The relatively small number of suppliers producing significant emissions suggests that targeted supplier engagement and strategic procurement initiatives could achieve substantial emissions reductions across all categories. This finding supports the viability of regional collective action, as negotiating with a limited number of key suppliers could benefit multiple operators simultaneously.

3. Integrated Analysis and Strategic Implications

The activity category and key supplier analyses provide complementary perspectives on the sector's regional emissions profile, each revealing different opportunities for intervention. While Purchased Goods and Services dominate the activity analysis, accounting for 62.7% of total emissions, the supplier analysis reveals that a substantial portion of these emissions flows through relatively few key suppliers—particularly the two food and supplies vendors and two waste management providers identified in the supplier analysis. This concentration creates opportunities for collective regional action to engage these suppliers on sustainability improvements that would benefit multiple operators simultaneously.

Similarly, the combined Fuel and Gas Emissions (439.40 tonnes) and electricity Emissions (188.92 tonnes), totalling 628.32 tonnes in the activity analysis, align closely with the 605.45 tonnes attributed to the eight energy suppliers in the supplier analysis. Minor differences are likely to reflect direct fuel purchases not mediated through the tracked supplier relationships, such as purchases at petrol stations or LPG bottle exchanges.

The remaining 59.6% of total emissions (1,268.19 tonnes CO2e) not captured in the 15 supplier categories represents emissions from diverse sources, including transportation and travel not attributed to specific suppliers, accommodation and hospitality services used by operators during business activities, and other Scope 3 emissions across the broader value chain. The key supplier analysis intentionally focuses on the most significant and actionable commercial relationships where collective regional intervention could yield meaningful results.

This dual analytical approach enables both strategic supplier engagement for emissions outside of the businesses direct control (leveraging relationships with key vendors) and operational improvements for emissions within the businesses direct control (targeting specific activity types). Effective reduction strategies must therefore balance direct operational improvements in electricity and fuel use with strategic supplier engagement and sustainable procurement practices across the value chain ensuring collective action across all three emission scopes, rather than shifting responsibility to others.

The concentration of emissions among relatively few suppliers—with just ten suppliers (eight energy and two waste) accounting for over 70% of supplier-categorised emissions—provides clear strategic direction for Northland Inc.'s regional coordination efforts. Targeted engagement with these key suppliers, combined with operator-level improvements in the largest activity categories (Purchased Goods and Services, Fuel and Gas, Electricity, and waste), offers the most efficient pathway to meaningful regional emissions reductions.

4. Action steps

A key part of the project was workshops held with participants in Whangārei and Paihia, where they answered questions, explained their individual measurements, and discussed potential actions they could take individually and collectively to reduce their carbon footprints. Based on these workshops and global best practices, this section outlines key action steps for individual operators, in collaboration with partners, and as a region.

4.1 Individual operator actions

Measurement and data

Operators who have not yet measured their carbon emissions should establish baseline footprints as the foundation to measure and inform reduction efforts. Those who have completed initial measurements should refine their data by adding activity-based information—such as actual kilowatt-hours consumed, specific fuel volumes, or precise travel distances—to achieve more accurate results and typically reveal lower emissions than conservative spend-based estimates suggest. Repeating measurements annually enables operators to identify trends, demonstrate progress, and adjust strategies based on evidence. Good data is the key to creating meaningful change, and participants in this programme consistently appreciated the clarity and actionability that systematic measurement provides.

Energy transition and efficiency

Operators should begin by evaluating and switching to energy providers with demonstrated sustainable practices and renewable energy portfolios. Implementing user-pays systems for energy, waste, and water creates direct accountability and incentivises conservation behaviours among staff and guests. Conducting comprehensive energy audits will identify efficiency improvements in heating, cooling, and lighting systems, with LED lighting upgrades and improved insulation offering immediate returns on investment.

Operators with significant transport emissions should explore electric or hybrid vehicle options and optimise routing and scheduling to reduce fuel consumption. Those with suitable building profiles should assess the feasibility of solar installations, particularly given the increasing availability of green loans through banks.

Resource management and waste reduction

Establishing baseline measurements for waste, electricity, and water consumption provides the foundation for targeted reduction initiatives. Operators should implement comprehensive waste reduction strategies, including eliminating single-use items at source (such as replacing paper towels with hand dryers), improving recycling practices, and exploring composting options for organic waste.

Developing procurement policies that prioritise sustainability enables operators to reduce emissions in their supply chains. Reviewing current suppliers against sustainability criteria and selecting new vendors based on environmental performance will compound reduction efforts

beyond direct operational control. Where possible, sourcing locally reduces transportation emissions while supporting the regional economy.

