Guide to using the Resource Efficiency Reporting Tool

August 2023

Version 1

WAKA KOTAHI
NZ TRANSPORT
AGENCY

Te Kāwanatanga o Aotearoa
New Zealand Government

Document control

Document review

Role	Name	Review status

Related documents

Title of document	Version number	Location
Maintenance resource efficiency and waste minimisation reporting form		Maintenance resource efficiency and waste minimisation reporting form [XLSX, 71 KB]
Project resource efficiency reporting template		Project resource efficiency reporting template [ZIP, 323 KB]
Resource efficiency guideline for infrastructure delivery and maintenance	2	Resource efficiency guideline for infrastructure delivery and maintenance

Contents

Tool overview

The Resource Efficiency Reporting Tool is an Excel based worksheet that has been developed to provide a consistent reporting format for all Waka Kotahi infrastructure and improvement projects and maintenance and operations contracts.

Location

Title	Version number	Location
Resource Efficiency Reporting Tool	v.1.1	Resource Efficiency Reporting Tool [XLSX, 240 KB]

Introduction

This data collection spreadsheet was developed as part of the Resource Efficiency & Waste Minimisation (REWM) Key Performance Indicator measure, under the July 2022 Waka Kotahi KRA Performance Framework Guidelines. The primary goal of the reporting tool is to capture the carbon emitted from construction projects, maintenance and operations.

The spreadsheet is intended to be used by either:

- network suppliers of maintenance and operations contracts
- suppliers of Tier 1 – 3 Construction projects

Project information

The 'Project Details' tab includes input fields for project details and a high-level summary of the project outputs (see example below) and includes a number of useful output graphics.

Project summary

Emissions units	$kgCO_2e$
Energy	5,119,802
Transport	9,873,312
Water	-
Waste	-
Pavement	16,598,929
Drainage	-
Pathways	5,067,255
Street Lighting	-
Safety Barriers and Fencing	-
Street Lighting	-
Signage	-
Street Furniture	-
Site Clearance and Earthworks	-
Bridge	-
Retaining Wall	-
Total	36,659,298

Figure 1: Project summary totals

Input fields

Core input fields covered include those in the 'Project Details' and 'Data Collection' tabs:

Project details

Organisation	
Contract	
Contract Type	Maintenance
Contract Tier	Tier 2
Reporting Year	2022/23
Reporting Period	Monthly
Starting Month	Jul

Figure 2: Project detail inputs

This summary section is used to input key metadata that is required for project reporting. The image above shows an input example for a maintenance and operations contract that is reporting for the 2022/23 financial year.

Organisation

This is usually the main supplier or the alliance that is responsible for the emissions reporting and has done most of the data compilation.

Contract

This is the name of the contract or project.

Contact tier

The project/maintenance contract tier is determined by project complexity and overall cost. As the three tiers have different reporting requirements, the selection of project/contract tier will change the default input requirements in the input tab (that is, certain emissions groups will become optional).

The tier that the project or contract is assigned is based on the following table:

Table 1: Project Tiers

Tier	Infrastructure improvement projects	Maintenance contracts
Tier 1	>$15m and >12 months	Alliance model (excluding Milford Road)
Tier 2	$2 - $15m, or >$15m and <12 months	NOC and Milford Road Alliance Other, eg structures >$2m
Tier 3	<$2m (Excluding property acquisition)	Other, eg: • structures <$2m • street and traffic light • traffic counting • high-speed data.

The reporting requirements for each project/contract tier are described in the figure below and include both optional and mandatory data elements.

Emissions Sub-Group	Tier 3	Tier 2	Tier 1
Liquid Fuel	M	M	M
Gas Fuel	O	M	M
Electricity	O	O	M
Transport	O	O	M
Potable	O	M	M
Non-Potable	O	O	M
Landfill	M	M	M
Cleanfill	O	O	M
Managed fill	O	O	M
Reuse / Recycle	O	O	M
Aggregates	M	M	M
Pavement Stabilisation	O	O	M
Asphalt Mix 1	M	M	M
Asphalt Cold Mix	O	O	M
Bitumen	M	M	M
Drainage- Second Order	M	M	M
Drainage - Third Order	O	O	O
Pathways - Second Order	M	M	M
Pathways - Third Order	O	O	O
Street Lighting - Second Order	M	M	M
Street Lighting - Third Order	O	O	O
Safety, Barriers and Fencing - Second Order	M	M	M
Safety, Barriers and Fencing - Third Order	O	O	O
Signage	O	O	M
Street Furniture - Second Order	O	O	M
Street Furniture - Third Order	O	O	O
Site Clearance and Earthworks	O	O	M
Bridge	M	M	M
Retaining Wall	M	M	M

Figure 3: Reporting requirements by project tier

The following example shows the changes in the reporting form based on the tier selection in the 'Project Details' tab.

