

Greenhouse Gas Emissions Inventory Report

INVENTORY SCOPE: MERIDIAN GROUP (ALL FACILITIES)

INVENTORY PERIOD: FOR THE PERIOD 1 JULY 2023 TO 30 JUNE 2024



Meridian.

The Power to
Make a Difference.

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Chief Financial Officer

**This Greenhouse Gas Emissions Inventory Report is dated
27 August 2024 and is signed on behalf of the Board by:**



Mark Verbiest
Chair

Disclaimer

Every effort has been made to ensure that the report is accurate. Meridian Energy Limited will not be liable in contract, tort, equity or otherwise, for any reliance placed upon this report by any third party.

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The consolidation approach chosen for the greenhouse gas inventory should not be used to make decisions related to the application of employment or taxation law.

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Greenhouse gas emissions inventory summary

ISO 14064-1, 9.3.2 (f)

Table 1: Total greenhouse gas emissions for the Meridian Group
by business activity and scope

Business activity	Scope	Emissions tCO ₂ e	Offsets**	Residual tCO ₂ e****
Operational				
	Scope 1	1,060	1,060	0
	Scope 2 (market based)	2	2	0
	Scope 3 operational	36,848	36,848	0
	Subtotal	37,910	37,910	0
Energy purchased & on-sold*				
	New Zealand electricity	0	0	0
		0	0	0
One-time construction				
	Scope 3 one-time construction	75,291	75,291	0
		75,291	75,291	0
Total Group value chain emissions (S1, 2 & 3)***		113,201	113,201	0

*Emissions of our retailed electricity using the market-based methodology. In New Zealand we use the annual netting off methodology (see [Section 11](#)).

**Offsets include credits cancelled by suppliers against their own emissions, and Gold Standard Voluntary Emission Reductions (GS VERs) for the balance. For details on offsets see [Section 18](#).

***Total emissions are calculated using the market-based methodology for Scope 2 emissions. [Section 11.1](#) explains this.

****This column is included to indicate that we have purchased offsets corresponding to our total emissions. Meridian notes that offsetting emissions does not mean those emissions are actually reduced.

Table 2: Greenhouse gas emissions for the Meridian Group by ISO category and facility

ISO category	Sub category	Meridian NZ	Flux NZ	Te Rere Hau LP	2023/24 tCO ₂ e
Direct emissions					
	Stationary combustion	23	nm	0	23
	Mobile combustion	697	0	0	697
	Fugitive emissions	340	nm	0	340
Total direct emissions		1,060	0	0	1,060
Indirect emissions from imported energy					
	Electricity consumption (location based)*	1,313	0	0	1,313
	Electricity consumption (market based)**	2	0	0	2
Subtotal (market based)*** (A)		2	0	0	2
Indirect emissions from transportation					
	Production and distribution of fuel	165	0	0	165
	Contractor fuel	2,741	n/a	16	2,757
	Freight	1,382	0	0	1,382
	Business travel inc contractors	1,226	186	2	1,414
	Employee commuting	535	0	0	535
Subtotal (B)		6,049	186	18	6,253
Indirect emissions from use of products and services purchased					
	Purchased goods and services	11,858	1,388	56	13,302
	Capital goods	71,424	n/a	0	71,424
	Third party electricity & T&D losses	8	0	0	8
	Transmission and lines services	18,541	nm	0	18,541
	Waste	54	0	0	54
	Working from home	21	8	0	29
Subtotal (C)		101,906	1,396	56	103,358
Indirect emissions from use of products and services sold					
	Electricity purchased and onsold	0	n/a	0	0
Subtotal (D)		0	0	0	0
Indirect emissions from other sources					
	Downstream leased assets (farms)	2,514	n/a	0	2,514
	Investments	14	0	0	14
Subtotal (E)		2,528	0	0	2,528
Total indirect emissions*** (A+B+C+D+E)		110,485	1,582	74	112,141

*Location-based emissions are calculated using the average emissions intensity of the grids on which energy consumption occurs (using grid-average emission factor data).

**Market-based emissions are calculated using the low carbon attributes of mechanisms such as contractual instruments or certifications bundled with the consumed electricity. For example, Meridian NZ uses its own 100% certified renewable energy.

***Total indirect emissions are calculated using the market-based methodology for Scope 2 emissions. [Section 11.1](#) explains this.

nm : not measured
n/a : not applicable

Table 3: Greenhouse gas emissions by business activity and scope

Business activity	Category	Meridian NZ	Flux NZ	Te Rere Hau LP	2023/24 tCO ₂ e
Operational emissions direct emissions (Scope 1)	Stationary combustion (A)	23	n/a	0	23
	Fuel used in electricity generation	0	n/a	0	0
	Backup generators	23	n/a	0	23
	Mobile combustion (B)	697	n/a	0	697
	Boat travel	217	n/a	0	217
	Car travel	480	n/a	0	480
	Fugitive emissions (C)	340	n/a	0	340
	HFCs	179	n/a	0	179
	SF ₆	161	n/a	0	161
Subtotal Scope 1 (A+B+C)		1,060	0	0	1,060
Operational emissions indirect emissions (Scope 2)	Electricity consumption (location based)	1,313	0	0	1,313
	Facilities (location based)	1,232	n/a	0	1,232
	Offices (location based)	79	n/a	0	79
	Vehicles (location based)	2	0	0	2
	Electricity consumption (market based)	2	0	0	2
Subtotal Scope 2 (market based)*		2	0	0	2

*Total emissions are calculated using the market-based methodology for Scope 2 emissions. [Section 11.1](#) explains this.

Business activity	Category	Meridian NZ	Flux NZ	Te Rere Hau LP	2023/24 tCO ₂ e
Operational indirect emissions (Scope 3)	Purchased goods and services (A)	11,858	1,388	56	13,302
	IT Services	935	258	0	1,193
	Maintenance Services	6,338	9	0	6,347
	Office Services	785	56	56	897
	Professional Services	3,800	1,065	0	4,865
	Fuel and energy-related activities (B)	684	0	0	684
	Production and distribution of fuel	165	0	0	165
	T&D losses from office electricity	8	n/a	0	8
	Contractor fuel (meter reading)	243	n/a	0	243
	Contractor fuel (maintenance)	268	n/a	0	268
	Upstream transportation and distribution (C)	18,562	0	0	18,562
	Couriers and postage	20	0	0	20
	Lines operational	12,729	n/a	0	12,729
	Transmission operational	5,813	n/a	0	5,813
	Waste generated in operations (D)	39	0	0	39
	Waste to landfill	37	0	0	37
	Waste sent to recycling	2	0	0	2
	Business travel (E)	983	186	0	1,169
	Air travel	882	183	0	1,065
	Taxis and rideshare	13	0	0	13
	Hotel accommodation	88	3	0	91
	Employee commuting (F)	556	8	0	564
	Employee commuting	535	0	0	535
Working from home	21	8	0	29	
Downstream leased assets (farms) (G)	2,514	n/a	n/a	2,514	
Investments (H)	14	0	0	14	
Subtotal Scope 3 operational (A+B+C+D+E+F+G+H)		35,210	1,582	56	36,848
Total operational emissions (S1, 2 & 3) (market based)		36,272	1,582	56	37,910
Energy purchased and on-sold** indirect emissions (Scope 3)	Fuel- and energy-related activities	0	n/a	0	0
	Electricity purchased and onsold	0	n/a	0	0
Subtotal Scope 3 energy on-sold		0	n/a	0	0
One-time construction indirect emissions (Scope 3)	Capital goods	71,424	n/a	0	71,424
	Construction services	3,849	n/a	18	3,867
	Contractor fuel	2,231	n/a	16	2,247
	Contractor electricity use	0	n/a	0	0
	Contractor travel	242	n/a	2	244
	Freight of major materials	1,361	n/a	0	1,361
	Waste to landfill	15	n/a	0	15
	Waste sent to recycling	0	n/a	0	0
Subtotal Scope 3 one-time construction		75,273	n/a	18	75,291
Total emissions (S1, 2 & 3) (market based)		111,545	1,582	74	113,201
<i>Total emissions (S1, 2 & 3) (location based)</i>		<i>112,856</i>	<i>1,582</i>	<i>74</i>	<i>114,512</i>

**Emissions of our retailed electricity using the market-based methodology. In New Zealand we use the annual netting off methodology (see Section 11).

nm : not measured
n/a : not applicable

ISO 14064-1, 9.3.1 (f)

Table 4: Total greenhouse gas emissions by greenhouse gas

Greenhouse gas	GHG emissions in tonnes			GHG emissions in tCO ₂ e			2023/24 tCO ₂ e
	Meridian NZ	Flux NZ	Te Rere Hau LP	Meridian NZ	Flux NZ	Te Rere Hau LP	
Scope 1							
Carbon Dioxide (CO ₂)	706	0	0	706	0	0	706
Methane (CH ₄)	0.08	0	0	2	0	0	2
Nitrous Oxide (N ₂ O)	0.04	0	0	11	0	0	11
Hydrofluorocarbons (HFCs)	0.12	n/a	n/a	180	n/a	n/a	180
Sulfur Hexafluoride (SF ₆)	0.01	n/a	n/a	161	n/a	n/a	161
Subtotal				1,060	-	-	1,060
Scope 2 (location based)							
Carbon Dioxide (CO ₂)	1,265	-	-	1,265	-	-	1,265
Methane (CH ₄)	1.67	-	-	47	-	-	47
Nitrous Oxide (N ₂ O)	0.01	-	-	1	-	-	1
Subtotal				1,313	-	-	1,313
Scope 3							
Carbon Dioxide (CO ₂)	3,038	8	11	3,038	8	11	3,057
Methane (CH ₄)	7.21	0	0	201	0	7	208
Nitrous Oxide (N ₂ O)	0.17	-	0	46	-	0	46
Tons Carbon Dioxide Equivalent (tCO ₂ e)*	107,198	1,574	56	107,198	1,574	56	108,827
Subtotal				110,483	1,582	74	112,139
Total (location based)				112,856	1,582	74	114,512

*gas is reported as tCO₂e where no breakdown of the emission factor by gas is available

1 Introduction

The authenticity of the sustainability positioning of the Meridian Energy Group of companies is dependent on credible climate action, including measuring and managing our emissions and reducing the greenhouse gas emissions of our operations.

Our emission measurement and reduction guidelines support our Environment Policy, and our desire to take “Climate Action” in line with the 13th UN Sustainable Development Goal.

This report is the annual greenhouse gas (GHG) emissions¹ inventory report for the Meridian Group of companies. The inventory is a complete and accurate quantification of the amount of GHG emissions that can be directly attributed to the organisation’s operations within the declared boundary and scope for the specified reporting period.

