



# **GREENHOUSE GAS EMISSIONS INVENTORY REPORT.**

1 July 2023 to 30 June 2024





## IMPORTANT INFORMATION FOR READERS.

This Emissions Inventory report has been prepared by Mercury NZ Limited (Mercury) for informational purposes and in connection with our FY24 Climate Statement to be published in accordance with the Aotearoa New Zealand Climate Standards.

Information in this report has been prepared by Mercury with due care and attention with every effort to ensure the report is accurate. Mercury will not be liable for any reliance placed upon this report by any third party.

## PURPOSE OF DOCUMENT.

The purpose of this document is to provide an inventory of Mercury's greenhouse gas emissions using the Greenhouse Gas Protocol for carbon accounting and reporting. Using this recognised framework ensures transparency, robustness and a

consistent approach that will facilitate benchmarking with similar organisations and within the energy sector.

The report includes details of the unique emissions factors associated with Mercury's geothermal generation facilities and its involvement in emissions trading and forestry carbon units to communicate the comprehensive nature of Mercury's response to the climate change challenge.

The document will also facilitate the additional disclosure of Mercury's carbon footprint, review of risks and opportunities related to climate change and educate and inform interested stakeholders. Public disclosure of carbon data and the associated management of climate related risks and opportunities also enables Mercury to reflect the requirements of the Aotearoa New Zealand Climate Standards.

## This emissions inventory report includes restated historical data to enhance accuracy and consistency.

Firstly, Mercury's Scope 3 emissions from natural gas sales (use of sold products) for FY2022 have been updated to reflect a full 12 months of Trustpower gas sales. The original FY2022 report only accounted for 2 months of Trustpower gas sales following the acquisition finalisation in May 2022. This adjustment ensures consistent emissions reporting across all years and is reflected in table 2.

Secondly, the calculation methodology for reticulated gas sales has been revised to account for the purchasing of reticulated gas on the wholesale spot market. We started this in July 2022, so the revision will affect GHG inventories from FY23 onwards, necessitating a restatement of the emissions for the use of sold products in FY23. This change is reflected in table 3.

Prepared by:

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16 August 2024.

Signed off by:

**Jessica Bevin – Adaptive Pathways Lead**

16 August 2024.



## 1.0 GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY.

SCOPE	CATEGORY	FY2022 TONNES CO <sub>2</sub> e	FY2023 TONNES CO <sub>2</sub> e	FY2024 TONNES CO <sub>2</sub> e
Scope 1 – direct emissions	Geothermal emissions for exported power	222,345	212,382	236,307
<b>Sub-total generation emissions</b>		<b>222,345</b>	<b>212,382</b>	<b>236,307</b>
Scope 1 – direct emissions contd.	Mobile combustion (company vehicle fleet)	246	398	335
	Stationary combustion (generation site plant and equipment)	93	462	2,927
	Fugitive emissions (sulphur hexafluoride (SF <sub>6</sub> ) releases)	52	403	5
<b>Total Scope 1</b>		<b>222,736</b>	<b>213,645</b>	<b>239,574</b>
Scope 2 – indirect emissions	Electricity consumption (location based)	1,108	632	521
<b>Total Scopes 1 &amp; 2</b>		<b>223,844</b>	<b>214,277</b>	<b>240,095</b>
Scope 3 – indirect emissions	Transmission and distribution losses for electricity consumption	102	73	38
	Business travel and accommodation	210	1,176	1,186
	Use of sold products (gas sales)	138,279 (Recalculated)	135,910 (Recalculated)	135,111
<b>Total Scope 3</b>		<b>138,591</b>	<b>137,159</b>	<b>136,335</b>
<b>Total All Scopes</b>		<b>362,435</b>	<b>351,436</b>	<b>376,430</b>

Note: Historical data (unverified) for FY2015-2021 is provided in Appendix A.



## 1.1 FY2024 CHANGES IN ORGANISATIONAL STRUCTURE.

There have been no changes in Mercury's organisational structure in FY2024.

