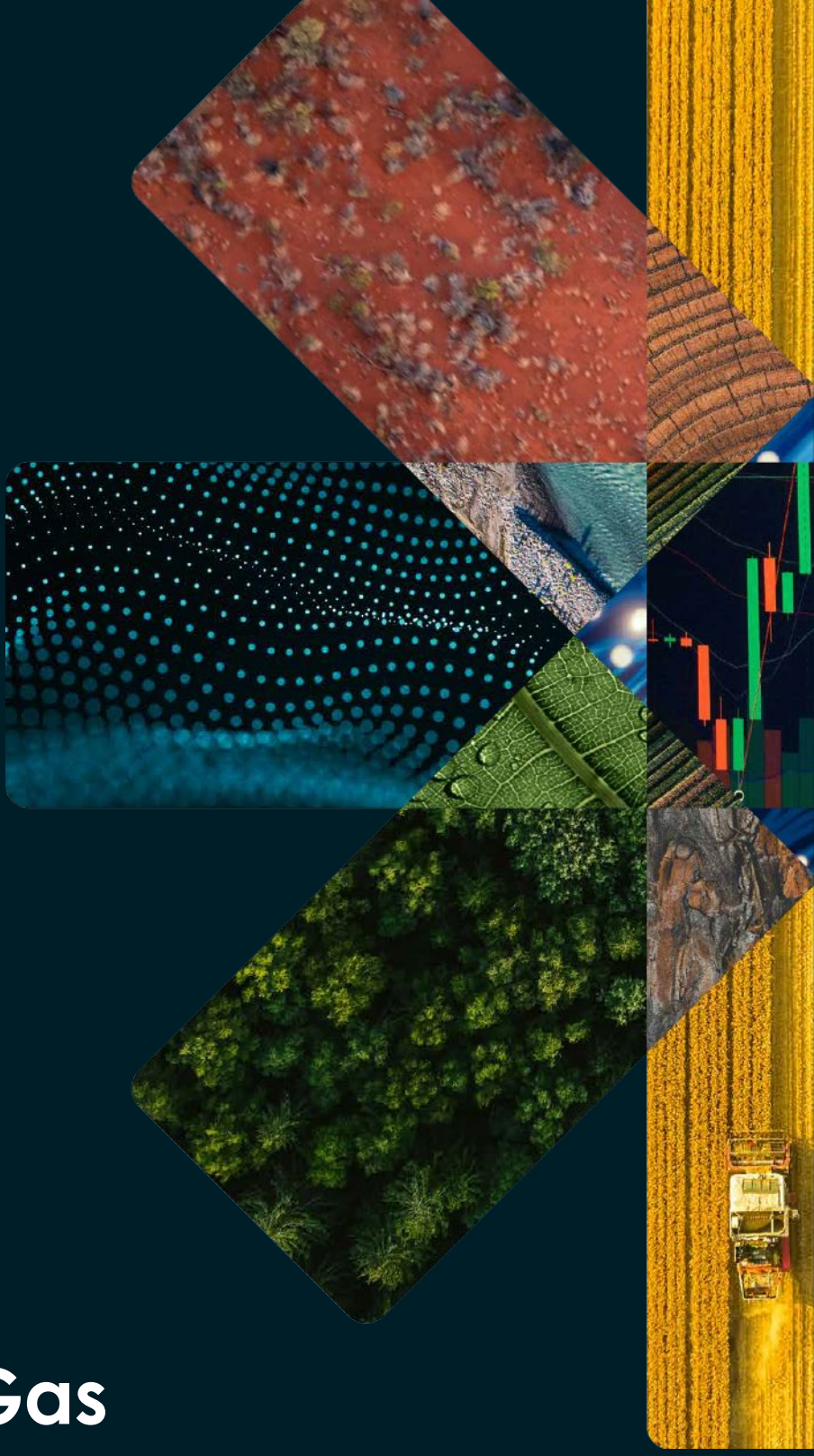
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*Natural Capital Investing. Advanced



Greenhouse Gas Accounting Methodology

FY23

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Important Note

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Glossary

Term	Description
Activity data	Data relating to the activity to emissions sources such as dollars spent, kilometres travelled, or kilograms purchased. Activity data is used to calculate emissions.
Consolidation approach	The approach taken to determine the organisational boundary (equity share, operational control, financial control).
EEIO	Environmentally extended input output (EEIO) factors provide a simple method for evaluating the linkage between economic consumption and environmental impact. EEIO factors derived for greenhouse gas impact has been used where activity data is limited to financial data.
Emissions boundary	The complete set of emission sources identified within the organisational and operational boundaries used by the reporting entity.
Emission sources	The activities within a company's operational emission boundary that generate greenhouse gas emissions.
Emissions factors	Emission factors are used to estimate the emissions associated with a product, activity, or service based on activity data.
GHG	Greenhouse gas. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and the so-called F-gases (hydrofluorocarbons and perfluorocarbons) and sulphur hexafluoride (SF_6). Each gas is weighted by its global warming potential and aggregated to give total greenhouse gas emissions in CO_2 equivalents.
GHG accounting	Process of developing a GHG emission account by multiplying activity data by an appropriate emissions factor to determine emissions across identified and relevant sources. This results in a GHG account.
GHG Protocol	Organisation providing best practice GHG accounting standards.
kgCO_2e	Kilograms of carbon dioxide equivalent. The atmospheric impact of a GHG standardised to one unit of CO_2, based on the global warming potential of the gas.
kWh	Kilowatt hours. A unit of energy equal to one kilowatt of power sustained for an hour.
MJ	Mega joules; a unit of energy.
Planning unit	An area of forest characterised by having consistent species mix, age class, silvicultural history and management intent. The size of individual planning units will vary within and between assets.
Relevancy testing	Process of applying the GHG Protocol guidance to scope 3 emissions sources to determine what sources are 'relevant' to an organisation.