Our reporting processes and emissions classifications are consistent with international protocols and standards. This report has been written in accordance with Part 9.3.1 of the requirements of International Standards Organisation ISO 14064-1². Where applicable, discretionary information has been disclosed consistent with section 9.3.2 of the Standard.

The inventory has also been prepared in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) (the GHG Protocol) and the Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) (the Scope 3 Standard).

Meridian has calculated its own “GHG emissions footprint” since 2006.

For the purposes of this report “Meridian” and “Meridian Energy Ltd” refer to the organisation with no accounting or legal inference. “Meridian Group” is used to refer to the Meridian Group of companies which is broken into three facilities. For definitions of these facilities, and more information on the organisational and reporting boundaries refer to [Section 6](#).

2 Statement of intent

Meridian is intent on demonstrating consistency with best practice accounting for greenhouse gas emissions.

This report:

- relates specifically to the emissions of the Meridian Group;

- has been prepared following the requirements outlined in ISO 14064-1, the GHG Protocol and the Scope 3 Standard; and
- has been prepared as part of an ongoing commitment to measure and reduce emissions on a regular basis.

¹ Throughout this document “emissions” means “GHG emissions”.

² International Standards Organisation Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals, Reference number ISO 14064-1:2018(E).

3 Description of Meridian

ISO 14064-1, 9.3.1 (a) and 9.3.2 (a)

Meridian generates approximately 30% of New Zealand's Electricity through our six wind farms, seven hydro power stations, and commercial solar arrays. Meridian sells electricity to our customers through two brands in New Zealand - Meridian and Powershop.

The Meridian Energy Group of companies is made up of:

- Meridian Energy Limited (the "Parent");
- our subsidiaries (together the "Group"); and
- our investments (together the "Group").

The Meridian Group undertakes a variety of activities in the energy sector. Its primary activity is the renewable generation and retail of electricity. Other activities include:

- professional services relating to the upkeep of dams;
- development of software used by electricity retailers; and
- captive self-insurance services.

For further information about the organisation, please refer to the Meridian Energy Limited Integrated Report for the year ended 30 June 2024 which is available at www.meridianenergy.co.nz. For more information about the facilities that comprise the Meridian Group see [Section 6](#).

3.1 GHG policies, strategies and programmes*

Meridian Energy's purpose is Clean energy for a fairer and healthier world. It is at the centre of our journey to a resilient, net zero future.

This year we introduced a fresh articulation of our company strategy centred around our all encompassing focus on climate action and set our key initiatives and targets. In May 2024 we introduced a new [Environment Policy](#) to ensure our commitments are clear and we have environmental practices in place to help continuously improve our environmental performance in the delivery of our Strategy. Its scope includes emissions, climate, waste and energy use.

In support of our strategy, we have Greenhouse Gas Emissions Measurement and Reduction Guidelines, first approved by Meridian's Executive Team in June 2009 – last revised and approved by Executive Sponsors in June 2022. These guidelines outline how Meridian will measure and reduce our greenhouse gas emissions with the objective of

understanding, transparently disclosing and reducing the emission intensity of our operations.

"Half by 30" is a target within our business to reduce gross operational emissions by half by FY30 from a FY21 baseline excluding all one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects.

In FY22 we reset our baseline to FY21 (Meridian Australia emissions excluded), from FY19, to ensure the most recent GHG inventory was used in support of seeking verification that our target is science-aligned, as preferred by Science Based Target initiative (SBTi).

We have a Half by 30 roadmap comprised of six areas of focus, all three scopes of activity and three horizons with planned actions that together form our plan to deliver on our Half by 30 commitment.

We seek to minimise one-off construction emissions associated with renewable energy generation assets by project specific KPIs, including for suppliers. For example, during construction of Harapaki wind farm (now operating) and Ruakākā Battery Energy Storage System at Ruakākā Energy Park (under construction) a number of KPI's were adopted addressing emissions reporting, emission reduction initiatives, the adoption of continuous improvement initiatives. In FY23 we introduced the Sustainable Infrastructure Framework (SIF) to embed the lessons learned from Harapaki into future projects.

In FY24 we developed our long-term emission reduction targets and have submitted these to the Science Based Targets initiative for independent verification as aligning with their Corporate Net Zero standard and expect to hear the outcome in early FY25.

Our [Climate Action Plan](#) outlines the actions we're taking now and in the future to help reduce emissions across our three priority areas – Renewable generation, Customer decarbonisation and Managing our emissions and building capability. It is refreshed each year.

Our Half by 30 and our Net Zero emissions reduction targets are ambitious, and it is not certain that we will achieve them. An overview of the uncertainties, limitations, assumptions and dependencies associated with these targets is included in Meridian's FY24 Climate-related Disclosure.

*Our purpose statement is aspirational in nature and is not a formal target or summary of Meridian's current performance.

4 Persons responsible

ISO 14064-1, 9.3.1 (b)

This GHG inventory is ultimately the responsibility of the Board of Directors.

The person responsible for this GHG inventory is Mike Roan, Chief Financial Officer.

In addition, the GHG accounting and reporting team have provided background and supporting information. The key members are:

- Tina Frew, Head of Sustainability;
- Judy Ryan, Carbon Consultant;
- Rob Gillespie, Senior Commercial Carbon Accountant;
- Phillip Green, Commercial Support Manager; and
- Criggy Haas, Sustainability Lead.

5 Reporting period covered

ISO 14064-1, 9.3.1 (c)

This GHG inventory report covers the financial year 1 July 2023 to 30 June 2024.

6 Organisational boundaries

ISO 14064-1, 9.3.1 (d)

The organisational boundary determines the parameters for GHG reporting in the Meridian Group GHG inventory. The boundaries were set with reference to the methodology described in the GHG Protocol and ISO14064-1 standards. The boundary encompasses the operations owned or controlled by Meridian, its subsidiaries, associate companies and joint ventures in the Meridian Group.

6.1 Consolidation approach

Meridian applies the operational control consolidation approach to the Meridian Group emissions inventory. This consolidation approach allows us to focus on those emissions sources over which we have control and can therefore implement management actions.

The table in Appendix 1 sets out how each entity in the Meridian Energy Group is treated. Appendix 2 contains a diagram of the Meridian Energy Group corporate structure as at 30 June 2024.

For further information about the organisation please refer to the [Meridian Energy Limited FY24 Integrated Report](#) which is available on our website.

6.2 Defining Meridian “facilities”

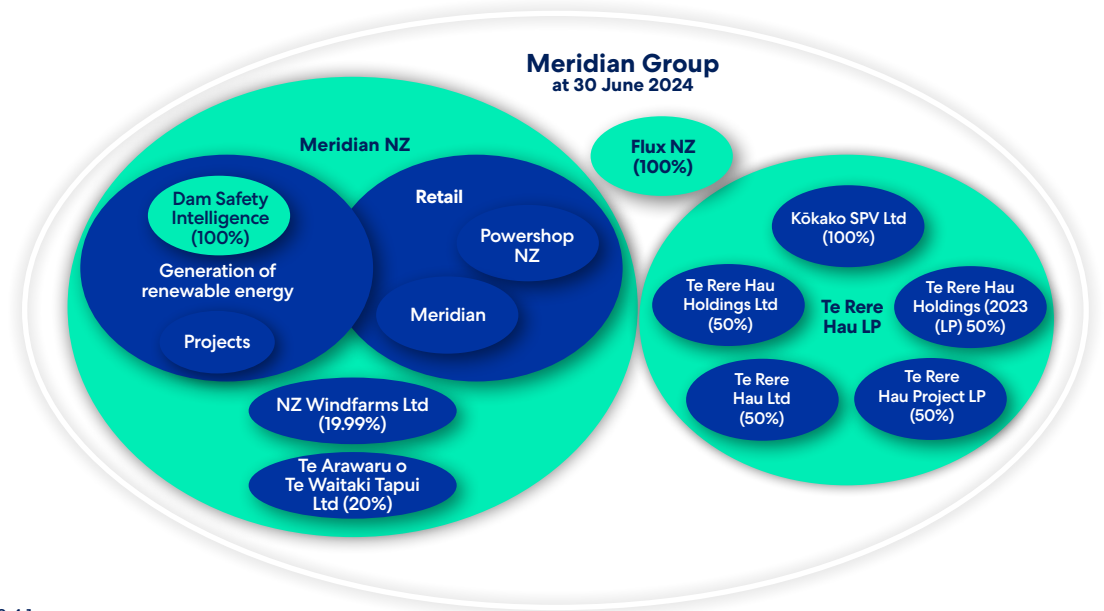
Meridian’s diverse activities and resulting emissions are categorised into “facilities” in line with Annex A of ISO 14064-1 which requires that the data should be retained in its disaggregated form to aid transparency and to provide maximum flexibility in meeting a range of reporting requirements.

A facility is an operation which, by the nature of its processes or geography, can be separately accounted for. ISO 14064-1 defines a Facility as:

“a single installation, set of installations or production processes (stationary or mobile), which can be defined within a single geographical boundary, organizational unit or production process”³

For the year ended 30 June 2024 these facilities are: Meridian NZ, Flux NZ and Te Rere Hau LP as illustrated in the following diagram.

Figure 1: Facilities comprising the Meridian Group



3 ISO 14064-1:2018(E) section 3.4.1

6.3 Defining the individual facilities

A brief description of each of the facilities (including which legal entities are included within them) follows. See [Appendix 2](#) for an organisational chart.

Facility	Description
Meridian NZ	<p>This includes emissions arising from Meridian's core activities associated with the generation and retail of electricity from renewable resources. Meridian New Zealand generated 13,565 GWh of electricity, supplied around 250,000 customer connections at 30 June 2024. Powershop conducts energy retailing activities within Meridian Energy Limited under the Powershop brand and supplied around 120,000 customer connections at 30 June 2024. 936 people were employed by Meridian New Zealand at 30 June 2024.</p> <p>It includes the following legal entities:</p> <ul style="list-style-type: none">• Meridian Energy Limited• Dam Safety Intelligence Limited• Meridian Energy Captive Insurance Limited• Meridian Limited (non-trading)• Meridian Energy International Limited (non-trading)• Powershop New Zealand Limited (non-trading)• Te Arawaru o Te Waitaki Tapui Limited (20%)• NZ Windfarms Limited (19.99%) <p>Further information about Meridian can be found at www.meridianenergy.co.nz and Powershop can be found at www.powershop.co.nz.</p>
Flux NZ	<p>Flux provides electricity retailing software to Meridian NZ, along with external customers. It licences the Powershop brand and operating model. Flux employed 126 people at 30 June 2024. It includes the following legal entities:</p> <ul style="list-style-type: none">• Flux Federation Limited• Flux-UK Limited <p>Further information about Flux can be found at www.fluxfederation.com.</p>
Te Rere Hau LP	<p>Meridian Energy Limited has entered into a 50/50 Joint Venture with New Zealand Windfarms via a limited partnership structure. This JV is for the purpose of repowering the current Te Rere Hau Wind farm. Whilst Meridian has only a 50% interest in the JV, it has operational control over the project and therefore will account for all emissions relating to this project.</p> <p>It includes the following legal entities:</p> <ul style="list-style-type: none">• Kōkako SPV Limited• Te Rere Hau Holdings Limited Partnership• Te Rere Hau Holdings (2023)• Te Rere Hau Limited• Te Rere Hau Limited Partnership

7 Information management procedures

ISO 14064-1, 9.3.2 (i)

GHG Measurement and Reduction Guidelines were developed and approved 30 June 2009 and last revised and approved in June 2022. This documents measurement and reporting requirements for individual facilities and the group with the objective of understanding, transparently disclosing and reducing the emission intensity of operations.