Stakeholder engagement

Internal buy-in is critical for successful implementation. Operators should engage staff through forming green teams, conducting education sessions on waste and energy efficiency, and gathering improvement ideas from those closest to daily operations. Sharing sustainability journeys with customers creates market differentiation and can influence guest behaviour during their stay.

Each operator should establish annual review processes for sustainability initiatives, maintaining audit trails for accountability and continuous improvement. Setting reduction targets aligned with business planning cycles will maintain momentum and enable operators to communicate measurable progress to customers and stakeholders. Those seeking market differentiation should consider pursuing verified carbon footprint audits to strengthen credibility with environmentally conscious travellers.

4.2 Actions with partners

Collaborative energy initiatives

Northland Inc. could advocate for sector-specific partnerships, incentives and financing options to further remove barriers to lower emission alternatives. Establishing relationships with renewable energy providers could unlock bulk purchasing agreements or tailored products for tourism operators. Exploring funding opportunities specifically designed for energy transition projects, including grants, low-interest loans, or sustainability-linked financing, will reduce financial barriers to adoption.

Partnership with banking institutions to create shared sustainability loan programs would provide financial incentives for operators investing in carbon reduction technologies. These programs could offer preferential rates for solar installations, electric vehicle purchases, or energy efficiency upgrades, making capital investments more accessible to smaller operators.

Supply chain collaboration

Working collaboratively with supply chain partners to identify waste reduction opportunities leverages collective purchasing power and influence. Partners should implement circular economy principles where possible, such as packaging take-back schemes or shared equipment pools. Creating a vendor education program that communicates carbon efficiency requirements and provides resources for improvement will drive reductions beyond direct operational boundaries.

Developing incentive structures for vendors who meet sustainability criteria—such as preferred supplier status or longer contract terms—encourages supply chain partners to invest in their own environmental performance. Measuring and tracking waste reduction outcomes from these partnerships demonstrates value and builds the business case for continued investment.

Knowledge sharing and capacity building

Establishing a regional sustainability network enables operators to share learnings, challenges, and successful strategies, accelerating the adoption of effective practices across the sector. Regular workshops focused on specific reduction themes—such as renewable energy transition, waste management, or sustainable procurement—should feature case studies from participating operators who have successfully implemented improvements.

Creating publicly shared sustainability stories through the Regional Tourism Organisation (RTO) builds collective momentum and positions Northland as a leader in sustainable tourism. Documenting organisational sustainability journeys and outcomes provides valuable marketing content while creating opportunities for peer learning and knowledge sharing. Partnership with tourism marketing organisations presents opportunities to promote Northland's sustainability credentials to environmentally conscious visitors and premium market segments.

Industry associations and training providers should develop tailored professional development programs that address sustainability management, carbon accounting literacy, and the implementation of reduction initiatives. Educational programs focused on energy efficiency can reduce operational emissions while enhancing visitor experiences.

4.3 Regional actions

Infrastructure and systems development

Northland Inc. should leverage the regional dashboard to identify and pursue high-impact collective initiatives. The top supplier analysis, revealing 40.4% of emissions concentrated in just eight energy providers, presents a clear opportunity for strategic regional intervention. Priority areas include negotiating collective renewable energy procurement agreements, expanding electric vehicle charging networks, improving public transportation connections to tourist destinations, and supporting renewable energy generation capacity.

Making regional infrastructure more efficient requires coordinated action across waste management systems, water conservation and treatment, and housing/solar energy integration. Working with councils to align recycling criteria will standardise requirements and processes, reducing confusion and improving efficiency. Developing unified approaches to energy efficiency across councils creates consistency and enables knowledge sharing about what works.

Procurement and supplier engagement

Creating a regional database of common suppliers across councils and tourism operators enables collective leverage in sustainability negotiations. With key suppliers already identified in the program data, targeted engagement with these suppliers could achieve substantial emissions reductions across multiple operators simultaneously. Developing standardised procurement templates incorporating sustainability criteria and establishing knowledge-sharing platforms for sustainable procurement alternatives will build regional capacity.

Educating vendors through standardised purchase policies and creating a register of sustainability-focused businesses with strong practices facilitates informed procurement decisions. Establishing consistent methodologies for measuring carbon emissions and aligning with national carbon measurement standards ensures data quality and comparability over time.