Term	Description
Removal (carbon)	The process of removing GHG from the atmosphere which can occur through forestry and agricultural soil management.
Scope 1, 2 & 3	Categorisation of sources of emissions and removals based on influence over those emission sources. Scope 1 are direct (fuel consumption, carbon removal by the forest), scope 2 indirect (electricity), and scope 3 arise from value chain (employee commuting, carbon stored in harvested wood products).
Storage (carbon)	Carbon stored in long-lived harvested wood products.
tCO2e	Tonne of carbon dioxide equivalent. The atmospheric impact of a GHG standardised to one unit of CO2, based on the global warming potential of the gas.
Tonne.km	Unit of measurement for freight transport which represents the transport of one tonne of goods over one kilometre. This unit is multiplied by relevant emissions factor for transport mode (sea, road, or air).
Value chain	The full range of activities involved with producing goods and services, starting with raw materials, and ending with a delivered and useful product.

1. Introduction

1.1 Purpose of this Document

New Forests' vision is to see investment in land use and forestry as central to the transition to a sustainable future. New Forests seeks to generate climate-positive outcomes in its own corporate activities and in assets that it manages.

This statement documents New Forests' Greenhouse Gas (GHG) Accounting methodology, which, as outlined in section 1.3 below, is aligned with accepted best practice of the GHG Protocol.[1] GHG Accounting is an inventory of actual emissions and removals for a given reporting period. This statement is a key component of New Forests' stakeholder engagement, reflecting our values of transparency and disclosure around material sustainability issues.

This statement builds on New Forests' Climate Disclosure Report[2] and outlines our methodology to measure and report scope 1, 2, and 3 emissions and scope 1 and 3 removals from our business operations and assets under management. New Forests' GHG emissions and removals accounting methodology was first developed in 2020 and reviewed annually.

[1] GHG Protocol. See: http://ghgprotocol.org/.

[2] New Forests Climate Disclosures Report. See: https://newforests.com.au/wp-content/uploads/2020/03/New-Forests-Climate-Disclosure-Report-2020-web.pdf.

1.2 Structure of this Document

This statement outlines the accounting methodology used to prepare New Forests' group GHG accounts. The group GHG accounts include emissions from corporate activities (section 2) and emissions from assets under management (section 3). Accounting for carbon storage and removals from assets under management are detailed separately (section 4). Combined, these methodologies form New Forests' group GHG accounts. This statement also discusses New Forests' approach to emissions reduction activities in alignment with its net zero commitment (section 6).

The GHG Protocol has been used to guide the structure of this document, whereby the explanation of New Forests' methodology has been broken down by scope 1, 2, and 3 emissions. The GHG Protocol breaks scope 3 emissions into 15 categories, which have been used to structure New Forests' accounts and this document. It should be noted that the GHG Protocol is currently updating its guidance for accounting for emissions and removals associated with land use; therefore, this document reflects New Forests' current understanding of the expected final guidance, but it is subject to change as the GHG Protocol Guidance on Land Use and Removals is finalised.

1.3 GHG Accounting Standards and Guides

Best practice GHG Accounting standards and guidance were used to develop New Forests' corporate and asset inventories, including:

- *GHG Protocol Corporate Accounting and Reporting Standard* (GHG Protocol).[3]
- The *Corporate Value Chain (Scope 3) Accounting and Reporting Standard* (Corporate Value Chain Standard)[4] and the *Technical Guidance for Calculating Scope 3 Emissions (v1.0)* (GHG Protocol Technical Guidance).[5]
- The *Partnership for Carbon Accounting Financials* (PCAF).[6]

1.4 Boundaries

Under the GHG Protocol, all scope 1 and 2 emissions sources should be included in a GHG account, whereas inclusion of scope 3 sources are subject to relevancy testing. A long list of scope 3 emission sources across New Forests' corporate and asset activities was developed and relevancy testing was subsequently conducted to identify which scope 3 emission sources should be included in New Forests' GHG account. Any scope 3 emissions not included in New Forests' GHG accounts is because they do not satisfy the relevancy test i.e., they are not relevant.

Emissions from corporate activities and assets under management are consolidated to develop New Forests Pty Ltd's GHG inventory using the operational control approach.

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[3] GHG Protocol Corporate Standard. See: https://ghgprotocol.org/corporate-standard.

[4] GHG Protocol Corporate Value Chain. See: https://ghgprotocol.org/standards/scope-3-standard.

[5] GHG Protocol Scope 3 Calculation Guidance. See: https://ghgprotocol.org/scope-3-technical-calculation-guidance.

[6] PCAF. See: https://carbonaccountingfinancials.com/.

Carbon removals from assets under management (scope 1 removals) and carbon stored in harvested wood products (scope 3 removals) are reported separately (and not netted off against emissions from corporate activities and assets under management).

Please see our annual Sustainability Report, available on our website, for all data.

2. Emissions from Corporate Activity

New Forests' corporate emissions occur from activities associated with corporate operations. Figure 1 presents corporate activity emission sources.

Figure 1 – New Forests' corporate activity emissions sources

Scope	GHG Protocol Category	Activities
Scope 1	Direct emissions from owned or leased offices or vehicles e.g., gas for heating	No scope 1 emission sources
Scope 2	Indirect emissions from electricity	Electricity from all owned and leased offices
Scope 3	1. Purchased goods and services	Purchased paper
Scope 3	3. Fuel- and energy-related activities (not included in scope 1 or 2 emissions)	Energy extraction, production, transportation of fuels, and transmission and distribution losses for electricity
Scope 3	5. Waste generated in operations	Waste generated across offices
Scope 3	6. Business travel	Flights, hotel stays, taxi trips, and staff hire car
Scope 3	7. Employee commuting	Working from home and staff commute to and from New Forests' offices
Scope 3	8. Upstream leased assets	Base building services in tenanted buildings (e.g., HVAC, lifts and lobby lighting (electricity and natural gas))
Scope 3	15. Investments	*Refer to the investment inventory boundary*

2.1 Corporate Activity Scope 1 and 2 Emissions

2.1.1 Scope 1 Emissions

New Forests does not have any scope 1 emission sources associated with corporate activities, as New Forests does not use any fleet vehicles and does not own office facilities. Natural gas consumed as part of base building services is categorised as scope 3 emissions from upstream leased assets (see Category 8 below). Base building services are those that occur in shared spaces within a leased building, including lifts, common area lighting, and heating.