Meridian has, for each facility, developed and maintained GHG information management processes that: ensure conformance with the principles of ISO 14064-1 and the GHG Protocol; ensure consistency with the intended use of the GHG inventory; provide routine and consistent checks to ensure completeness and accuracy; identify and address errors and omissions; and manage and store documentation in a safe and accessible manner.

The key GHG information management procedures are as follows:

- Source data is collected directly from third party suppliers or from the Meridian financial system;
- The data is stored in the BraveGen CSR software database and reviewed by the GHG accounting team;

- Emissions factors and conversion factors in BraveGen CSR are maintained by Meridian Energy and BraveGen CSR;
- The GHG inventory is compiled using activity data and emission factors;
- The report is independently assured by Deloitte Limited;
- The report is internally reviewed to identify opportunities to reduce emissions and improve the information management process; and
- Senior management are informed of emissions reduction progress.

ISO 14064-1, 9.3.1 (e)

GHG emissions sources from the Meridian Group value chain were identified with reference to the methodology described in the GHG Protocol Corporate and Scope 3 Standards and, ISO 14064-1, and classified into categories.

The following categories are used:

- Direct GHG emissions (Scope 1): GHG emissions that are operationally controlled by the company.
- Indirect GHG emissions from imported energy (Scope 2): GHG emissions from the generation of purchased electricity, heat or steam consumed by the company:
 - Reported by both location- and market-based emissions factor; and
 - Total annual emissions are reported using the market based approach.
- Other indirect GHG emissions (Scope 3): all indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. These have been further categorised using the Scope 3 Standard categories:
 - Purchased goods and services (category 1);
 - Capital goods (category 2);
 - Fuel- and energy-related activities not included in Scope 1 or 2 (category 3);
 - Upstream transportation and distribution (category 4);
 - Waste generated in operations (category 5);
 - Business travel (category 6);
 - Employee commuting (category 7);
 - Downstream leased assets (category 13); and
 - Investments (category 15).

For clarity these emissions sources are reported in the following groups:

- Operational emissions - subject to our reduction targets:
 - Scope 1, 2, and 3 emissions relating to the day-to-day operation of our businesses.
- Construction emissions – from major projects:
 - Scope 3 emissions including major materials (Capital goods (category 2)), and construction services (this includes contractor fuel and electricity use (category 3), freight (category 4), waste (category 5) and travel (category 6).
- Emissions from energy purchased and on-sold to customers:
 - Scope 3 emissions from Fuel- and energy-related activities (category 3).

Additional Scope 3 standard categories are not reported because they are not relevant to our business, with the exception of category 11 which is captured in our reporting of energy purchased and on-sold under category 3.

9 Summary of emission source inclusions

ISO 14064-1, 9.3.1 (g, m)

This table provides details on the emissions sources included in the GHG inventory.

Scope	Category	GHG emissions source	Facilities included	Data source	Methodology & assumptions
Scope 1	Stationary combustion	Fuel used for electricity generation	Meridian NZ	No fossil fuel consumed	There were no emissions from the 13,565 GWh of electricity generated in the reporting period, as the fuel used to generate this electricity was water and wind.
		Testing of back-up generators	Meridian NZ	Fuel deliveries to sites from McKeown (Waitaki) and RD Petroleum	Assumed fuel deliveries are equivalent to consumption each year.
	Mobile combustion	Car travel (owned, leased, rented)	All facilities	GPS generated odometer readings, fuelcard purchase data, rental provider activity reports, and taxi expenditure data	Start/end odometer data (rental vehicles) for distance travelled x average emission factor for vehicle fuel type. Driver behaviour and individual engine performance are not taken into account for rental vehicles. Owned vehicles are calculated from litres of fuel purchased on fuel cards.
		Boat travel (Tug and staff transport boat at Lake Manapōuri)	Meridian NZ	Fuel storage readings	Accurate records of litres used from operator.
	Fugitive emissions	Fugitive emissions from SF ₆	Meridian NZ	Maintenance records	Records of storage cylinder weights and top-ups.
		Fugitive emissions from air-conditioning systems	All facilities	Maintenance records	Records from service providers who maintain and top up units.
Scope 2	Electricity	Electricity consumed in offices	Meridian NZ	Records from billing system	Accurate records from the billing system.
		Electricity consumed by vehicles	All facilities	GPS generated odometer readings, fuelcard purchase data, and rental provider activity reports	Start/end odometer data (rental vehicles) for distance travelled x average emission factor for vehicle fuel type. Driver behaviour and individual engine performance are not taken into account for rental vehicles. Owned vehicles are calculated from kWh of electricity purchased on fuel cards.
		Electricity consumed in facilities	Meridian NZ	The electricity market reconciled consumption files	Accurate records of electricity consumed by Meridian NZ facilities.

Scope	Category	GHG emissions source	Facilities included	Data source	Data from supplier engagement	Methodology & assumptions
Scope 3 operational	Purchased goods and services (category 1)	Goods and services provided not otherwise included in categories below	All facilities	Emissions information provided by suppliers where available. Where not available \$ spend used.	53%	<p>All major suppliers (spend >\$200k in year) contacted for information on portion of their footprint attributable to activity performed on behalf of Meridian. Generally fuel use, electricity in office and travel. Service types: IT services, professional services, maintenance services, office services and commercial office rental. Where no supplier information available, \$ spend by service type x emission factor sourced from Thinkstep.</p> <p>In FY24 53% of purchased goods and services emissions data has been provided from suppliers directly via surveys undertaken in June of 2023 and 2024. Data was provided from the suppliers most recent reporting period. Where that data relates to a financial year different to the period covered by this inventory report, the data has been apportioned based on changes in spend over the most recent years. Refer to Section 12 for more detail on uncertainty relating to this information.</p>
		Fuel related emissions (not Scope 1 or 2) (category 3)	Production & distribution of fuel	All facilities	Fuel invoices	100%
Scope 3 operational	Fuel related emissions (not Scope 1 or 2) (category 3)	Transmission and distribution losses from electricity consumed in offices	Meridian NZ	Records from billing system	100%	Accurate records from the billing system.
		Contractor fuel (operational maintenance and construction)	All facilities with relevant activity in reporting period	Contractor records	30%	Estimates of the amount of fuel used. Some information is provided by suppliers.
		Contractor fuel for retail meter reading and maintenance	Meridian NZ	Records of distance traveled or fuel consumed by supplier	96%	Calculated using a formula of estimated distance x estimated emissions factor. Contractors estimate distance and the average type of vehicle used. The emissions factor is a weighted average of the vehicle types, calculated from emission factors provided by DESNZ. One contractor provides fuel used information.

Scope	Category	GHG emissions source	Facilities included	Data source	Data from supplier engagement	Methodology & assumptions
Scope 3 operational	Upstream transportation and distribution (category 4)	Lines company operational emissions	Meridian NZ	Emissions information provided by suppliers where available.	64%	Companies contacted for information on portion of their footprint attributable to activity performed on behalf of Meridian (scope 1, 2 but excluding T&D losses, and scope 3 field services). Company reporting periods may not match Meridian's reporting period, no adjustments are made to account for this. Where no supplier information available, volume x emission factor used as proxy.
		Transmission company operational emissions	Meridian NZ	Emissions information provided by supplier	100%	Company contacted for information on portion of their footprint attributable to activity performed on behalf of Meridian (scope 1, 2 excluding T&D losses, and scope 3 maintenance).
		Couriers and postage	All facilities	Emissions information provided by suppliers where available. Where not available \$ spend used.	96%	Calculated by collating quantity of each service used then carbon emission value assigned for that service. Where no supplier information available, \$ spend x emission factor sourced from Market Economics.
Scope 3 operational	Waste (category 5)	Waste to landfill and recycling from offices and facilities	All facilities	Actual weight of waste bins. Supplier records	97%	Waste bins weighed on a monthly basis from some site suppliers. If weight unavailable, full bins are assumed each time they are emptied. Estimation for sites where Meridian does not control the waste disposal based per person extrapolation of data available.

Scope	Category	GHG emissions source	Facilities included	Data source	Data from supplier engagement	Methodology & assumptions
Scope 3 operational	Business travel (category 6)	Air travel (domestic and international)	All facilities	Purchase records (supplier data, internal purchasing systems)	100%	Supplier records of flights ticketed (and not cancelled but excludes 'no shows') calculated by our suppliers integrated financial data warehouse and mid-office travel management systems. Outputs are calculated using the distances travelled by sector split into domestic, shorthaul and longhaul Domestic emissions determined by size of plane whilst short- and long-haul emissions based on class of travel. Directly booked travel determined via Pcard system reporting.
		Car travel (taxis and rideshare)	All facilities	Purchase records (supplier data, internal expense management system – Fraedom)	25%	Records of expenditure for taxis and rideshare except Uber. For Uber rideshare this is estimated based on distance travelled x average fuel efficiency of vehicle class (assumed to be hybrid vehicle). Mevo emissions are quantified by multiplying spend by the appropriate emission factor.
		Hotel accommodation	All facilities	Purchase records (supplier data, internal purchasing systems)	53%	Hotel nights provided by travel provider, by NZ, Australia and rest of world. Data is extrapolated to find an average room night cost, and then multiplied against total hotel spend from PCard system to determine total room nights, for bookings made outside of travel provider.
Scope 3 operational	Employee commuting (category 7)	Travel to and from work (in private vehicles and public transport)	All facilities	Employee commuter survey	37%	Staff surveyed in Q2 of FY24 using external provider.
		Working from home	All facilities	Employee commuter survey	37%	Staff surveyed in Q2 of FY24 using external provider.

