

Carbon footprint measurement: Data collection process guide

The purpose of this guide is to document a clear process to ensure that Ākina can accurately measure its carbon footprint at the end of each Financial Year (FY).

- **Section One** sets out the process for identifying carbon related activity throughout the FY.
- **Section Two** sets out the steps for carbon footprint measurement at the end of the FY.

Having a consistent process in place ensures that we are able to measure accurately, and start to observe trends and changes from year to year.

Section One: Data management processes: Ongoing

Part of Carbon Footprint measurement involves an audit of expense claims, invoices and credit card transactions to calculate emissions for travel (some flights, mileage, petrol consumption, taxis) and accommodation (**Carbon Transactions**). To make this data easy to identify, there is a tagging system in place in Xero where all Carbon Transactions are tagged with a product code that indicates which type of transaction they are¹. At the end of the FY, a report is created that groups Carbon Transactions according to their type, and this report is used to calculate emissions (**Carbon Transactions Report**).

1. Carbon Transaction identification

- 1.1. Carbon Transactions appear as a data column for each transaction entry in xero. Any transaction type can be tagged (eg. credit card, expense claim)

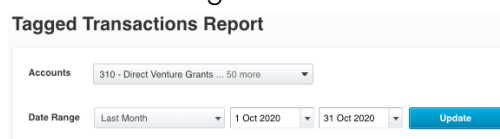
Item	Description	Qty	Unit Price	Account	Tax Rate	Departments	Product ...	Amount NZD
	Example carbon cost - flights	1.00	250.00	325 - Programme Design and Delivery Costs	15% GST on Expenses	Impact Consulting	Flights	250.00
							Total GST	7.50
							TO	50

¹ This is part of a wider tagging system where all transactions are tagged according to type.

- 1.2. Each Carbon Transaction needs to be tagged according to its type. There are 5 product type tags that indicate something is a Carbon Transaction:
 - i. Accommodation
 - ii. Mileage
 - iii. Petrol
 - iv. Taxis
 - v. Flights
- 1.3. *The Finance Manager (Corey) oversees the tagging process. Cost items are tagged at time of entry in the accounting system.*
 - i. *Where expense claims are raised by staff (eg. mileage for travel to a workshop), the Finance Manager reviews and adds tagging as relevant.*
 - ii. *Where bills for payment (eg. monthly uber statements) are entered into Xero by the Finance Administrator (Stephanie), adding tagging as relevant. These are reviewed by the Finance Manager prior to approval.*
 - iii. *Credit card transactions are typically reconciled by the Finance administrator, without a dual approval process.*
- 1.4. *Dates: For the purposes of calculating emissions for each annual period, the date of transaction (rather than the date emissions incurred which may vary) in the accounting system will be the determining factor.*
- 1.5. This tagging takes place throughout the FY to ensure all Carbon Transactions are captured and a full dataset of carbon related activity is available to calculate emissions from at the end of each FY.

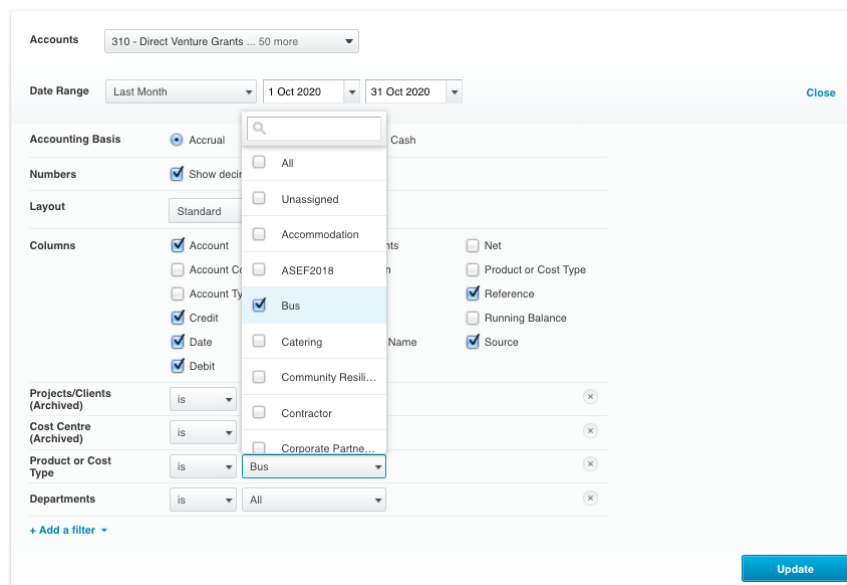
2. Carbon Transaction Quality Assurance Process

- 2.1. To make sure that Carbon Transactions are being tagged correctly, monthly spot checks of the tagging will take place.
- 2.2. This requires running a transactions custom report in Xero and picking a sample of transactions to review and check they have been tagged with the correct type
 - i. In the Xero menu reports can be found through:
Accounting/Reports/Custom
 - ii. Select 'Tagged Transactions Report'
 - iii. Select date range for review and click update



This will provide a list of all transactions, tagged or not, from which a sample can be selected to check for accurate tagging.