## 1.2 MATERIAL RESTATEMENTS OF EMISSIONS.

### 1.2.1 Recalculation of the FY22 base year emissions for gas sales.

Mercury's Scope 3 emissions from natural gas sales (use of sold products) for FY2022 have been updated to reflect a full 12 months of Trustpower gas sales. This adjustment ensures consistency in emissions reporting across years, as the original FY2022 report included only 2 months of Trustpower gas sales, following the acquisition finalisation in May 2022.

**Table 2:** Impact of Recalculation on Emissions.

EMISSIONS SOURCE	FY22 TONNES CO2e (Original)	FY22 TONNES CO2e (Adjusted)
Reticulated Gas sales	78,196	121,136
Distribution losses (reticulated gas sales)	4,643	7,192
LPG Sales	1,758	9,951
<b>Total</b>	<b>84,597</b>	<b>138,279</b>

### 1.2.2 Calculation methodology change for FY23 gas sales.

The calculation methodology for reticulated gas sales has been adjusted to account for the purchasing of reticulated gas on the wholesale spot market. Mercury started doing this in FY23 and this

adjustment in calculation methodology ensures we are aligned with the Greenhouse Gas Protocols Corporate Value Chain (Scope 3) Standard and account for all gas passing through Mercury's value chain.

**Table 3:** Impact of Calculation Methodology Change on Emissions.

EMISSIONS SOURCE	FY23 TONNES CO2e (Original)	FY23 TONNES CO2e (Adjusted)
Reticulated Gas sales	119,004	121,301
Distribution losses (reticulated gas sales)	4,380	4,464
LPG Sales	10,145	10,145
<b>Total</b>	<b>133,529</b>	<b>135,910</b>

## 1.3 Notable Movements in Emissions

The considerable increase in Scope 1 emissions from stationary combustion is due to the geothermal drilling campaign that has been taking place throughout FY2024. The drilling rig is a Bentec 450t AC, equipped with four 1200kW engines that run on diesel.

This has been our most ambitious drilling campaign in over a decade. Despite some delays, drilling is currently ongoing at our Kawerau station and will continue through to 2025.



## 2.0 INTRODUCTION.

Mercury NZ Limited (Mercury) is a 100% renewable electricity generator and multi-product retailer using natural resources such as hydro, geothermal and wind to generate renewable electricity and retailing electricity, gas, broadband and telecommunication services.

This report covers Mercury's greenhouse gas (GHG) inventory spanning nine financial years. This report is a complete and accurate quantification of the amount of GHG emissions that can be directly attributed to Mercury's operations within the declared boundary and scope for the reporting period.

Mercury is a participant in the New Zealand Emissions Trading Scheme (NZ ETS). Under this scheme, Mercury has unique emission factors produced by physical sampling of emissions from each geothermal facility. This process is externally audited and assured, to a reasonable level of assurance, by Deloitte.

Emissions are measured monthly and are used for calculating total annual emissions and the required carbon units to retire. Mercury has invested in New Zealand forestry since 2010 and has long-term contracts in place. Carbon credits are then retired to cover fugitive geothermal scope 1 emissions and scope 3 downstream emissions from customer gas sales. Mercury has also used ETS mechanisms such as the fixed price option and credits from projects to reduce emissions to meet these obligations.

Carbon credits surrendered under the NZ ETS differ from geothermal fugitive emissions figures stated in this GHG Emissions Inventory due to the surrender obligations being based around equity ownership.

## 3.0 STATEMENT OF INTENT.

Mercury's reporting legislation is the Aotearoa New Zealand Climate Standards<sup>1</sup> with particular reference to parts 22-24 of Aotearoa New Zealand Climate Standard 1 (NZ CS1) which came into effect from FY24.

Mercury is intent on demonstrating transparency and uses commonly accepted standards when accounting for its greenhouse gas emissions. Therefore, this report relates specifically to the emissions of Mercury and follows international best practice protocols and standards, namely The Greenhouse Gas Protocol<sup>2</sup> (GHG Protocol).

The report has been prepared as part of an ongoing commitment to measure and manage emissions, educate and inform both internal and external stakeholders and facilitate continued discussions on carbon reduction targets and carbon neutrality.