Scope	Category	GHG emissions source	Facilities included	Data source	Data from supplier engagement	Methodology & assumptions
Scope 3 operational	Downstream leased assets (category 13)	Farming activities	Meridian NZ	Leaseholder	100%	For farms: Leaseholder provided estimates of key information on stock and other activities. Farming calculator used to estimate total emissions for each farm. For salmon farms: Leaseholders provided either GHG inventory, or key information regarding energy used on site.
	Investments (category 15)	Investments	Meridian NZ	NZ Windfarms Limited	100%	NZ Windfarms provided an audited GHG inventory for the 2023 Financial Year. These emissions have been included based on Meridians interest in NZ Windfarms.
Scope 3 one-time construction	Capital goods (category 2)	Major construction and plant upgrade materials	All facilities with relevant activity in reporting period	Project records from manufacturer or design specifications	100%	Where possible EPD's are sourced from suppliers for capital goods provided. Where an EPD for a particular capital good is unavailable we will source the best alternative approximation of emissions relating to the capital good from a reputable source and use this to quantify the emissions in relation to the goods.
	Upstream transportation and distribution (category 4)	Contractor fuel used during construction and significant upgrades	All facilities with relevant activity in reporting period	Contractor records	100%	Estimates of the amount of fuel used provided by project managers. Some information is provided by suppliers.
		Freight of major materials	All facilities with relevant activity in reporting period	Project records	100%	Estimates of major materials used calculated from weight of materials x distance travelled provided by project managers. Some tCO ₂ e information is provided by suppliers.
Scope 3 energy purchased and on-sold	Fuel related emissions (not Scope 1 or 2) (category 3)	Electricity purchased and on-sold	Meridian NZ	From internal records	0%	Emissions calculated using the annual netting off methodology (see Section 11).

9.1 Other emissions - PFCs & NF₃

No operations within the Meridian Group use perfluorocarbons (PFCs) or Nitrogen Trifluoride (NF₃) therefore no holdings of PFCs are reported and no emissions from these sources are included in this inventory.

9.2 Other emissions - CO₂ Emissions from the combustion of biomass

There was no combustion of biomass in the operations of the Meridian Group during the reporting period.

10 GHG emissions source exclusions

ISO 14064-1, 9.3.1 (i)

The emissions sources below have been identified and excluded from this GHG emissions inventory. These emissions sources are considered not material to stakeholders, not material in the context of the inventory, and/or not technically feasible nor cost effective to be quantified at the present time.

Scope	Category	GHG emissions source	Facilities	Reason for exclusion	Estimated size of exclusion tCO ₂ e	% of total Scope 1 & 2 FY24 inventory
Scope 1	Fugitive emissions	Fugitive emissions from fridges and vehicle AC systems	All facilities	Difficult to obtain the data, estimated to be de minimis. Based on FY11 data.	14	1.19%
Scope 2	Biogenic Emissions	Emissions relating to decomposition of organic material in our reservoirs.	Meridian NZ	Difficult to obtain the data, estimated to be de-minimis as most hydro lakes started operation at existing levels (prior to hydro-electric operations), so limited inundation of carbon-rich sources that may cause biogenic emissions.	De Minimis	De Minimis
Total					14	1.19%

Scope	Category	GHG emissions source	Facilities	Reason for exclusion
Scope 3	Purchased goods and services	Contracts for Differences for electricity	Meridian NZ	Meridian enters into a large number of financial derivative products annually, primarily for the purpose of mitigating exposure to electricity spot pricing. These do not require the physical supply of energy and do not create an obligation to run an asset or operate an asset in a particular way and therefore have no associated emissions.
	Investments	Emissions relating to Investment in Te Arawaru o Te Waitaki Tapui Ltd	Meridian NZ	Difficult to obtain data, assumed de minimis.

ISO 14064-1, 9.3.1 (m, n, o, t)

Section 9 provides an overview of how data was collected for each GHG emissions source, the source of the data, and methodologies used. Collection of information was centralised in the finance teams of each facility. Much of the information is sourced from the finance team, project teams, suppliers and relevant individuals throughout the business.

All emissions data was calculated using BraveGen CSR. This software uses a calculation methodology for quantifying the GHG emissions inventory using emissions source activity data multiplied by GHG emissions factors.

Except as stated, emission factors used were sourced from Ministry for the Environment (MfE, New Zealand)⁴ or Department for Energy Security and Net Zero (DESNZ, United Kingdom)⁵. All calculations in this report are expressed in tonnes of carbon dioxide equivalent.

- The emissions factors for purchased goods and services have been sourced from Thinkstep⁶, these are adjusted for inflation since publication;
- Air travel emission factors include radiative forcing⁷;
- Where possible, construction emission factors are sourced from BRANZ CO₂NSTRCT⁸;
- The annual netting off methodology is applied to electricity purchased and on-sold for the Meridian NZ facility. Under this methodology the difference between electricity generated by Meridian and the electricity supplied to its retail customers is calculated on an annual basis. This calculation includes an allowance for transmission losses in the national grid and is based on the amount purchased at the entry point for local network distribution thereby taking into account losses due to distribution. If, on an

annual basis, the amount purchased is more than the amount supplied, Meridian reports the net difference as a source of scope 3 emissions. The emission factor applied is calculated after removing Meridian generation from the mix; and

- The market based emission factor for electricity consumption in the Meridian NZ offices and facilities is based on the purchase of Meridian NZ's certified renewable energy product for its own use. Any electricity use which was not covered by this product has been disclosed at a residual factor provided by BraveTrace⁹.

Quantities of each greenhouse gas are converted to tonnes CO₂e using the global warming potential from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report.

The time horizon is 100 years.

We report both market and location based emissions in relation to Scope 2. With market based emissions used when calculating total emissions. In short, the market-based method reflects emissions from electricity that companies have purposefully chosen (or their lack of choice), while the location-based method reflects the average emissions intensity of grids on which energy consumption occurs.

11.1 Changes to approaches used previously

There have been no material changes to the approaches used in FY21.

⁴ <https://environment.govt.nz/publications/measuring-emissions-a-guide-for-organisations-2024-detailed-guide/>

⁵ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2024>

⁶ <https://www.thinkstep-anz.com/software/emission-factors-for-new-zealand>

⁷ Radiative forcing is associated with emissions at higher altitudes and results in a higher global warming potential. MfE apply a multiplier of 1.9%.

⁸ https://www.branz.co.nz/shop/catalogue/branz-co2nstruct_774/

⁹ <https://bravetrace.co.nz/residual-supply-mix/>

12 Impact of uncertainty

ISO 14064-1, 9.3.1 (p, q)

Uncertainties associated with GHG inventories can be broadly categorised into scientific uncertainty and estimation uncertainty. Scientific uncertainty arises when the science of the actual emission process is not sufficiently understood. Estimation uncertainty arises any time GHG emissions are quantified.

Emissions data presented are subject to measurement uncertainties resulting from limitations in here in the nature and the methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurement.

To minimise this uncertainty source data has been selected from a verifiable source where possible and Meridian bases its estimates and methodologies on historical experience, available information and other assumptions that it believes to be reasonable. The data source, methodology and assumptions for each emissions source is described in [Section 9](#). [Section 11](#) describes the overall data collection process and sources of emission factors.

Where uncertainty exists in the data, a conservative estimation approach has been taken leading to over, rather than understating of emissions.

A quantitative analysis for the top 20 sources of GHG emissions using the GHG Protocol uncertainty measurement tool indicates that the aggregated uncertainty ranking is

good and the cumulated uncertainty is +/- 9.7%. These sources account for around 99% of Meridian's emissions.

The most uncertainty in final emissions data is in relation to the SAFT Battery system. Due to the unavailability of a finalised EPD for the system we have relied on a generic BESS EPD¹⁰ published in 2021. Product details from the battery manufacturer¹¹ and generic specifications of a 20ft steel shipping container¹² (battery packaging) to determine the emissions relation to the system. Additional uncertainty remains around supplier provided data in relation to Purchased Goods and Services. To meet business needs, Meridian has incorporated supplier provided emissions in its calculations, only a small portion of the data provided had been subject to external verification. Supplier provided data makes up about 50% of this emissions source and the remainder is calculated using spend-based emission factors. Meridian considers that its internal control and review process for supplier provided data is sufficient to reduce uncertainty. While the activity level for spend-based calculations can easily be verified, the emissions factors associated with spend categories is considered by Meridian to have greater uncertainty than the data provided by suppliers. The collection of data from suppliers is a focus area for data improvement moving forward.

13 Base year selected

ISO 14064-1, 9.3.1 (k)

The base year is 1 July 2020 to 30 June 2021. This provides the most recent benchmark against which our absolute target of halving our operational greenhouse gas emissions across the Group by 2030 can be measured.

The total restated Group operational emissions in the base year were 32,846 tCO₂e. Base year emissions were recalculated this year as a new source of spend-based emission factors for purchased goods and services and

couriers was applied. This resulted in an increase to the base year inventory of 2,256 tCO₂e.

These same emission factors were applied to the FY22 and FY23 inventories, increasing operational emissions by 1,696 tCO₂e in FY22, and decreasing operational emissions by 114 in FY23.

¹⁰ An In-Depth Life Cycle Assessment (LCA) of Lithium-Ion Battery for Climate Impact Mitigation Strategies <https://www.mdpi.com/1996-1073/14/17/5555>

¹¹ Intensium Shift Battery System <https://saft.com/products-solutions/products/intensium-shift>

¹² <https://cargostore.com/how-much-does-a-shipping-container-weigh/#:~:text=As%20we've%20discussed%2C%20an,1.8%20and%202.2%20metric%20tonnes.>

14 Changes to historic base year

ISO 14064-1, 9.3.1 (I)

We recalculate our base year if any of the following applied:

- if emission factors changed substantially and were relevant to prior years (for example if the science behind a factor changed);
- if we bought or sold a business; or
- if we significantly changed the scope of what we were measuring in the value chain.

The base year was updated from FY19 to FY21 in FY22 to account for the sale of the Australian business and to ensure that the most recent inventory was used in the commitment to set near and long term emission reduction targets. All historic figures in this report exclude emissions from the Australian business.

15 GHG emissions calculations and results

15.1 Total operational emissions by scope

Total operational GHG emissions for Meridian Group in FY24 were 37,910 tCO₂e shown by scope in the following graph.