Policy and governance

Developing regional reduction targets and publicly reporting progress will demonstrate leadership and accountability while maintaining momentum for continued improvement. Creating standardised documentation and processes to be implemented region-wide—including consistent carbon measurement methodologies—enables meaningful benchmarking and progress tracking.

Conducting regular business sentiment surveys gathers insights from local businesses about the barriers, opportunities, and support needs they face. Establishing cross-council working groups with representatives from all Northland councils ensures coordinated approaches and the sharing of resources. Involving businesses, community organisations, and residents in planning and execution builds broader ownership and support for regional initiatives.

Market positioning and advocacy

Creating a regional sustainability narrative based on verified data positions Northland as a responsible destination and differentiates the region in competitive tourism markets. This story should be integrated into destination marketing, trade relationships, and industry development strategies. Developing regional food truck policies with sustainability requirements and other sector-specific standards demonstrates leadership while creating practical frameworks others can adopt.

The region should advocate for national policy and funding support that enables operator-level reductions, leveraging program data to demonstrate both current performance and the potential for improvement. Exploring opportunities to share learnings with other destinations, positions Northland as a sustainability leader within New Zealand tourism and may unlock additional partnership or funding opportunities.

5. Lessons learned and next steps

5.1 Lessons Learned

The automated data collection approach proved significantly more effective than manual reporting, with operators appreciating reduced administrative burden and improved accuracy. However, some accounting system integrations required troubleshooting, highlighting the importance of technical support capacity during onboarding. Of the 27 operators who submitted data, 24 were successfully included in the final analysis, with two excluded due to incomplete data and one excluded as a statistical outlier. Future programs should allocate additional time for technical setup, provide clear communication about system requirements and data completeness expectations before recruitment, and establish protocols for identifying and addressing data quality issues early in the process.

Operator engagement varied considerably based on business size and existing sustainability awareness. Smaller operators often lacked dedicated staff time for sustainability initiatives, while larger businesses had clearer pathways to act on insights. This suggests that future programs should provide tiered support that reflects different operator capacities and needs, potentially including additional hands-on assistance for smaller operations during the data submission phase.

The regional dashboard proved valuable for strategic decision-making, particularly the top supplier analysis that revealed the concentration of emissions among a small number of key suppliers. Northland Inc. benefited from having dedicated staff to interpret data and translate findings into actionable strategies. Regions considering similar programs should ensure they have the internal capacity for data analysis and strategic planning.

Some operators initially expressed concerns about data privacy and competitive sensitivity regarding emissions disclosure. Clear communication about data governance, anonymisation in regional reporting, and the voluntary nature of information sharing helped address these concerns. The exclusion of the statistical outlier from regional analysis, while methodologically appropriate, underscored the importance of transparent communication about how data would be used and reported. Future programs should proactively address privacy considerations in recruitment materials and operator agreements to ensure compliance with relevant regulations.

The operator workshops that informed the action steps revealed a strong appetite for collaborative approaches, particularly in the areas of energy procurement and supplier engagement. Operators recognised that collective action could achieve outcomes—such as bulk renewable energy purchasing or regional waste management improvements—that would be difficult or impossible to accomplish individually. This validation of the partnership-level strategy should inform how future programs are positioned and resourced.

5.2 Next Steps

Immediate priorities include supporting operators in implementing identified reduction opportunities and conducting follow-up measurements to track progress against established

baselines. Given the clear finding that energy and the supply chain represent the majority of emissions, initial support efforts should prioritise energy efficiency and supply chain reviews. Northland Inc. can establish regular reporting cycles, ideally quarterly check-ins and annual comprehensive reviews, to maintain momentum and celebrate successes.

For future iterations, the program should be expanded to additional operators to increase regional coverage and improve the representativeness of regional insights. Achieving closer to the original 50-operator target would strengthen the dataset and enable more robust subsector analysis. Targeting specific subsectors or geographic areas that are currently underrepresented would provide a more comprehensive picture of the region's tourism emissions profile.

Workshops focused on specific reduction themes—such as renewable energy transition, waste management, or sustainable procurement—would provide operators with practical support for implementing these initiatives. These sessions should feature case studies from participating operators who have successfully implemented improvements, building peer learning networks. Given the supplier concentration findings, workshops addressing collective procurement strategies and supplier engagement would be particularly valuable.

Northland Inc. should prioritise engagement with the identified key suppliers, particularly the energy providers and waste management companies that collectively represent one third of measured emissions. Developing collaborative relationships with these suppliers could unlock regional solutions—such as preferential renewable energy rates, waste reduction programs, or sustainability reporting—that benefit multiple operators simultaneously.