2.1.2 Scope 2 Emissions

New Forests has scope 2 emissions associated with the electricity consumed for tenant lighting and power at leased office locations in Australia, New Zealand (NZ), the United States (US), and Singapore. Electricity consumed as part of base building energy services e.g., lifts, common area lighting, is accounted for in scope 3 emissions from upstream leased assets as these sources are not under the control of New Forests (see Category 8 below). New Forests uses a location-based approach for scope 2 emissions.

Scope 2 emissions from electricity consumption are calculated by multiplying the activity data of 'kilowatt-hours (kWh)' by the appropriate regional electricity grid factor (kgCO2e/kWh). The sources of emission factors for the regions in which New Forests operates include:

- National Greenhouse Account (NGA) Factors, Australian Government.[7]
- Measuring emissions: a guide for organisations, New Zealand Government.[8]
- Emission Factors for Greenhouse Gas Inventories, United States Environmental Protection Authority.[9]
- Singapore Energy Statistics, Singapore Government.[10]

Transmission and distribution losses from purchased electricity are accounted for in scope 3 category 3 fuel and energy related activities.

2.2 Corporate Scope 3 Emissions

Scope 3 emissions are 'other indirect' emissions from activities occurring in the value chain. In calculating scope 3 emissions we have selected the leading sources for emissions factors that are the most robust and recent. These have been applied globally where a country or regional emissions factor is unavailable. We will continue to review the emissions factors used and update them as appropriate.

2.2.1 Category 1: Purchased Goods and Services

Paper

Paper purchased for New Forests' offices is the only relevant purchased good and service. Emissions from paper purchased are calculated by multiplying the activity data of 'reams of paper purchased per year' by the emission factor (kgCO2e/ream). The emission factor is sourced from Environmental Protection Authority Victoria, Australia, GHG Inventory Activity Data and Quantification Methods and used globally.

[7] Australian Government NGA Factors. See: https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors.

[8] Measuring GHG Emissions, NZ. See: https://environment.govt.nz/publications/measuring-emissions-detailed-guide-2020/.

[9] US EPA. See: https://www.epa.gov/climateleadership/ghg-emission-factors-hub.

[10] Singapore Government Energy Statistics. See: https://www.ema.gov.sg/Singapore_Energy_Statistics.aspx.

2.2.2 Category 3: Fuel- and Energy-Related Activities

Transmission and distribution losses

Category 3 emissions occur from the upstream processing of fuel and energy including transmission and distribution (T&D) losses of purchased electricity.

We calculate emissions from transmission and distribution losses by multiplying the activity data of 'kWh' by the appropriate regional T&D electricity grid emission factor (kgCO2e/kWh). The emission factors are sourced from the same as for scope 2 electricity emissions (see section 2.1.2 Scope 2 Emissions).

2.2.3 Category 5: Waste

Waste

New Forests measures GHG emissions associated with the various waste streams generated in offices including landfill, recycling, and compost. Emissions from waste are calculated by multiplying the activity data of 'annual weight of waste to landfill (tonnes),' 'annual waste recycled (tonnes),' and 'annual waste composted (tonnes)', respectively, by the appropriate emission factor (kgCO2e/tonnes). The emission factors for landfill, recycling, and composting are sourced from United Kingdom (UK) Government GHG Conversion Factors, issued by the Department for Business, Energy, and Industrial Strategy (DBEIS) and Department of Environment, Food, and Rural Affairs (DEFRA).[11]

Emissions from the treatment of wastewater is currently less than 1% of emissions and so not included on de minimis grounds.

2.2.4 Category 6: Business Travel

Flights

New Forests measures GHG emissions associated with flights taken by New Forests employees during business-related travel. Emissions from flights are calculated by multiplying the activity data of 'number of flights' broken down by cabin class (i.e., economy, business, or first class) and distance category (i.e., remote, short-haul, or long-haul) and multiplying this by an assumed distance per distance category (km) and the appropriate emission factor (kgCO2e/km). The emission factors are sourced from the UK Government GHG Conversion Factors, issued by DBEIS & DEFRA.

Ground transport

New Forests measures GHG emissions associated with hire car and taxi trips taken by New Forests employees during business related travel. Emissions from hire car and taxi trips are calculated by multiplying the activity data of 'spend ($)' by the appropriate emission factor (kgCO2e/$). The emission factors are sourced from Measuring emissions: a guide for organisations, NZ Government.

[11] DEFRA & BEIS Government conversion factors (UK). See: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting.

Hotel accommodation

New Forests measures the GHG emissions from hotel accommodation used by New Forests employees during business related travel. Emissions from hotel accommodation are calculated by multiplying the activity data 'hotel night stays' broken down by country by the appropriate country-based emission factor (kgCO2e/night). The emission factors are sourced from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA.

2.2.5 Category 7: Employee Commuting

Employee commuting

New Forests measures the GHG emissions associated with New Forests employees commuting between their offices and home. Emissions from employee commuting are calculated by multiplying the activity data 'annual distance (km)' broken down by transport method (i.e., active transport such as cycling or walking, bus, train, subway, car, or motorcycle) by the appropriate transport method emission factor. The annual activity data is estimated from a week of actual data provided by employees through an annual survey. The emission factors are sourced from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA.

Working from home

New Forests measures the GHG emissions associated with employees working from home. While an optional source under the GHG Protocol, we have chosen to include this source due to changes in working arrangements resulting from the COVID-19 pandemic. The emissions from working from home are calculated by estimating the electricity consumption per employee per day (using office electricity intensity per employee (kWh/Full Time Equivalent (FTE)) and multiplying this by the combustion plus transmission and distribution losses emission factor (kgCO2e/kWh) of the respective electricity grid. The number of days working from home per employee is estimated from data provided by an internal employee survey on commuting habits. The emission factors are the same sources as for scope 2 electricity emissions (see section 2.1.2 Scope 2 Emissions).

2.2.6 Category 8: Upstream Leased Assets

Base building electricity

New Forests measures the GHG emissions associated with consumed electricity through the base building areas of leased offices.