## 4.0 DESCRIPTION OF MERCURY.

### 4.1 Mercury.

Mercury NZ Limited (Mercury) generates 100% renewable electricity from wai (hydro), ngāwhā (geothermal) and hau (wind). Our electricity generation sites are located along the Waikato River (wai), the nearby steam fields of the northern part of New Zealand's Central Plateau (ngāwhā) and in the Manawatū, South Taranaki, Otago and Southland regions (hau).

Mercury continued to expand its renewable generation pipeline in FY2024, with construction of a fifth generating unit at our Ngā Tamariki geothermal station in the Central Plateau and the recent confirmation of the expansion of our Kaiwera Downs wind farm near Gore.

Mercury also retails electricity, gas, mobile, and telecommunications products across approximately 864,000 customer connections throughout New Zealand.

<sup>1</sup> [www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/](http://www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/)

<sup>2</sup> <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>





## 4.2 Sustainability Policies, Strategies and Programmes.

In FY23, Mercury introduced our purpose and long-term aspirations. These are foundational aspects of our strategic framework, providing the longer-term direction for our organisation.

Our purpose 'Taking care of tomorrow: Connecting people and place today' captures our why. It recognises the role we play in using our unique assets and capabilities to enable everyday living and connectivity in our communities, and to bring together the people we work with to care for the natural environment and resources that we use.

Our long-term aspirations for 2035 cover five focus areas, Kiritaki / Customer, Arumoni / Commercial, Ngā Tāngata / Our People, Kōtuitangā / Partnerships and Kaitiakitangā / Stewardship. Sustainability underpins all of our long-term aspirations, including under our Kaitiakitangā / Stewardship aspiration of:

**We leave our physical assets and the natural environment thriving for future generations.**

Sustainability is also integrated into our short-term business planning, where one of our FY22-24 objectives was to:

**Play a leading role in New Zealand's successful transition to a low-carbon economy.**

Our Sustainability Policy<sup>3</sup> describes how Mercury takes an integrated approach to incorporating sustainability into our strategic framework, strategic planning and everyday decision making to deliver greater value and better outcomes for all our stakeholders.

## 5.0 PERSONS RESPONSIBLE.

The Executive GM Sustainability is responsible for this GHG inventory. A team of individuals across Mercury have contributed to the greenhouse gas accounting and reporting, and their efforts have been integral to the creation of this report.

This team includes: Sustainability & Strategy Analyst, Adaptive Pathways Lead, Senior Plant Chemist, Future Insights Manager, Fleet & Expense Claim Administrator, Supplier Relationship Manager, Application Solution Specialist, Legal & Commercial Advisor, Environmental Advisor, Corporate Finance Analyst, Energy Analyst, Planning & Reporting Manager, Senior Financial Reconciliation Analyst, Commercial Manager – Telco, Key Relationship Advisor, Property Manager, Finance BI Manager, Operations Analytics Manager, Workplace Experience Lead.

## 6.0 REPORTING PERIOD COVERED.

This GHG inventory covers the period 1 July 2023 to 30 June 2024. Historical data (unverified) is provided for the period from 1 July 2014 to 30 June 2021.

<sup>3</sup> [mercury.co.nz/-/media/project/mercury/mercury/documents/investors/governance-documents/sustainability-policy.pdf?rev=18190a79c05049ccae9630b44c3bc305](https://mercury.co.nz/-/media/project/mercury/mercury/documents/investors/governance-documents/sustainability-policy.pdf?rev=18190a79c05049ccae9630b44c3bc305)



## 7.0 ORGANISATIONAL BOUNDARIES.

Mercury's organisational boundary determines the parameters for GHG reporting and is set with reference to the GHG Protocol. The boundary encompasses the operations owned and controlled by Mercury, its subsidiaries, associate companies and joint ventures.