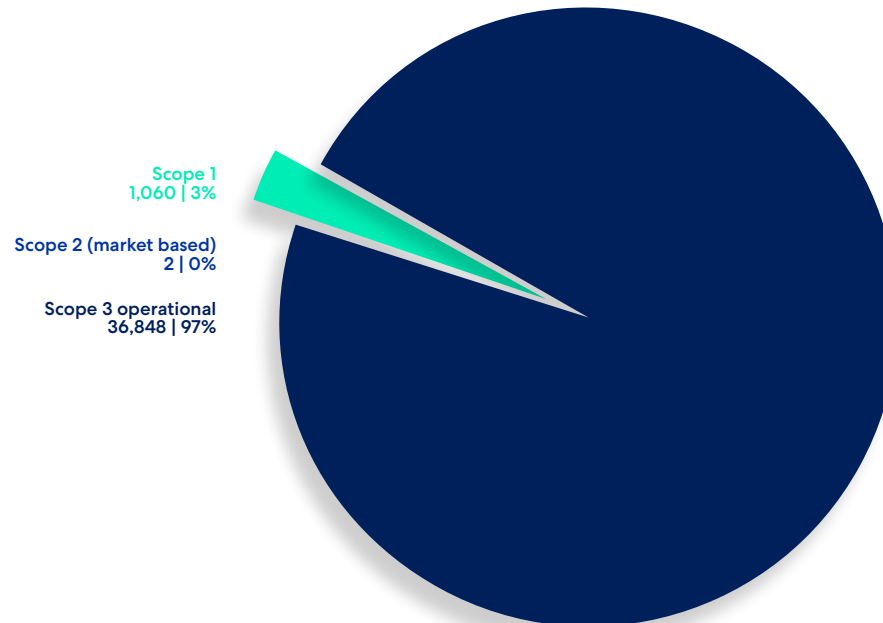


Figure 2: Total operational greenhouse gas emissions by scope (tCO₂e)

While the generation of electricity is Meridian New Zealand's core business, there are no Scope 1 emissions from the generation of electricity as fuel sources are wind and water. Upstream transportation makes up 50% of Scope 3 operational emissions. The next highest category is purchased goods and services (35%) followed by downstream leased assets (7%).

Note: operational emissions exclude one-time emissions and emissions from energy purchased and on-sold.

15.2 Total emissions by scope over time Meridian Group

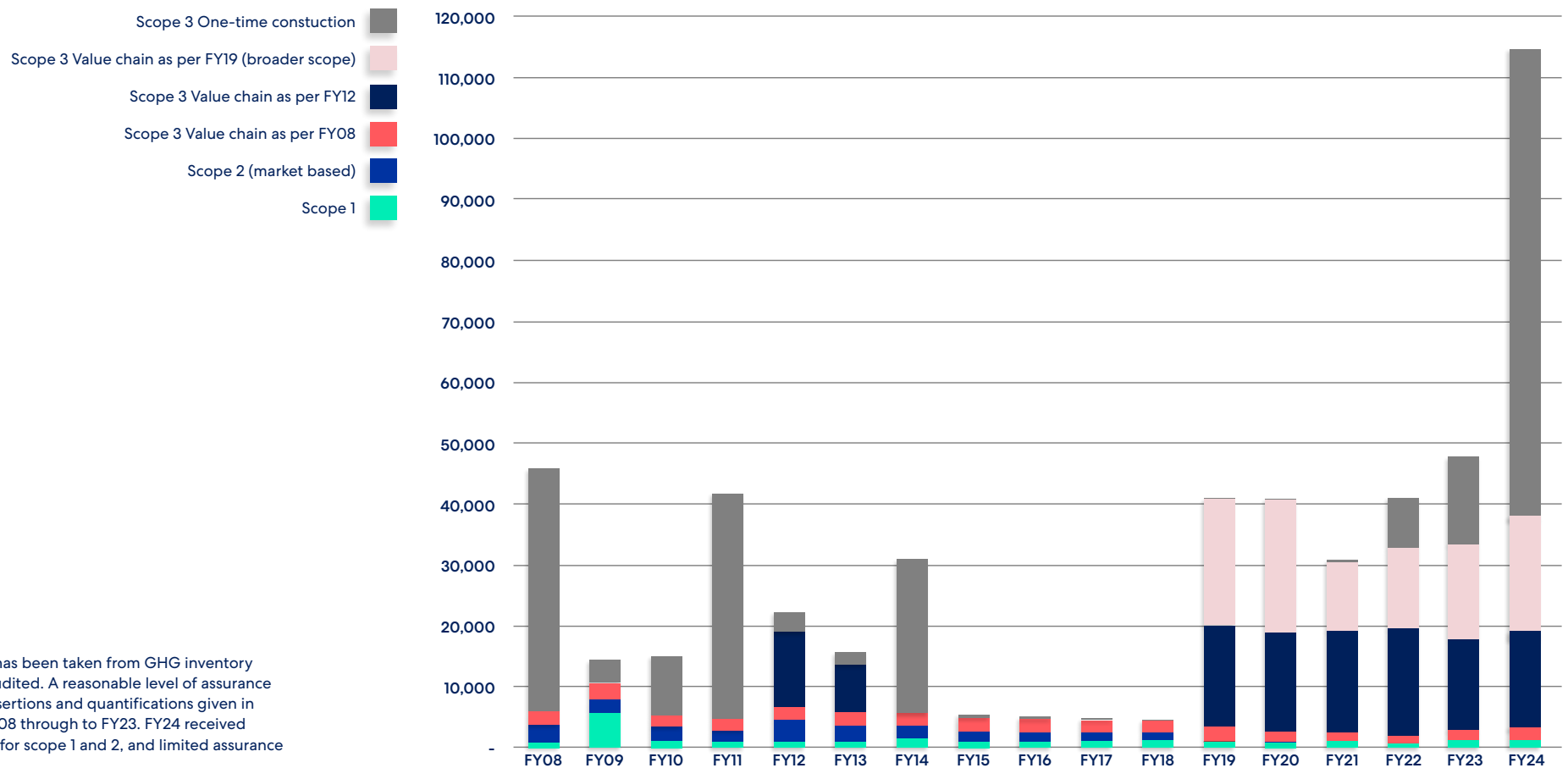
This graph shows the total emissions for the Meridian Group over time. It is broken into the following categories: Scope 1; Scope 2; Scope 3 Value Chain (as defined in FY08); Scope 3 value chain as defined in FY12; Scope 3 value chain as defined in FY19 and One-time construction. It illustrates the fluctuating nature of emissions from major construction projects.

Overall operational core emissions (Scopes 1, 2 and 3 Value chain as per FY08) are 52% lower in FY23 than they were in FY08.

One-time construction emissions in FY24 relate primarily to the construction of the Harapaki wind farm and the Ruakākā BESS.

FY21-FY23 scope 3 value chain emissions were restated in FY23. The results are reflected in this graph. The restatement is described in [Section 13](#).

Figure 3: Total greenhouse gas emissions by scope - annual comparison



All data in this graph has been taken from GHG inventory reports which were audited. A reasonable level of assurance was given over the assertions and quantifications given in each of reports for FY08 through to FY23. FY24 received reasonable assurance for scope 1 and 2, and limited assurance for Scope 3.

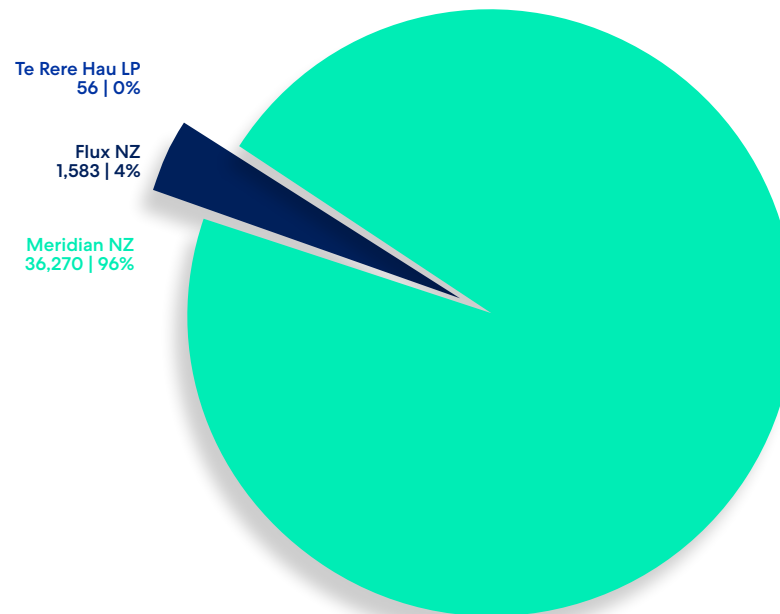
15.3 Total operational emissions by facility

The following graph shows the total operational GHG emissions (tCO₂e) by facility in the reporting period for the Meridian Group. This excludes emissions from one-time construction.

The majority of operational emissions are from the Meridian NZ facility and are emissions from upstream transportation and distribution and purchased goods and services.

Scope 3 operational emissions from Meridian NZ are 96% of the total group operational emissions. Emissions from purchased goods and services in the Meridian NZ facility make up 31% of the total group operational emissions while emissions from upstream transportation and distribution in the Meridian NZ facility make up 50% of the total group operational emissions.

Figure 4: Total operational greenhouse gas emissions by facility (tCO₂e)



16.1 Removals

A greenhouse gas removal is defined by ISO 14064-1 as the “total mass of a greenhouse gas removed from the atmosphere over a specified period of time”. There are no removals quantified for this reporting period.

Meridian is progressing with its project to plant around 1,200 hectares of land in forest. We aim to complete our planting by spring 2025. Forever Forests is deliberately sized to soak up the carbon that's left after we've removed all we can against our Half by 2030 target.

Trees will be a mix of natives and exotics. In a climate crisis, mixed planting is our chosen pathway because the exotics are a carbon 'engine' - pulling carbon down from the atmosphere in a hurry. They then create a canopy to protect the natives in their early days so they can flourish later in life. Long-term forest-management plans ensure that the natives take over, leaving a lasting legacy for future generations.