Due to the lack of actual base building electricity data from leased offices, emissions from base building electricity are calculated by estimating the electricity consumption (kWh) using an average energy intensity (kWh/m2) of commercial office buildings in New South Wales and Victoria, Australia. This average intensity (kWh/m2) is multiplied by the net leased area of each office and then multiplied by the combustion and transmission and distribution losses emission factor (kgCO2e/kWh) of the respective electricity grids. The emission factors are the same sources as scope 2 electricity emissions (see section 2.1.2 Scope 2 Emissions).

Base building natural gas

New Forests measures the GHG emissions associated with consumed natural gas through the base building areas of leased offices.

Due to the lack of actual base building natural gas data from leased offices, emissions from base building natural gas are calculated by estimating the natural gas consumption (MJ) using an average energy intensity (MJ/m2) of commercial office buildings in New South Wales and Victoria, Australia. This benchmark (MJ/m2) is multiplied by the floor area of each office location and then multiplied by the combustion and upstream extraction, processing, and transportation (EPT) emission factor (kgCO2e/MJ) of the respective regions where offices are located. The emission factors are sourced from:

- National Greenhouse Account (NGA) Factors, Australian Government.
- Emission Factors for Greenhouse Gas Inventories, US Environmental Protection Agency.
- Measuring emissions: a guide for organisations, NZ Government.
- UK Government GHG Conversion Factors, UK DBEIS & DEFRA.

3. Emissions from Assets

3.1 Overview of Emissions Boundary

This section presents New Forests' methodology for calculating the emissions from assets under management such as harvesting and processing. These emissions represent a significant proportion of New Forests' Group GHG emissions inventory and are accounted for in Scope 3 Category 15 Investments.

New Forests collects activity data from assets related to their scope 1, 2, and relevant scope 3 emission sources. Activity data is captured through an annual survey completed by each asset's property manager.

To understand the various scope 3 emission sources for assets under management and test for relevancy to assets under management, five asset activity types were developed: 1) Australia, New Zealand (ANZ) & US plantation assets, 2) ANZ & US processing assets, 3) Agriculture assets, 4) Asia plantation and processing assets, and 5) Africa plantation and processing assets.

Throughout this section, the asset activity types for which data is collected are indicated for each emission source. **Figure 2** presents relevant emission sources from assets under management.

Figure 2 – New Forests asset activity emission sources[12]

Scope	Emission Sources
Scope 1	Direct emissions from owned or leased sites or vehicles (e.g., transport fuels, stationary fuels, and fertiliser and lime application)
Scope 2	Indirect emissions from electricity consumed at owned or leased sites

[12] In 2023, New Forests determined that categories 6 (business travel), 7 (employee commuting), and 8 (upstream leased assets) were immaterial emissions sources (i.e., less than 1% of the total emissions profile) for assets under management and ceased data collection for these sources.

Scope	Emission Sources
Scope 3	– Category 1: purchased goods and services (biocides, fertiliser, lime, seed and feed, purchased timber logs, construction services, storage and warehouse services, pre-harvesting services, and contracted harvesting) – Category 2: capital goods (capitalised equipment purchases) – Category 3: fuel- and energy-related activities (energy extraction, production, transportation of fuels, and transmission and distribution losses from electricity) – Category 4: upstream transportation (road, rail, and sea freight paid for by the property manager of the asset) – Category 5: waste generated in operations (waste generated and potable water purchased from mains) – Category 9: downstream transportation (road, rail, and sea freight not paid for by the property manager of the asset) – Category 10: processing of sold products (processing of intermediary products sold including forest products (e.g., paper, lumber, engineered wood & panels, and other) and agriculture products (e.g., milling, canning, packaging)) – Category 11: use of sold products (burning of wood chips or breakdown of wood chips/sawdust in garden or animal bedding) – Category 12: end of life treatment (disposal at end of life of sold product) – Category 13: downstream leased assets (activities on leased land including cattle grazing, sheep grazing, agricultural cropping, and dairy farm enterprises)

3.2 Scope 1 and 2 Emissions

3.2.1 Scope 1 Emissions

There are four main sources of scope 1 emissions across New Forests' assets under management. Data from each asset is collected in the units indicated below and emissions are calculated using the associated emissions factors (**Table 1**).

Table 1 – Data inputs and emission factors for direct emissions (scope 1)

Source	Activities	Data Input (units)	Emission Factor
Stationary energy consumption	Generators and non-road mobile machinery	Diesel, petrol, and LPG: volume (litres or US gallons) Natural gas: megajoules or therms	National Government Sources: – NGA Factors, Australia (2020) – Measuring Emissions, NZ Government (2020) – Emission Factors, US EPA (2020)
Transport energy consumption (owned)	Fleet vehicles Mobile machinery	Diesel, petrol, marine fuel, and LPG: volume (litres or US gallons)	As above (National Government Sources)

Source	Activities	Data Input (units)	Emission Factor
Fertiliser application	Forestry and agriculture operations	Weight of nitrogen (tonnes)	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Vol 4: Agriculture, Forestry and Other Land Use
Biomass burned[13]	Energy consumption at timber processing	Wood residues, wood logs, and/or chips burned for operations: weight (tonnes or short tons)	Emission Factors, UK DEFRA & DBEIS (2020)

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.2.2 Scope 2 Emissions

Scope 2 emissions are those associated with electricity consumption. Data regarding electricity consumed (kWh) at each asset is collected and emissions are calculated using a location-based approach applying the appropriate regional electricity grid factor (kgCO2e/kWh). The sources of emission factors for the regions in which we operate include:

- National Greenhouse Account (NGA) Factors, Australian Government (2021).
- Emission Factors for Greenhouse Gas Inventories US EPA (2022).
- Measuring emissions: a guide for organisations, NZ Government (2022).

Grid emission factors from Institute for Global Environmental Strategies[14] (IGES; 2021) are used where National Government figures are unavailable.

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3 Scope 3 Emissions

New Forests' assets under management scope 3 emissions are 'other indirect' emissions as a result of activities occurring in each asset's value chain. Where spend is used to calculate emissions, figures are provided in local currency and converted to AUD or USD.