If 'Tier 3' is selected as the contract type, reporting on transport and water is considered optional and so results in the following changes to the 'Data Collection' tab:

- the group heading is greyed out
- the mandatory 'M' is replaced with optional 'O' in the reporting required column.

These default changes can be overridden – if data is entered into these fields it will still be calculated in the totals.

Figure 4: Example tier 3 data collection

Reporting year

Select the year that this emission report relates to.

Reporting period

Under the current tool the project/contract reporting period is locked as monthly input data only.

Monthly reporting

This is a requirement for maintenance and operations contracts. Based on the selection of monthly reporting and starting month the following reporting format is created in the input tab:

Figure 5: Example – monthly data

The green fields indicate where quantities of emission sources are required to be inputted, and the white and grey fields are where carbon is displayed and totalled. After completion, a summary is available in the project details tab.

For Projects with a minimum annual reporting requirement (construction projects), monthly data is still required to be completed.

Starting month

First month of the reporting period.

Data collection

The data collection tab will be updated based on the project description information entered. The data collection tab provides users with 'Emissions Group', 'Sub-Group', 'Emissions Source' and 'Default' units. All data can be edited as required.

Input

The cells in green should be filled with material and energy quantity data based on the emission source and specified units. Once populated, the input data fields will calculate the carbon estimate for each line of reported data, with a total calculated (kg/CO_2e).

Units (alternative)

This is where the user specifies if the quantity information was provided using different units than what has been specified. Note that the supplier should make an attempt to convert any quantity units to the specified unit system before providing data using alternative units.

Data source

Free text field to provide a brief explanation to the source of the data. There are two main stages of data sources that can be used for reporting.

1. Reporting based on use

This refers to data sources that capture the quantity of the emission source after it is consumed or installed during network maintenance activities. This is the ideal data source used for 'Emission Source' quantification.

Example data sources could include:

- purchased electricity/water bills proportioned by number of full-time employees (FTE)
- fuel consumed/vehicle kilometres travelled from vehicle sheets
- invoices for claimed material/work quantities
- equipment logs, for example, bitumen spray sheets.
- as-built plans
- RAMM database
- various estimation techniques, to be elaborated in the 'Notes' field.

2. Reporting based on procurement

This refers to data sources that captures the quantity of the emission source when it is purchased or ordered in preparation for future maintenance activities. If completed data sources are scarce this is another valid option.

Examples data sources could include:

- bulk material purchase invoices
- estimated from resurface and rehab forward work programmes
- order dockets
- various estimation techniques, to be elaborated in the 'Notes' field.

Data reliability

This is a drop-down field with four options: 'Good', 'Fair', 'Poor', or 'Not Available', which are used to measure the quality of the data source used to derive the 'Amount' field.

The following table describes each option.

Table 2: Data reliability scoring

Data reliability	Infrastructure improvement projects
Good	• Data provides an accurate estimation of the quantity of the emissions source. • Data source relates to the quantity from individual consumed sources and have been aggregated up to a reporting level. • Minimum bulk estimation techniques used. • Data error range limited to ±20%.
Fair	• Data provides a suitable estimation of the quantity of the emissions source. • Data sources relate to a mix of both consumed and procured sources. • Some sources have been aggregated up to a reporting level, but others have been estimated at a reporting level. • Moderate amount of bulk estimation techniques used. • Data error range limited to ±50%.
Poor	• Data provides a very rough estimation of the quantity of the emissions source. • Data sources relate to a mix of both consumed and procured sources. • Most emissions sources estimated at a reporting level. • Several estimation techniques used. • Data error range greater than ±50%.
Not Available	• Emissions have not been accounted for.

Notes

'Notes' is a free text field used to provide assumptions and details used in the derivation of emission source amounts.

This could include:

- formulas
- scope of activities measured
- limitations/boundaries
- assumptions
- potential areas of double counting (provide emissions group and emission source of conflicting record).

Some emissions groups under 'Emission groups' have the option of choosing 'Other' under 'Emission source'. This allows users to directly calculate the carbon associated with the whole emissions group or a subset of it. The 'Notes' field should contain the scope and estimation techniques used.

When the 'Amount' field and 'Scope' field are blank, the 'Notes' field should be used to elaborate why.

Common examples include:

- Boundary item (item has been excluded in the annual reporting boundary definition agreed with Waka Kotahi).
- Emissions source could not be estimated with available data.