16.2 Emission reduction initiatives

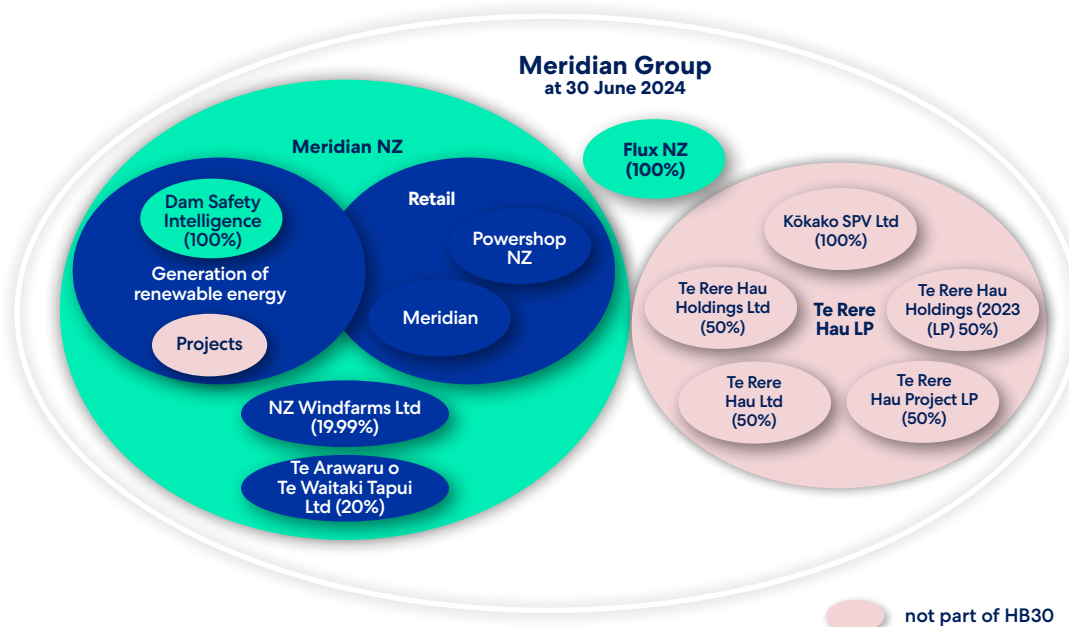
Half by 30 is Meridian's ambitious commitment to half our FY21 baseline emissions by FY30. Our operational emissions boundary (our Half by 30 boundary) excludes Meridian Australia (sold in January 2022) and all one-time construction emissions from major projects, including activities that are capitalised as part of renewable energy projects.

In FY22 Meridian Group reset its baseline to FY21 to account for the sale of the Australian business and to ensure that our most recent GHG inventory was used in our commitment to set near and long-term company-wide emission reductions in line with science-based net-zero with the Science Based Target initiative (SBTi). The reset of the baseline does not decrease the abatement effort required of Meridian.

We know we can achieve significant reductions through our construction activities, and how important it is to decouple the growth of our development pipeline with growth in associated emissions – both during construction as well as during the operational life of our assets. We embed emissions reductions KPIs and actions into our sustainability management plans for construction projects. In FY23 we released a Sustainable Infrastructure Framework to capture and build on the lessons from Harapaki so they can be applied to future projects.

As part of Harapaki design and construction a number of initiatives have been implemented to reduce the overall emissions of the project. In FY24, in addition to the estimated overall reduction of between 15,000 and 20,000 tCO₂e achieved to the end of FY23, we undertook studies to better understand emissions reduction potential of future development projects, including a life-cycle analysis of common buildings at Harapaki Wind Farm.

Figure 5: Meridian's boundary for half by 30 target



Initiative	Progress FY24
Half by 2030	
Agreement for electric ferry at Lake Manapōuri	✓ The ferry is expected to begin operating in 2025 and save 240 tCO ₂ e p.a
Work with an agricultural consultant to identify emission reduction options.	✓ Farm GHG emission and mitigation strategy for two larger farm land-holdings.
Implement refreshed offer to help staff reduce commuting emissions	✓ EV Experience' scheme where staff can temporarily use a Meridian EV (69 staff participated); Commenced Commuter Rewards Credit app and dashboard for staff to track emissions and get rewarded for low emissions travel.
Maintain air travel emissions budget of 1,000t CO ₂ e (mid-year increase from 950)	— End of year travel emissions 1,065 tCO ₂ e. Business unit budgets introduced in FY24. FY25 air travel budgets set, including separate international budget and travel confirmed.
Implement SF ₆ Roadmap actions	✓ SF ₆ roadmap implementation on track.
Enabling initiatives	✓ Supplier ESG “Good Energy” programme launched, with initial focus on GHG capability and climate risk.
Construction emissions	
Studies to understand feasibility and opportunity for future reductions.	✓ External consultants completed a Life-Cycle Analysis of common buildings at Harapaki Wind Farm (Operations and Maintenance building, substation and switchroom) which identified key areas of savings (equating to around 20%, or 275 tCO ₂ e), and Mitigation of diesel emissions through electrification of construction – Feasibility Study.

Our [Climate Action Plan](#) outlines the actions we're taking now and in the future to help reduce emissions across our three priority areas – Renewable generation, Customer decarbonisation and reducing our emissions and building capability. It is a living document and is refreshed each year – communicating new initiatives, milestones and progress against targets. The Plan includes:

- Our Half by 30 roadmap, comprised of six focus areas over three time horizons. The focus areas include land transport, farms, fugitive emissions, air travel, ferry & barge and waste. In FY24 our Half by 30 focus was on initiatives where we have the most influence and within our direct control – such as air travel, electrification of ferry at Lake Manapōuri – and progressing strategies for harder to abate scope 3 emissions sources.
- Actions to reduce our one-off construction emissions, including through project specific KPIs. For example, at Ruakākā Energy Park, our most recent construction project, we have set the following sustainability KPIs and meet quarterly to ensure continuous improvement:
 - Monthly and annual carbon impact reports;
 - Waste diversion target of >80% on site;
 - On-site carbon emissions target for plant and heavy machinery; and
 - Contractor air travel budgets.

Tackling the challenge of Half by 2030 will require deliberate effort across the Group and in particular includes a sharp focus on our supply chain, which is where over 95% of our operational emissions lie. Achieving this will see us engaging and collaborating with our suppliers and a Group commitment to the Half by 30 Climate Action Plan.

More detail on these and other initiatives can be found in our Climate Action Plan.

16.3 Emission reductions / increases for Meridian NZ and Flux

The operational emissions in the base year for Meridian NZ and Flux were 32,846 tCO₂e. These were restated in FY24. This is described in [Section 13](#).

This year operational emissions for Meridian NZ and Flux are 37,910 tCO₂e, a 15% increase on the base year and a 14% increase on FY23.

Table 5: Emission Reductions / Increases

Business activity	Category	Base Year 2020/21 tCO ₂ e	2021/22 tCO ₂ e	2022/23 tCO ₂ e	2023/24 tCO ₂ e	% change from 2022/23	tCO ₂ e change from 2022/23	% change from 2020/21 base year	tCO ₂ e change from 2020/21 base year
Operational emissions direct emissions (Scope 1)	Stationary combustion	29	28	45	23	-50%	-23	-21%	-6
	Mobile combustion	704	613	661	697	5%	36	-1%	-7
	Fugitive emissions	287	2	485	340	-30%	-145	18%	53
	Subtotal	1,020	643	1,191	1,060	-11%	-131	4%	40
Operational emissions indirect emissions (Scope 2)	Electricity consumption (market based)	14	2	2	2	3%	0	-89%	-12
	Subtotal (market based)	14	2	2	2	3%	0	-89%	-12
Operational emissions indirect emissions (Scope 3)	Purchased goods and services	13,147	14,335	11,273	13,303	18%	2,030	1%	155
	Fuel & energy related activities	549	718	658	684	4%	26	25%	135
	Upstream transportation & distribution	11,210	13,225	15,622	18,561	19%	2,939	66%	7,351
	Waste generated in operations	225	103	35	39	11%	4	-83%	-186
	Business travel	704	565	1,095	1,170	7%	74	66%	466
	Employee commuting	538	234	511	564	10%	53	5%	26
	Downstream leased assets	5,438	4,740	2,962	2,514	-16%	-465	-54%	-2,942
	Investments	0	0	0	14	n/a	14	n/a	14
	Subtotal	31,812	33,920	32,156	36,848	15%	4,674	16%	5,018
Total Operational Emissions (S1, 2 & 3)		32,846	34,565	33,349	37,910	14%	4,542	15%	5,046

17 Assessment of performance against relevant benchmarks

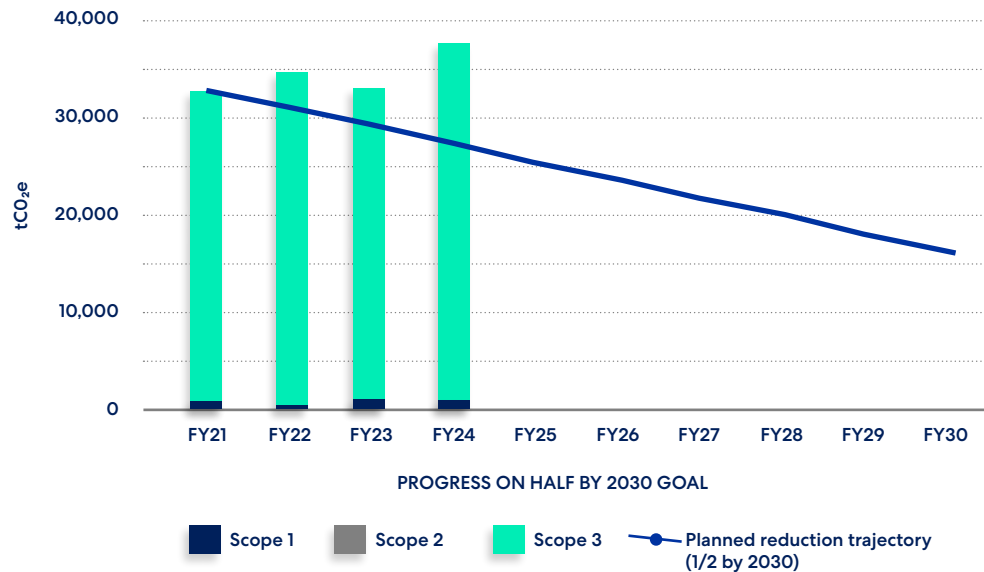
ISO 14064-1, 9.3.2 (h)

Half by 30 is Meridian's ambitious commitment to half our FY21 baseline emissions by FY30. In line with this commitment, the Science-Based Targets initiative (SBTi) has approved Meridian Energy's near-term science-based emissions reduction target to reduce absolute scope 1 and 2 GHG emissions 50% by FY30 from a FY21 base year and to reduce absolute scope 3 GHG emissions 50% within the same time frame (excluding all one-time construction emissions from major projects and all activities that are capitalised as part of renewable energy projects). Our scope 1 and 2 target has been classified as 1.5 aligned by the SBTi**. This year we set a long term emissions reduction target comprising: reduce absolute scope 1 and 2 GHG emissions 90% by FY2040 from FY2021 base year and reduce absolute scope 3 GHG emissions 90% by FY2050 from FY2021 base year. We are currently awaiting independent verification that our long term target is science-aligned with Net Zero standards.

As a 100% renewable energy generator with no fossil fuel combustion for electricity generation, we recognise that our biggest impact will come from the continued investment in further renewable energy generation and scaling customer decarbonisation products, which together enable increases in total renewable energy consumption.