[13] The accounts do not include emissions associated with wildfire (i.e., unplanned) and controlled burning events within the forest estate. This is due to the complexity of estimating the amount of biomass burned in these events. Biomass-related emissions are reported separately outside the scopes, per the guidance of the GHG Protocol.

[14] IGES Grid emissions factors. See: https://www.iges.or.jp/en/pub/list-grid-emission-factor/en.

3.3.1 Category 1: Purchased Goods and Services

This category covers relevant emission sources from purchased goods and services. Emissions are calculated by multiplying the activity data (input) by the relevant emission factor (**Table 2**).

Table 2 – Data inputs and emission factors for purchased goods and services

Source	Activities	Data Input (units)	Emission Factor
Embodied emissions of purchased products	Fertiliser, biocide, lime, seeds, and feed	Weight; OR Spend (local currency)	EcoInvent 3.8 database (2021) EEIO factors (2021)
Embodied emissions of purchased products	Purchased timber logs	Weight (tonnes or short ton)	EcoInvent 3.8 database (2021)
Emissions from services purchased from third-party companies	Engineering or maintenance services of equipment, construction, storage and warehousing, and pre-harvesting activities (spraying etc)	Spend (local currency)	EEIO factors (2021)
Emissions from services purchased from third-party companies	Harvest contractors (forestry)	Weight (tonnes or short ton); OR Number of days worked by third-party harvesting companies (forests)	EcoInvent 3.8 database (2021)
Emissions from services purchased from third-party companies	Harvest contractors (agriculture)	Weight (tonnes or short ton); OR Area: hectares or acres harvested (agriculture)	EcoInvent 3.8 database (2021)

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.2 Category 2: Capital Goods

This category covers the embodied emissions in capital goods purchased at each asset. Capital goods reported in this category follow financial accounts and capitalised expenditure. Category 2 represents the GHGs emitted during the extraction, manufacturing, and transportation of capital goods purchased by the assets. This may include vehicles, plant, or equipment.

Table 3 – Data inputs and emission factors for capital goods

Source	Activities	Data Input (units)	Emission Factor
Embodied emissions of capital goods	Purchase of capital goods such as machinery, vehicles, plant, or equipment	Spend (local currency)	EEIO factors (2021)

Data collected for asset types: ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.3 Category 3: Fuel- and Energy-Related Activities

This category covers the emissions that occur from the upstream processing of fuel and energy including T&D losses of purchased electricity.

We calculate emissions from transmission and distribution losses by multiplying the activity data of 'kWh' by the appropriate regional T&D electricity grid emission factor (kgCO2e/kWh). The emission factors are sourced from the same as for scope 2 electricity emissions (see section 2.1.2 Scope 2 Emissions).

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.4 Category 4: Upstream Transport and Distribution

This category covers the emissions from upstream transportation and distribution services, such as freight, that are paid for by the asset. Data regarding the transportation mode (rail, road, or ship), average distance (either to processing location or to customer; km or miles) and the total weight of product sold (green metric tonnes or short tons) are used to estimate the tonne.km of transported sold goods.

Table 4 – Data inputs and emission factors for upstream transport

Source	Activities	Data Input (units)	Emission Factor
Upstream transport and distribution	Transportation paid for by the asset	Transportation mode (rail, road, or ship) Average distance (either to processing location or to customer; km or miles) Total weight of product sold (green metric tonnes or short tons)	UK Government GHG Conversion Factors, UK DBEIS & DEFRA (2020)

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.5 Category 5: Waste

This category covers the emissions arising from the various waste streams generated, including the treatment of wastewater, at each asset.

- Emissions from waste includes emissions of landfilled, recycled, composted, or incinerated commercial waste, including metals, plastics, paper and cardboard, and organic materials. Data is collected regarding the weight (tonnes or short tons) of each waste type disposed of under each method and emissions are calculated using emission factors from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA (2020).
- Emissions arising from the supply of water to assets represents the energy required to transport the water from potable mains to the asset location and treatment for consumption. Data is collected regarding the volume (litres or US gallons) of potable water purchased and emissions are calculated using emission factors from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA (2020).

> **Data collected for asset types:** ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.6 Category 6: Business Travel

This category covers the business travel undertaken by asset-level employees or property managers. This includes four sources of business travel – air travel, accommodation, taxi and hire car services. New Forests determined that emissions from this category were not material.

3.3.7 Category 7: Employee Commuting

This category covers the emissions from direct employee commuting. New Forests determined that emissions from this category were not material.

3.3.8 Category 8: Upstream Leased Assets

This category covers the emissions from base building services for leased offices or buildings. New Forests determined that emissions from this category were not material.

3.3.9 Category 9: Downstream Transport and Distribution

This category covers the emissions from downstream transportation and distribution emissions from each asset. These are emissions from transportation and distribution services that are not paid for by each asset but paid by a third party.

Data is collected regarding the transportation mode (rail, road, or ship), average haul distance (either to vendor or buyer in km or miles) and the total weight of product sold (green metric tonnes or short tons) to estimate the tonne.km of transported sold goods. Emissions are calculated using emission factors from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA (2020). The methodology also confirms whether these sold products are sold to other New Forests-managed assets to avoid double counting of transportation emissions.

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Agriculture · Asia plantation & processing · Africa plantation & processing

3.3.10 Category 10: Processing and Packaging of Intermediary Sold Products

This category covers the emissions associated with the processing and packaging of products sold as intermediary products from each asset. Intermediary products are those that require further processing before use or consumption by a customer such as chips to be processed into paper, logs to be milled into lumber and engineered wood or canola to be processed into vegetable oil.

Data is collected from property managers regarding the total weight (green metric tonnes or short tonnes) of products sold that require further processing.

New Forests then calculates the allocation to the product types using product sales data and the proportion of export versus domestic products. The emissions are then calculated based on bone dry weight, using an emissions factors based on the mill efficiency (Jakko Poyry Consulting, 2009) and the emissions intensity for pulp and paper processing in Australia (AUSFPA, 2022), China, and Japan (Transition Pathways Initiative, 2020), weighted based on sales to those regions.

Data collected for asset types: ANZ & US plantation · ANZ & US processing · Asia plantation & processing · Africa plantation & processing

To avoid double counting, Category 10 emissions for plantation assets that sell to New Forests managed processing assets are excluded from aggregated inventories.