Developing a public-facing sustainability report that draws on program data would effectively communicate regional progress and commitments to visitors, industry partners, and government stakeholders. This report should highlight both the baseline emissions profile and the strategic pathways for reduction, positioning Northland as a proactive and data-driven leader in sustainable tourism.

Long-term sustainability requires embedding carbon measurement into standard business practices across the tourism sector. Working with industry training organisations to incorporate carbon accounting into tourism qualifications and management courses would build systemic capability for ongoing improvement beyond this specific program. Establishing data quality standards and providing ongoing technical support will ensure measurement consistency as the program scales.

Appendix: Detailed methodology and data disclaimers

Program design and scope

The program targeted 50 tourism operators across Northland, with recruitment focused on businesses representative of the region's tourism mix. Participating operators were required to have digital accounting systems compatible with CarbonTrail's integration capabilities. The measurement scope covered operational emissions (Scope 1 and 2), including electricity, heating fuels, company vehicles, and other directly controllable emission sources. Scope 3 emissions from supply chains were captured where supplier data enabled calculation.

Data collection process

CarbonTrail's AI-powered platform established secure connections with participating operators' accounting software systems. The platform automatically extracted relevant transaction data, including electricity bills, fuel purchases, waste services, and expenditures. Data collection covered a retrospective 12-month period to capture seasonal variations in tourism operations.

For operators whose accounting systems could not integrate automatically, a manual data upload template was provided. These operators submitted monthly utility bills and operational records through a secure portal. All data underwent quality assurance checks to identify anomalies or missing information before carbon calculations.

Twenty-seven operators submitted data to the program. Following quality assurance review, 24 operator datasets were included in the final analysis. Two submissions were excluded due to incomplete data that would have compromised calculation accuracy. One submission was excluded as a statistical outlier whose emissions profile was not representative of the tourism operator sample, which would have skewed regional averages and insights. This exclusion process ensured the final analysis accurately reflected the typical emissions patterns of Northland tourism operators.

Carbon footprint calculation

Emissions were calculated using internationally recognised conversion factors from the Ministry for the Environment and other relevant authorities. Electricity emissions incorporated location-based factors reflecting New Zealand's electricity grid composition. Transport fuel calculations used standard emission factors for petrol, diesel, and other fuels based on consumption volumes.

The CarbonTrail platform applied activity-based calculation methodologies, matching expenditure data with appropriate emission factors. Calculations followed the Greenhouse Gas Protocol standards for organizational carbon accounting, focusing on operational control boundaries. Supplier-level emissions were categorized into 15 key supplier types based on transaction analysis, enabling both operator-specific and regional insights into emission sources. Uncertainty ranges were provided where emission factors or activity data quality introduced variability.

Regional analysis and reporting

Individual operator reports provided emission totals, source breakdowns by supplier category, intensity metrics (emissions per customer or per dollar revenue where data available), and peer comparisons showing performance relative to similar business types. Reports highlighted highest-impact emission sources and provided context-specific reduction recommendations.

The regional dashboard aggregated anonymised data across all 24 participants included in the final analysis. Dashboard access was restricted to authorised Northland Inc. staff with appropriate data governance protocols in place.

Workshop process

Following initial data collection and analysis, operator workshops were conducted to gather input on practical reduction strategies. These workshops engaged participating operators in identifying actionable initiatives at three levels: individual business operations, partnership projects, and regional collaboration. Workshop discussions were structured around strategic categories including energy transition, supply chain and procurement, resource management and waste reduction, stakeholder engagement, and policy development. The insights from these workshops directly informed the action steps outlined in this report, ensuring recommendations reflected both data-driven analysis and operator expertise about implementation realities.

Verification and quality assurance

All carbon footprints generated through this program were unverified, providing operators with cost-effective baseline measurements suitable for internal decision-making and initial external communication. Operators seeking verified carbon footprints for certification schemes or detailed public disclosure could opt into additional audit services provided by accredited third-party verifiers at an additional cost.

Quality assurance processes included automated data validation checks, manual review of outliers or anomalous patterns, and consultation with operators where clarification was needed. The identification and exclusion of incomplete datasets and statistical outliers ensured the integrity of regional analysis while maintaining transparency about data treatment decisions. Data governance protocols ensured the confidentiality of commercially sensitive information while enabling regional analysis and benchmarking.

NorthlandInc

Growing Northland's Economy

Kia tupu ai te ōhanga o Te Tai Tokerau

Email: tourism@northlandnz.com

www.northlandnz.com/tourism-carbon-footprint-project/