Total Group operational emissions in FY24 are 10,510 or 38% higher than the target for FY24. The greatest absolute increase was in upstream transportation and distribution which increased by 2,939 tCO₂e or 19%.

Figure 5: Total Group operational greenhouse gas emissions (tCO₂e)



**A methodology to classify scope 3 targets is under development by the SBTi.

ISO 14064-1, 9.3.3

There have been, or will be, offsets applied to this inventory. The types of offsets applied are outlined below.

The Meridian Group has increased its offsetting commitment to cover total business emissions (beyond Group operational emissions). It now includes emissions from one-off construction activities. These include all Scope 1, Scope 2 (market based) and Scope 3 operational emissions where they are not offset by vendors or as part of another programme.

Table 6: Offsets applied to this inventory

Total offsets by facility (tCO ₂ e)	Vendor cancelled	Gold Standard VERs	Total offsets*	Not offset
Meridian NZ	690	110,855	111,545	0
Flux	0	1,582	1,582	0
Te Rere Hau LP		74	74	0
Group	690	112,511	113,201	0

18.1 Vendor cancelled

18.1.1 EKOS approved credits

Less than 1 tCO₂e was offset by Mevo on behalf of Meridian NZ for all travel using Mevo vehicles in FY24. Mevo sources its offsets through Ekos. All Ekos carbon credits are sourced from their own indigenous forest carbon and conservation projects. These offsets are certified to international carbon standards. All credits sold by Ekos are cancelled on the New Zealand Emissions Trading Register (NZ) or Markit Environmental Registry (NY/London).

18.1.2 Certified Emissions Reductions from UNFCCC Clean Development Mechanism (DCM) projects

690 tCO₂e will be offset by Siemens Gamesa Renewable Energy in relation to scope 1 and 2 emissions from construction at Harapaki and maintenance services provided at Mill Creek. These emissions were attributed to the Bii Nee Stipa Project.

18.2 Gold Standard VERs

Meridian has retired Gold Standard VERs for its group emissions for the FY24 year excluding any offsets which have been, or will be, surrendered as identified above. The 112,511 tCO₂e remaining have been offset. These credits are from four wind farm projects in India, China and New Caledonia. Details are available on the [Gold Standard Registry](#).

An additional 3,952 VER's have been cancelled due to the increase in emissions following restatement of FY21-23 emissions. (FY21: 2,256 tCO₂e, FY22: 1,696 tCO₂e).

18.3 NZ ETS

Meridian reports and surrenders credits for the New Zealand Emissions Trading Scheme (NZ ETS) for SF₆ emissions on a calendar year basis. Surrendering units as part of a legal requirement under the NZ ETS is not voluntary climate change mitigation.

This column is included to indicate that we have purchased offsets corresponding to our total emissions. Meridian notes that offsetting emissions does not mean those emissions are actually reduced.

19 Description of additional indicators

ISO 14064-1, 9.3.2 (g)

Table 7: Additional indicators

Additional indicators	FY19	FY20	FY21	FY22	FY23	FY24
Electricity generation (GWh) Meridian NZ	13,570	14,224	12,692	13,557	13,903	13,565
Emissions from fuel used to generate electricity sold (tCO ₂ e)	0	0	0	0	0	0
Generation emissions intensity (tCO ₂ e/GWh of total generation)	0	0	0	0	0	0

We have calculated our generation emissions intensity using an industry accepted metric. The GHG emissions included are those from fuel used in generation. As Meridian uses only renewable sources to generate electricity our generation emissions intensity is 0%.

20 Liabilities – GHG stocks held

Table 8: Greenhouse gas holdings at 30 June 2024

GHG holdings	Meridian NZ	Flux NZ	Te Rere Hau LP	2023/24 kg	2023/24 tCO ₂ e
HFC gas holdings [kg]	2,849	n/a	n/a	2,849	4,004
SF ₆ holdings [kg]	2,569	n/a	n/a	2,569	60,376

nm not measured
n/a not applicable

The Meridian NZ facility has holdings of sulphur hexafluoride (SF₆) gas. The bulk of the gas is held in 220kV circuit breakers and transformers with small amounts being held in 110kV, 33kV and 22kV switchgear. No SF₆ is known to be held in fire extinguishing systems.

Meridian's current management practices in relation to SF₆ are well aligned with best practice as defined by the Cigré and IEC publications¹³.

¹³ SF₆ Recycling Guide Re-Use of SF₆ Gas in Electrical Power Equipment and Final Disposal' Cigré Task Force 23.10.01 G Mauthe et al, August 1997

IEC 622271-4:2013 High-voltage switchgear and controlgear - Part 4: Handling procedures for sulphur hexafluoride (SF₆) and its mixtures, August 2013

IEC 60480:2019 Specifications for the re-use of sulphur hexafluoride (SF₆) and its mixtures in electrical equipment, April 2019

n/a : not applicable

21 Audit of the GHG inventory

ISO 14064-1, 9.3.1 (s)

This GHG inventory report has been assured by Deloitte Limited, a third party independent assurance provider. A reasonable level of assurance has been given over the assertions and quantification of the Scope 1 & 2 emissions. Limited assurance has been provided over Scope 3 emissions.

Deloitte Limited also provides limited assurance, in accordance with the GRI Standards, of the Meridian Group Integrated Report and IR data pack, and is the auditor of the Meridian Energy Limited consolidated financial statements on behalf of the Office of the Auditor General.

Appendix 1 – Meridian Group treatment of emissions

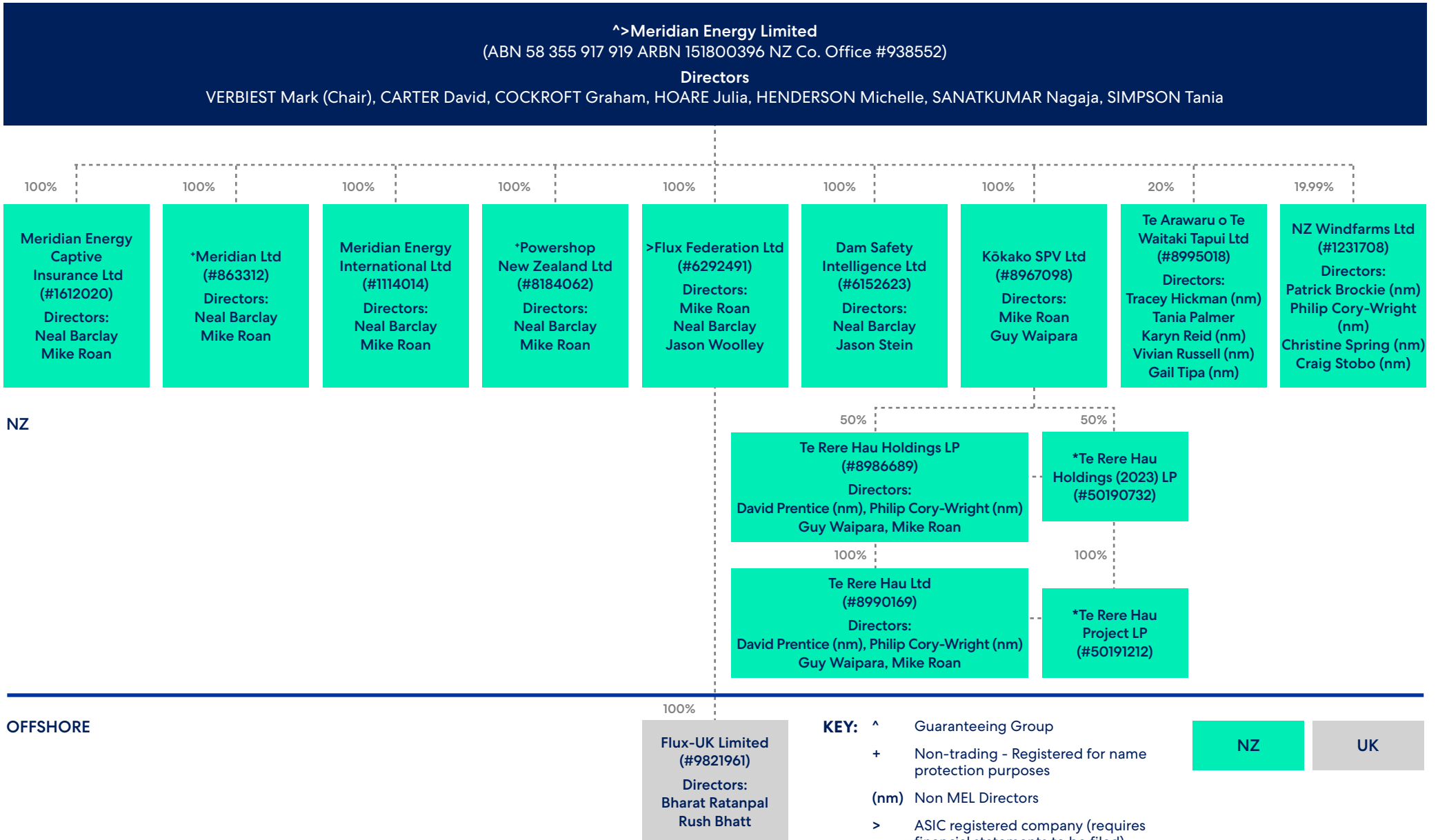
Meridian Energy treatment of emissions from subsidiaries, associates, joint ventures and investments as at 30 June 2024.