- iv. Alternatively, under report settings, specific tags can be selected
 - Eg. flights, which would return all transactions tagged as a flight.
 - Eg. unassigned, which would return all transactions that have not been tagged with a cost type.



- 2.3. These spot checks will be done by the Carbon Measurement lead in the second week of the month.
- 2.4. If there are missing or incorrect tags, this should be flagged to the Finance Manager to correct.

Section Two: Measurement: End of FY

At the end of each FY, Ākina’s carbon footprint needs to be measured (and subsequently offset). This requires collecting all relevant data and providing it to ekos. Based on this data, ekos measure Ākina’s total footprint by tonnes of carbon emitted.

1. Connect with ekos

- 1.1. We use [ekos](#) as our provider for carbon footprint measurement and emissions offsetting. At the very end of the financial year that needs to be measured, contact ian@ekos.co.nz and ask for a new contract. Ekos generally charge around \$850 for measurement (the cost of offsetting will depend on the size of our footprint).
- 1.2. Ekos will send a spreadsheet that the relevant data they use to calculate the emissions will need to be entered into.
- 1.3. Create a new folder for the year that’s being measured in the [Climate Positive Ākina](#) folder and save all relevant documents here.

2. Setting up the spreadsheet and other documents

- 2.1. Ākina’s details need to be added to the first page (offices, FTEs etc).
- 2.2. Only some of the tabs in the spreadsheet are relevant to Ākina. The relevant tabs are:
 - i. Company information
 - ii. Electricity
 - iii. Waste
 - iv. Flights

- v. Accommodation
 - vi. Company vehicles
 - vii. Non-company vehicles
- 2.3. You can hide all the other tabs – this just makes the spreadsheet a little more simple to work with when the data is being inputted.
- 2.4. Create a separate document to record notes and calculations in (Ekos provide some space in the spreadsheet but you will generally need more room than is available). [Use the FY19/20 document as a base / guide.](#)

3. General principles

- 3.1. We always estimate up or double count if it's uncertain. This is to make sure that everything is being captured – measuring something twice and double offsetting is better than missing something and not measuring or offsetting it at all.
- 3.2. We add 5% to all activity outside of flights to ensure things that may have got missed get measured and offset – this accommodates for the human error factor.
- 3.3. E.g. We include the Christmas period when calculating electricity use and waste outputs (even though the office was empty for a period of that time).

4. Waste outputs and electricity use: Data identification and calculations

- 4.1. Ākina offices are generally located in shared working spaces. This requires asking community managers and landlords of those spaces for this data.
- 4.2. Measurement needs to be done for each office location. If Ākina has moved office spaces during a FY, measurement will need to take place at both sites taking into account the number of months spent working at each site.
- 4.3. We have a mixed and varied approach in terms of working from home vs working from the office. As long as there is offsetting being done at one site (either home or office), it's okay if it doesn't exactly match the reality of where someone might be working (this is too tricky to track!).

4.4. Waste:

- i. L or Kg estimates of this are needed for the ekos calculator
- ii. The data provided will generally be an estimate e.g. *there were 3 60 L bins in the space that were emptied daily and were generally 50% full, and Ākina took up 20% of the space.*
- iii. Using those numbers, do some rough calculations to estimate how much waste that generates over the course of a year e.g.
 - $3 \text{ bins} \times 60 \text{ L} = 180\text{L}$.
 - $50\% \text{ of } 180\text{L} = 90\text{L per day of waste.}$
 - $90 \text{ L per day} \times 5 \text{ days} = 450\text{L per week}$
 - $450 \text{ L per week} \times 52 \text{ weeks} = 23,400\text{L of waste per year.}$
 - $20\% \text{ of this is generated by Ākina} = \underline{4680\text{L per year.}}$
- iv. Repeat this for each office and add the totals together. Put the final number in the ekos calculator under Waste (you can just add the 'Annual Total' rather than month by month).

4.5. Electricity

- i. kWh estimates of this are needed for the ekos calculator.
- ii. The data provided will generally be an estimate of the cost of electricity on a month by month basis e.g. *averaged of \$350 per month over a 12 month period, and Ākina took up 20% of the space.* This needs to be converted to kWh (if you get given kWh - great! Skip the next step)
- iii. You can calculate kWh from \$\$ by checking the MBIE data: [This is the 2019 data](#) - the cost is \$0.29 per unit. Then divide the cost of electricity by the kWh.
 - $\$350 \text{ per month} / .29 = 1206 \text{ kWh per month}$
- iv. Using this number, do some rough calculations to estimate how much electricity is used over the course of the year.
 - $1206 \text{ kWh per month} \times 12 \text{ months} = 14,472 \text{ kWh per year}$
 - $20\% \text{ of this is used by Ākina} = \underline{2894 \text{ kWh per year}}$
- v. Repeat this for each office. Put the final number in the ekos calculator under Electricity (one unit = one office / space - if there's more offices than units then bundle the totals of two offices together). You can just add the 'Annual Total' rather than month by month.