For agriculture assets, data is collected regarding the total weight (tonnes or short tons) of agricultural harvest sold. Emission factors are derived from the primary international destination for sold product and most common end product using the EcoInvent 3.8 database (2021; **Table 5**).

Table 5 – End markets and products for Australian agriculture

Product	Primary Destination	Primary End Product
Barley	United Arab Emirates	Animal feed (no processing, includes packaging)
Canola	United Arab Emirates	Vegetable oil
Oats	China	Packaged oats
Pulses	India	Canning of pulses
Wheat	Central and Southeast Asia	Flour (milling)

Data collected for asset types: Agriculture

3.3.11 Category 11: Use of Sold Products

This category covers the emissions from the use of sold products from ANZ & US processing and Asia plantation and processing assets. For most sold products, due to their inert nature, there are no emissions produced as a result of their use e.g., paper, structural timber. Only wood or woodchips sold for fuel, woodchips or saw dust sold for animal or garden bedding have emissions associated with their use.

Data is collected regarding the weight (green metric tonnes or short tons) of firewood/woodchips sold for fuel combustion, woodchips, and sawdust, and calculate emissions using emission factors from the UK Government GHG Conversion Factors, UK DBEIS & DEFRA (2020).

> **Data collected for asset types:** ANZ & US processing · Asia plantation & processing · Africa plantation & processing

3.3.12 Category 12: End of Life Treatment of Sold Products

This category covers the emissions from the end of a product's useful life when it breaks down in landfill. Specifically, it covers emissions from the end of life of timber products sold for paper production from ANZ & US plantation, ANZ & US processing, and Asia plantation and processing assets. End of life emissions from other timber products e.g., lumber and engineered timber are excluded due to the long-lived nature of storage in these products.

Data is collected regarding the total weight of timber products sold for paper production (tonnes or short tons) and it is assumed 40% of paper is disposed to landfill[15] and the remainder is recycled. Emissions are calculated using emissions factors from the National Greenhouse Account (NGA) Factors, Australian Government (2020).

> **Data collected for asset types:** ANZ & US plantation · ANZ & US processing · Asia plantation & processing · Africa plantation & processing

3.3.13 Category 13: Downstream Leased Assets

This category covers the emissions from downstream leased assets. Activities that occur on leased land includes cropping, cattle and sheep grazing, and dairy farm enterprises. Data is collected regarding the average number of livestock during the reporting period for the dairy farming, and cattle and sheep grazing and calculate emissions using factors from the NZ Government. For agricultural cropping, data is collected regarding the area of land (hectares or acres) and emissions are calculated using emission factors from the EcoInvent 3.8 database (2021).

> **Data collected for asset types:** ANZ & US plantation · Agriculture

[15] Australian Government, National Waste Report 2020.

4. Carbon Removals from Assets

In forest carbon accounting, removals are defined as the increase in carbon stored within the forest due to carbon sequestered, or removed from the atmosphere, via growth. Conversely, biogenic emissions are defined as the reduction in carbon stock in the forest due to disturbances such as harvesting or fire, or from the decomposition of organic matter (e.g., debris). The emissions from harvesting are partly offset by storage of carbon in long-lived harvested wood products (HWP). The net balance between removals from growth and HWP versus emissions from disturbances determines whether there is a net removal or emission reported in the accounts.

Investment in sustainable forestry and land use can generate significant carbon sequestration and create optionality among different land uses and forestry management decisions, particularly when timber is used for purposes which have long (< 10 year) service life, such as construction, furniture, or cross laminated timber.[16] Importantly, the GHG Protocol is now developing the GHG Protocol Land Sector and Removals Guidance[17] which is expected to provide a framework for how organisations should account for GHG emissions and removals from land use, land use change, bioenergy, and related topics in their GHG inventories, building on the Corporate Standard and Scope 3 Standard. New Forests was a member of the Technical Working Group for Carbon Removals in 2020 and consulted on the drafting of the Guidance through a pilot (completed February 2023) and the company's membership in the Forest Solutions Group of the WBCSD. The current expectation is that the final Guidance will be released in 2025.

This explanatory statement describes how New Forests accounts for changes in carbon stored within the forests under our direct control, which are classified as scope 1 removals (or emissions if there is a net negative balance). The method for estimating removals associated with storage in harvested wood products associated with assets under management, classified as scope 3 removals, is also described.

New Forests does not account for changes in carbon stocks in forests that supply logs to New Forests-managed processing facilities but are owned by third parties. Accounting for these changes would result in scope 3 removals/emissions, but the information available to account for the net change in these forests is limited.

4.1 Scope 1 Removals (In Forest)

There are two common types of methods for estimating changes in carbon stock (or storage) in forest systems (IPCC 2006):

- **Gain-loss method.** Estimates carbon stocks from data at a point in time and uses models to predict the carbon stock at a future point in time, accounting for growth (removals) and disturbances e.g., harvesting, fires etc (emissions) that occur in the intervening period. The impacts of removals and emissions can be estimated separately.

[16] WBCSD: Catalogue of key decarbonization actions (Phase II Forest Sector Net-Zero Roadmap). See: https://www.wbcsd.org/Sector-Projects/Forest-Solutions-Group/Resources/Catalogue-of-key-decarbonization-actions-Phase-II-Forest-Sector-Net-Zero-Roadmap.

[17] GHG Protocol. See: https://ghgprotocol.org/land-sector-and-removals-guidance.

– **Stock-difference method.** Independent estimates of carbon stocks at two points in time, with the difference between the estimates being the net carbon removal or emission. This method does not separately estimate the impact of growth or disturbances.

New Forests uses the gain-loss method, as this integrates well with the data sources that are available through the forest management systems and processes that we operate. This method also allows for the separate attribution of impacts of growth and harvest, as well as changes due to acquisition or sale of assets. In the United States, we currently estimate the emissions associated with fire events, however in all other regions we do not currently estimate the emissions associated with non-harvest related disturbance events (e.g., fire), other than consideration of changes in stocked area.