Company name	Emissions source?	Legal structure & partners	Economic interest held by MEL	Country	Operational control	Comment
Meridian Energy Limited (MEL)	Yes	Parent company	100%	NZ	Yes	Included in Meridian NZ facility
Meridian Energy Captive Insurance Limited	No (non-trading entity)	Group companies / subsidiaries	100%	NZ	Yes	No activity, therefore no emissions
Meridian Energy International Limited	No (non-trading entity)	Group companies / subsidiaries	100%	NZ	Yes	No activity, therefore no emissions
Powershop New Zealand Limited	No (non-trading entity)	Group companies / subsidiaries	100%	NZ	Yes	No activity, therefore no emissions
Meridian Limited	No (non-trading entity)	Group companies / subsidiaries	100%	NZ	Yes	No activity, therefore no emissions
Dam Safety Intelligence Limited	Yes	Group companies / subsidiaries	100%	NZ	Yes	Included in Meridian NZ facility
Flux Federation Limited	Yes	Group companies / subsidiaries	100%	NZ	Yes	Included in Flux NZ facility
Flux-UK Limited	Yes	Group companies / subsidiaries	100%	UK	Yes	Included in Flux NZ facility
Te Araware o Te Waitaki Tapui Limited	No (non-trading entity)	Investment	20%	NZ	No	No activity, therefore no emissions
NZ Windfarms Limited	Yes	Investment	19.99%	NZ	No	Included in Meridian NZ facility
Te Rere Hau Holdings Limited	No (non-trading entity)	Investment	50%	NZ	Yes	No activity, therefore no emissions
Te Rere Hau Holdings (2023) Limited Partnership	No (non-trading entity)	Investment	50%	NZ	Yes	No activity, therefore no emissions
Te Rere Hau Limited	No (non-trading entity)	Investment	50% via Te Rere Hau Holdings Limited	NZ	Yes	No activity, therefore no emissions
Te Rere Hau Project Limited Partnership	Yes	Investment	50% via Te Rere Hau Holdings (2023) LP	NZ	Yes	Included in Te Rere Hau LP Facility

Appendix 2 – Meridian Energy Group Structure

Meridian Energy Limited

Corporate Structure
2 July 2024



Appendix 3 ISO 14064-1 reporting index

ISO Reporting	Section in this report
9.3.1 (a)	Section 3
9.3.1 (b)	Section 4
9.3.1 (c)	Section 5
9.3.1 (d)	Section 6
9.3.1 (e)	Section 8
9.3.1 (f)	Table 4
9.3.1 (g)	Section 9
9.3.1 (h)	Section 16
9.3.1 (i)	Section 10
9.3.1 (j)	Table 2
9.3.1 (k)	Section 13
9.3.1 (l)	Section 14
9.3.1 (m)	Section 9 Section 11
9.3.1 (n)	Section 11
9.3.1 (o)	Section 11
9.3.1 (p)	Section 12
9.3.1 (q)	Section 12
9.3.1 (r)	Section 3
9.3.1 (s)	Section 22
9.3.1 (t)	Section 11
9.3.2 (a)	Section 3
9.3.2 (b)	Section 16
9.3.2 (c)	Section 16
9.3.2 (d)	not applicable
9.3.2 (e)	Table 2
9.3.2 (f)	Table 1 Table 2
9.3.2 (g)	Section 19
9.3.2 (h)	Section 17
9.3.2 (i)	Section 7
9.3.2 (j)	Section 16
9.3.2 (k)	Section 16
9.3.3	Section 18

Report on Greenhouse Gas ('GHG') Emissions Inventory Report

We have undertaken a reasonable assurance engagement in relation to Scope 1 and 2 emissions, and a limited assurance engagement in relation to Scope 3 emissions within the Greenhouse Gas Emissions Inventory Report (the 'Inventory Report') of Meridian Energy Limited and its subsidiaries ('Meridian' or 'the Group') for the year ended 30 June 2024, comprising the Emissions Inventory and the explanatory notes set out on pages 4 to 36.

The Inventory Report provides information about the greenhouse gas emissions of Meridian for the year ended 30 June 2024 and is based on historical information. This information is stated in accordance with the requirements of International Standard ISO 14064-1 Greenhouse gases – Part 1: Specification with guidance at the organisation level for quantification and reporting of greenhouse gas emissions and removals ('ISO 14064-1:2018'), the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) ('the GHG Protocol') and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) ('the Corporate Value Chain Standard') which can be accessed at <https://www.iso.org/standard/66453.html> and <https://ghgprotocol.org>, respectively.

Our report does not cover any forward-looking statements, external references, or hyperlinked documents.

Directors' Responsibility

The Directors are responsible for the preparation of the Inventory Report, in accordance with ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard. This responsibility includes the design, implementation, and maintenance of internal control relevant to the preparation of an Inventory Report that is free from material misstatement, whether due to fraud or error.

Our Responsibility

Our responsibility is to express a reasonable assurance opinion on Scope 1 and 2 emissions and a limited assurance conclusion on Scope 3 emissions within the Inventory Report based on the evidence we have obtained. We conducted our reasonable and our limited assurance engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3410: Assurance Engagements on Greenhouse Gas Statements ('ISAE (NZ) 3410') issued by

the New Zealand Auditing and Assurance Standards Board ('NZAuASB'). That standard requires that we plan and perform this engagement to obtain reasonable assurance that Scope 1 and 2 emissions within the Inventory Report, and limited assurance that Scope 3 emissions within the Inventory Report are free from material misstatement, respectively.

Reasonable Assurance for Scope 1 and 2 Emissions

A reasonable assurance engagement undertaken in accordance with ISAE (NZ) 3410 involves performing procedures to obtain evidence about the quantification of emissions and related information in the Inventory Report. The nature, timing and extent of procedures selected depend on the assurance practitioner's judgement, including the assessment of the risks of material misstatement, whether due to fraud or error, in the Inventory Report. In making those risk assessments, we considered internal control relevant to the Group's preparation of the Inventory Report. We also:

- Assessed the suitability in the circumstances of the Group's use of ISO 14064-1:2018 and the GHG Protocol as the basis for preparing the Inventory Report;
- Evaluated the appropriateness of quantification methods and reporting policies used, and the reasonableness of estimates made by the Group; and
- Evaluated the overall presentation of the Inventory Report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our reasonable assurance opinion in respect of the Scope 1 and 2 emissions.

Limited Assurance for Scope 3 Emissions

A limited assurance engagement undertaken in accordance with ISAE (NZ) 3410 involves assessing the suitability in the circumstances of the Group's use of ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard as the basis for the preparation of the Inventory Report, assessing the risks of material misstatement of the Inventory Report whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of the Inventory Report. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

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The procedures we performed were based on our professional judgement and included enquiries, observations of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records.

Given the circumstances of the engagement, in performing the procedures listed above we:

- Through enquiries, obtained an understanding of Meridian's control environment and information systems relevant to emissions quantification and reporting, but did not evaluate the design of particular control activities, obtain evidence about their implementation, or test their operating effectiveness.
- Evaluated whether Meridian's methods for developing estimates are appropriate and had been consistently applied. Our procedures did not include testing the data on which the estimate is based or separately developing our estimates against which to evaluate Meridian's estimates.
- Reviewed adherence to the principles and requirements outlined in ISO 14064-1:2018 and, the GHG Protocol and the Corporate Value Chain Standard.
- The GHG Inventory Report includes a deduction from Meridian's emissions for the year of 113,201 tonnes of CO₂e relating to offsets. We have performed procedures as to whether these offsets were acquired during the year, and whether the description of them in the GHG statement is a reasonable summary of the relevant contracts and related documentation. We have not, however, performed any procedures regarding the external practitioners of these offsets, and express no conclusion about whether the offsets have resulted, or will result, in a reduction of 113,201 tonnes of CO₂e.

Inherent Limitations

Scope 1, 2 and 3 Emissions

Non-financial information, such as that included in the Group's Inventory Report, is subject to more inherent limitations than financial information, given both its nature and the methods used and assumptions applied in determining, calculating, and sampling or estimating such

information. Specifically, GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

As the procedures performed for this engagement are not performed continuously throughout the relevant period and the procedures performed in respect of the Group's compliance with ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard are undertaken on a test basis, our assurance engagement cannot be relied on to detect all instances where the Group may not have complied with ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard. Because of these inherent limitations, it is possible that fraud, error or non-compliance may occur and not be detected.

Scope 3 Emissions

For the scope 3 emissions, we note that a limited assurance engagement is not designed to detect all instances of non-compliance with ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard, as it generally comprises making enquires, primarily of the responsible party, and applying analytical and other review procedures.

Our Independence and Quality Management

We have complied with the independence and other ethical requirements of Professional and Ethical Standard 1 International Code of Ethics for Assurance Practitioners (including International Independence Standards) (New Zealand) issued by the New Zealand Auditing and Assurance Standards Board, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

Other than this engagement and our role as auditor of the statutory financial statements on behalf of the Auditor-General, our firm carries out other assignments for Meridian in the areas of limited assurance of the sustainability content in the integrated report prepared in accordance with the Global Reporting Initiative Sustainability Reporting Standards, review of the interim financial statements, audit of the securities registers, audit of the fixed rate bond registers, vesting of the executive long-term incentive plan, the solvency return of Meridian Captive Insurance Limited, cyber security services, and supervisor reporting.

We also carried out non-assurance assignments for Meridian relating to cybersecurity services, gap analysis in regard to climate related disclosures readiness programme, and to the Corporate Taxpayers Group of which Meridian Energy Limited is a member, which are compatible with those independence requirements.

In addition, partners, and employees of our firm deal with the Group on arm's length terms within the ordinary course of trading activities of the Group. These services have not impaired our independence assurance practitioner of the Group. Other than these engagements and arm's length transactions, we have no relationship with, or interests in, the Group.

Our firm applies Professional and Ethical Standard 3: Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements, which requires the firm to design, implement and operate a system of quality management including policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Use of Report

Our assurance report is intended for users who have a reasonable knowledge of GHG related activities, and who have studied the Inventory Report with reasonable diligence and understand that the Inventory Report is prepared and assured to appropriate levels of materiality.

Our assurance report is made solely to the Company's Directors, as a body. Our assurance engagement has been undertaken so that we might state to the Directors those matters we are required to state to them in an assurance report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Directors for our work, for this assurance report, or for the reasonable assurance opinion and limited assurance conclusion expressed in our Report.

This assurance report relates to the GHG Inventory Report of Meridian Energy Limited and its subsidiaries ('the Group') for the year ended 30 June 2024 included on the Group's website. The Directors are responsible for the maintenance and integrity of the Group's website. We have not been engaged to report on the integrity of the Group's website. We accept no responsibility for any changes that may have occurred to the GHG Inventory Report since it was initially presented on the website. The assurance report refers only to the GHG Inventory Report named above. It does not provide an opinion on any other information which may have been hyperlinked to/from this GHG Inventory Report. If readers of this report are concerned with the inherent risks arising from electronic data communication, they should refer to the published hard copy of the GHG Inventory Report and related assurance report dated 27 August 2024 to confirm the information presented on this website.

Reasonable Assurance Opinion for Scope 1 and 2 Emissions

In our opinion, the Scope 1 and 2 emissions included within the Group's Inventory Report for the year ended 30 June 2024 have been prepared, in all material respects, in accordance with the requirements of ISO 14064-1:2018, and the GHG Protocol.

Limited Assurance Conclusion for Scope 3 Emissions

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Scope 3 emissions included within the Group's Inventory Report for the year ended 30 June 2024 have not been prepared, in all material respects, in accordance with the requirements of ISO 14064-1:2018, the GHG Protocol and the Corporate Value Chain Standard.

Deloitte Limited

27 August 2024
Christchurch, New Zealand

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Meridian.

The Power to
Make a Difference.