4.6. Remote workers / work from home proxies

- i. Ekos provide proxy numbers for both waste and electricity for staff that work from home.
- ii. Waste: *20.83 kg per FTE per year*
- iii. Electricity: *128 kwh per FTE per year*
- iv. Multiply these numbers by however many full time remote workers there are, and add this to your totals for both waste and electricity.

5. Travel (mileage, petrol, taxis), accommodation, some flights and: Data identification (Carbon Transactions Report, Uber report)

- 5.1. This data is captured through tagging of Carbon Transactions (as per Section One above).
- 5.2. Using this data, a Carbon Transactions Report can be produced. The Finance Manager produces this by pulling a 'tagged transactions report' from Xero for the relevant tags (see section 2.2 for detail) and exporting to a spreadsheet format. See the [Carbon Transaction Report for FY19/20](#) as an example.
- 5.3. This Carbon Transaction Report will capture all Carbon Transactions across these areas:
 - i. Accommodation
 - ii. Mileage
 - iii. Petrol
 - iv. Taxis
 - v. Flights
- 5.4. The Carbon Transactions Report will provide you with total dollar amounts for each area. See below for how to convert these dollar amounts into data that can be entered into the ekos spreadsheet.

- i. (note the tagging system has only recently been implemented which means that we have previously had to run manual searches to identify relevant data. This should not be necessary moving forward).

5.5. Uber report

- i. A spreadsheet can be downloaded from the Uber website by the Finance Manager or Finance Administrator for all trips taken during the financial year. Each transaction records the number of kilometres for each trip which can then be added up to give a grand total. The cost of each trip is included in each transaction and can be added up if required to give a grand total.
- ii.

6. Travel (mileage, petrol, taxis), accomodation: Calculations

6.1. Mileage

- i. Kilometre estimates are needed for the ekos calculator.
- ii. Based on the Carbon Transactions Report, you should have a dollar amount for total mileage claimed over the measurement period.
- iii. Using this number, you can do some calculations to estimate the number of kilometres travelled. The amount paid for each kilometre is \$0.51. The approximate number of kilometers travelled can be calculated by dividing the total dollar amount by 0.51
 - $\$1000 \text{ of expense claims} / 0.51 = \underline{1960 \text{ km}}$
- iv. Put the final number into the Ekos calculator under Non-Company Vehicles - Staff Mileage. You can just add the annual total rather than month by month.

6.2. Petrol

- i. Litre estimates are needed for the ekos calculator.
- ii. Based on the Carbon Transactions Report you should have a dollar amount for petrol cost claimed over the measurement period.
- iii. To calculate the kilometres travelled, you'll need a rough estimate of how much petrol cost per litre over the measurement period. Use google to help you. For FY/20, we estimated an average cost of \$2.20 per litre.
- iv. Using this number you can do some calculations to estimate the litres of petrol used. The total dollar amount claimed can be divided by cost per litre (e.g. \$2.2)..
 - $\$1000 \text{ of expense claims} / 2.2 = \underline{454 \text{ litres of petrol}}$
- v. Put the final number into the ekos calculator under Non-Company Vehicles - Fuels.

6.3. Taxis

- i. Dollar amounts are needed for the ekos calculator.
- ii. This includes taxis and uber.
 - For Uber, use the data from the Uber report.
 - For Taxis, use the data from the Carbon Transactions Report and credit card transactions.
- iii. Add the total for taxis and the total for uber together.

- iv. Put the final number in the ekos calculator under Non-Company Vehicles - Taxis. You can just add the 'Annual Total' rather than month by month.

6.4. Accommodation

- i. Nights stayed in a hotel are needed for the ekos calculator (nb stays in airbnbs are not included in carbon footprint measurement)
- ii. Based on the Carbon Transactions Report,, you should have a dollar amount for hotel cost claimed over the measurement period.
- iii. To calculate the nights stayed, you'll need a rough estimate of how much a night in a hotel costs. For FY19/20, we estimated \$100 per night (this is low but ensures we didn't undercount).
- iv. Using this number, you can do some calculations to estimate the nights stayed. The total dollar amount claimed can be divided by the cost per night (e.g. \$100).
 - $\$1000 \text{ expense claims} / 100 = \underline{10 \text{ nights stayed}}$.

7. Flights: Data identification and calculations

- 7.1. For the majority of flights, there is no need to enter them into the ekos calculator. Instead simply ask Ākina's travel provider (Savi) to provide a report for all flights for the period of measurement.
- 7.2. This report can be passed directly onto ekos. [See the FY19/20 report here.](#) Ekos will use this report to calculate the emissions for the flights captured in the report.
- 7.3. There may be some flights that were not booked through Savi, and instead were booked and paid for by staff who then claimed an expense. These flights can be identified from the Expense Claims Report, and inputted directly into the ekos calculator.
- 7.4. *(note there have been periods where Ākina has had no travel provider. In this instance, we have counted flights based on travel card statements. This should not be necessary moving forward).*