At a high level the approach used by New Forests is similar across geographies. Primary data sources include forest inventory (height, diameter, species), forest age, and planning unit area. The methodology is:

1. Forest inventory is conducted at a given point in time. A given inventory can be specific to an individual planning unit (or group of planning units) or be estate-wide (such as in the case of a LiDAR based inventory). Note: not all planning units will have inventory data available (most often due to their young age); in such cases a planning unit will be allocated to a yield curve based on historical production and/or similar stands that do have inventory.
2. Regional and species-specific growth models are used to estimate forest growth between the inventory date and the start of the reporting period. Depletions are accounted for due to harvest and other disturbances between the inventory date and the start of the reporting period.
3. Allometric equations and/or biomass expansion factors are used to scale up from individual tree measurements (diameter, height) or stem volume (at individual tree or stand level) to above- and below-ground carbon stock.
4. Forest growth is estimated between the start and end of the reporting period using the same growth models as in item 2 above, and above- and below-ground carbon stock at the end of the reporting period is estimated using same allometric equations and/or expansion factors as mentioned in item 3 above.
5. For ANZ plantation assets the carbon stock in harvest debris from prior clear-fell harvest events is estimated.
6. The process described above results in estimates of carbon stock per area (metric tonnes CO2-equivalent per acre or hectare). These values are then multiplied by the area for each planning unit to derive estimates of carbon stock (metric tonnes CO2-equivalent) for the planning unit. Values for all areas within a given asset are summed to derive a total value for the asset.
7. The estimates of carbon stock described above are used to calculate three components:
    a. Removals due to tree **growth** during the reporting period are estimated from the difference in above- and below-ground carbon stocks at the start and end of the reporting period (excluding harvest depletions).
    b. Emissions due to **harvest** depletions are estimated as the product of the area harvested (by planning unit) multiplied by the opening carbon stock (above- and below-ground) for that planning unit.
    c. Changes in **debris** carbon pool (ANZ only). This pool is estimated at the beginning of the carbon reporting period as well as the end of the period, with the latter accounting for decay of the initial debris carbon (linear trend over 10 years) and including additions from harvest

during the reporting period (components of harvested trees not removed from site). This could result in either a net emission or removal.

8. An adjustment is then made to account for carbon stored in assets (individual properties or combinations of properties) that were sold or purchased during the carbon reporting period. In the case of assets that were sold, it is assumed that the removals due to growth and emissions from harvest occur prior to the sale of the properties and are therefore included in the accounts for the reporting period. For assets that were purchased during the carbon reporting period it is assumed that there is no growth in these assets during the reporting period, but that the emissions associated with harvest are included for the period. The assets purchased do contribute to an updated estimate of the closing balance of carbon stored in the estate at the end of the reporting period.

The net removal (or emission) over the reporting period for the asset is the sum of carbon stock changes due to growth, harvest, and debris.

In addition to the components described above, there is a further adjustment incorporated into the carbon estimates to account for changes in modelled inventory (due to remeasurement of forests) and/or changes in the detailed methodology used to estimate carbon stocks (e.g., an updated allometric equation, or adjustment to the way carbon in the debris pool is estimated). This adjustment is reflected as the difference between the closing balance for one reporting period and the opening balance for the subsequent reporting period. Reasons for significant differences between years are recorded.

These components are demonstrated graphically in **Figure 3**.

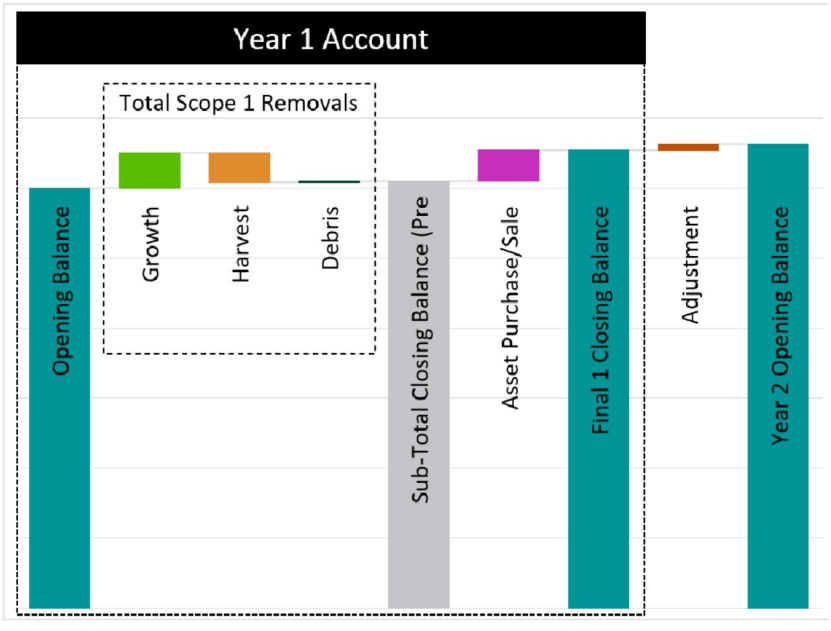


Figure 3 – Generalised example of forest carbon storage and removals (based on FY21 figures)

Note: Emissions from disturbances other than harvesting, such as fires, are not currently included in the calculations (except in the United States) other than through the adjustment of stocked area. In this situation the fire event is treated similarly to a harvest event.

The factors applied in the calculation of scope 1 removals are obtained from several sources, including:

– Internal New Forests analysis, using asset specific data.

– National Carbon Accounting System technical reports (Australian Greenhouse Office).

4.1.1 Regional Differences in Methodology

As outlined below, there are differences in the detailed calculations used to estimate carbon storage and removals between geographies across New Forests' business. These arise due to differences in the data available and the operating procedures used in each of the regions. The key differences among regions are described in **Table 6**.

Table 6 – Regional methodology variation

Area	ANZ & Asia	USA
Inventory	Primarily plot based inventory undertaken at routine times throughout a rotation, with some LiDAR based inventory. Results vary across time since inventory across planning units within a given asset may be collected at different times. Data summarised to stand level for growth model.	Combination of extensive LiDAR inventory (with all trees measured at the same time) and standard plot-based inventory (progressive inventory of all stands over time). Individual tree list data are used as input to growth models.
Growth models	Regional and species-specific growth models applied at the stand level.	Individual tree growth based, using standard industry growth models parameterised by forest type.
Estimating carbon stock from tree measurement	Regional and species-specific biomass expansion factors used to scale up from merchantable stem volume to above- and below-ground biomass.	Individual tree allometric relationships used to estimate above- and below-ground biomass from tree height and stem diameter. These are consistent with calculations required under the California Climate Action Registry.

4.2 Scope 3 Removals (HWP)

In 2021, New Forests developed a methodology to calculate the carbon stored in wood harvested from assets under management, which was subsequently updated in 2022. When trees are harvested and used to produce wood products, carbon remains stored in that product while it is in use or in landfill. Although the GHG Protocol Guidance on Land Use and Removals is yet to be finalised, New Forests expects that long-term carbon storage from harvested wood products will be reported as a scope 3 removal.

New Forests' methodology is based on the International Life Cycle Data Guide for Life Cycle Assessment, IPCC defaults and country-specific guidance, including, but not limited to:

– Australia and New Zealand: National Carbon Accounting System technical reports (Australian Greenhouse Office) and NZ Ministry for Primary Industries.

– United States: US Forest Service.

The inputs for the process are harvest volumes broken down by species, asset location and market destination. The volume of harvest (GMT) is converted to dry mass using the dry fibre content value for that

species and country of origin. In the case of domestic sales, market destination is identified by individual mill, including the type of processing such as sawmill, pulp mill, veneer plant etc. For export sales, the market destination is identified by country and product type. The tool then uses regional data for mill efficiencies, product flow (if not known) product end use, product service lives, and radiative forcing to calculate the long-term carbon storage associated with the harvested wood products in units of tonnes of CO2 equivalent (tCO2-e). The high-level steps in the calculation are outlined below, though there is some variation across the regions.

Figure 4 – 2023 calculation methodology for carbon removals

1. Enter harvest data and product flow (if known).
2. Calculate average service life based on product type/market, mill conversion efficiency and end use.
3. Convert harvest data to consistent units of measure (dry metric tonnes).
4. Multiply product weight by average service life.
5. Apply carbon fraction, conversion to CO2 equivalent, and radiative forcing multiplier.
6. Final value represents the long-term carbon storage that can be attributed to that reporting year.

5. Review

5.1 Corporate Emissions Data Review

New Forests' Business Support team is responsible for providing the data for the corporate emissions inventory. Responses are reviewed by the Investment Analytics and Sustainability team by:

- Comparing responses to the previous reporting period.
- Confirming any questions or discrepancies with the relevant member of the Business Support team.

5.2 Asset Emissions Data Management

Third-party property managers and portfolio companies are responsible for completing the asset-level GHG Emissions Worksheet. Following the review of an asset GHG Emissions Workbook (as outlined in the next section) they are saved in New Forests' online system.

5.3 Asset Emissions Data Review

5.3.1 Review by Portfolio Managers

Following the submission of the asset GHG Emissions Workbooks to New Forests, the Portfolio Managers are responsible for the first review of the emissions data, which should include:

1. Assessment of completeness and correctness of the current period responses.
2. Assessment of current period responses against known asset management activities during the reporting period (e.g., harvest volumes).
3. Comparison of each data point against the same data point for the previous reporting period.

4. Comparison of data provided to New Forests with any other emissions data being otherwise reported by the portfolio manager (e.g., asset annual sustainability reports etc).

Discrepancies should be sent to the property manager to clarify any questions or update incorrect information. In consultation with property managers, explanations should be provided for any significant or unusual deviations.

5.3.2 Review by the Sustainability Team

Following the Portfolio Manager review the Sustainability Team will check to ensure all GHG Emissions Workbooks have been completed and do a comparison of emissions values at the asset level.

5.3.3 Validation by the Data Warehouse

In future, New Forests will aim to integrate the asset GHG Emissions reporting into its Data Warehouse and develop validation criteria.

5.4 Asset Removals Data Review

5.4.1 Scope 1 Removals

Property managers are responsible for completing the carbon stock calculation biannually or annually, which will be used to determine the annual removals. The responses will then be reviewed by New Forests' Operations and Investment Analytics teams.

5.4.2 Scope 3 Removals

New Forests will calculate the scope 3 removals from harvested wood products using data uploaded to our Data Warehouse. While the data warehouse is being updated, Scope 3 removals are emailed to Investment Analytics, who clean, process, and validate the data. The calculations will be first reviewed by the Portfolio Managers and Investment Analytics team, and subsequently the Sustainability team.

5.5 Review of Materiality of Emissions Sources

The emissions sources included in New Forests' corporate and asset inventory tools will be reviewed annually to ensure all material sources are included. The Portfolio Managers are primarily responsible for reviewing the asset inventory and the Sustainability team is responsible for reviewing the corporate inventory. New Forests will engage a third-party consultant with expertise in GHG accounting to update the tool(s) if needed.

5.6 Emissions Factors Review

Emissions factors used in New Forests' corporate and asset emissions inventories will be reviewed annually by New Forests' Sustainability team and a third-party consultant. Emissions factors that have materially changed since the previous reporting period, as determined by the consultant, will be updated. All emissions factors will be updated biennially at a minimum.

6. Emission Reduction Targets and Plans

New Forests is committed to reaching net zero emissions by 2050 or sooner. This commitment is formalised through our membership in the Net Zero Asset Managers Initiative ("**NZAMI**"). Net zero refers to a state in which GHG emissions released into the atmosphere are balanced by emissions removals out of the atmosphere.

New Forests' corporate operations have been climate neutral for our scope 1 and 2 emissions since FY20. We are committed to continuing our climate neutrality while we work to reduce emissions from our corporate operations. We have a target to have 100% renewable energy across our offices, due to be implemented in 2024.

New Forests has developed an emissions reduction target for our scope 3 category 15 "financed emissions" using the Net Zero Investment Framework methodology; our target is available on the NZAMI website. We are in the process of developing emission reduction plans for our funds and/or assets under management aligned with achieving this target.