## 7.1 Consolidation Approach

Mercury applies the operational control consolidation approach to its greenhouse gas inventory to determine organisational boundaries. This allows Mercury to focus on the emissions where Mercury has operational control and can investigate the potential to manage and reduce. The table below sets out how each entity is treated:

**Table 4:** Summary of entities and treatment of joint ventures.

ENTITY	PRINCIPAL ACTIVITY	TYPE	INTEREST HELD (end of FY24)	COUNTRY	INCLUDED/ EXCLUDED
Mercury NZ Limited	Electricity Generation (Hydro, wind and geothermal), electricity, gas & telco retail	Listed Company (NZX Main Board and ASX Foreign Exempt Listing)	100%	New Zealand	Included – 100%
Mercury Geothermal Limited	Electricity generation (geothermal)	Subsidiary	100%	New Zealand	Included – 100%
TPC Holdings Limited	Investment Holding	Associate	25%	New Zealand	Included – 100%
Rotokawa (Joint Venture)	Steamfield Operation	Joint Operation	64.8%	New Zealand	Included – 100%
Ngā Awa Pūrua (Joint Venture)	Electricity Generation	Joint Operation	65%	New Zealand	Included – 100%
NOW New Zealand Limited	Broadband retail	Subsidiary	100%	New Zealand	Included – 100%
EnergySource LLC	Mineral extraction	Joint Venture	20.86%	United States	Excluded
ES Minerals LLC	Mineral extraction	Joint Venture	17.73%	United States	Excluded



## 8.0 MERCURY FACILITIES.

### 8.1 Wai (hydro) Generation Facilities.

Mercury owns nine stations on the Waikato River. Flexible and rain-fed, hydro output can be increased or decreased quickly and efficiently.

**Table 5:** Hydro Generation Facilities.

FACILITY	FIRST OPERATED	DESCRIPTION
Karāpiro	1947	A 101MW plant with an average annual output of 515 GWh
Arapuni	1929	A 198MW plant with an average annual output of 865 GWh
Waipāpa	1961	A 51MW plant with an average annual output of 235 GWh
Maraetai I and II	1952 and 1970 respectively	The two plants have a combined capacity of 360MW with an average annual output of 880 GWh
Whakamaru	1956	A 124MW plant with an average annual output of 520 GWh
Ātiamuri	1958	A 84MW plant with an average annual output of 285 GWh
Ōhakuri	1961	A 112MW plant with an average annual output of 405 GWh
Aratiatia	1964	A 87MW plant with an average annual output of 365 GWh

### 8.2 Ngāwhā (geothermal) Generation Facilities.

Mercury operates five geothermal stations and a steamfield facility in the North Island. Providing steady baseload, geothermal runs at full capacity about 95% of the time.

**Table 6:** Geothermal Facilities.

FACILITY	FIRST OPERATED	DESCRIPTION
Kawerau	2008	A 106MW flash plant with an average annual output of 875 GWh
Mōkai	2000	A 103MW flash plant with an average annual output of 800 GWh
Rotokawa	2000	A 34MW binary cycle plant with an average annual output of 286 GWh
Ngā Tamariki	2013	A 85MW binary cycle plant with an average annual output of 731 GWh
Ngā Awa Pūrua	2010	A 138MW flash plant with an average annual output of 1,132 GWh
Rotokawa Steamfield Operation	2000	Infrastructure associated with the supply of geothermal fluid to Rotokawa and Ngā Awa Pūrua geothermal stations.

### 8.3 Hau (wind) Generation Facilities.

Mercury operates five wind farms in the North Island and two in the South Island.

**Table 7:** Wind Generation Facilities.

FACILITY	FIRST OPERATED	DESCRIPTION
Turitea	2021	A 222MW wind farm with an average annual output of 840 GWh
Tararua I	1999	A 32MW wind farm with an average annual output of 114 GWh
Tararua II	2004	A 36MW wind farm with an average annual output of 131 GWh
Tararua III	2007	A 93MW wind farm with an average annual output of 318 GWh
Mahinerangi	2011	A 36MW wind farm with an average annual output of 100 GWh
Waipipi	2021	A 133MW wind farm with an average annual output of 455 GWh
Kaiwera Downs I	2023	A 43MW wind farm with an average annual output of 147 GWh



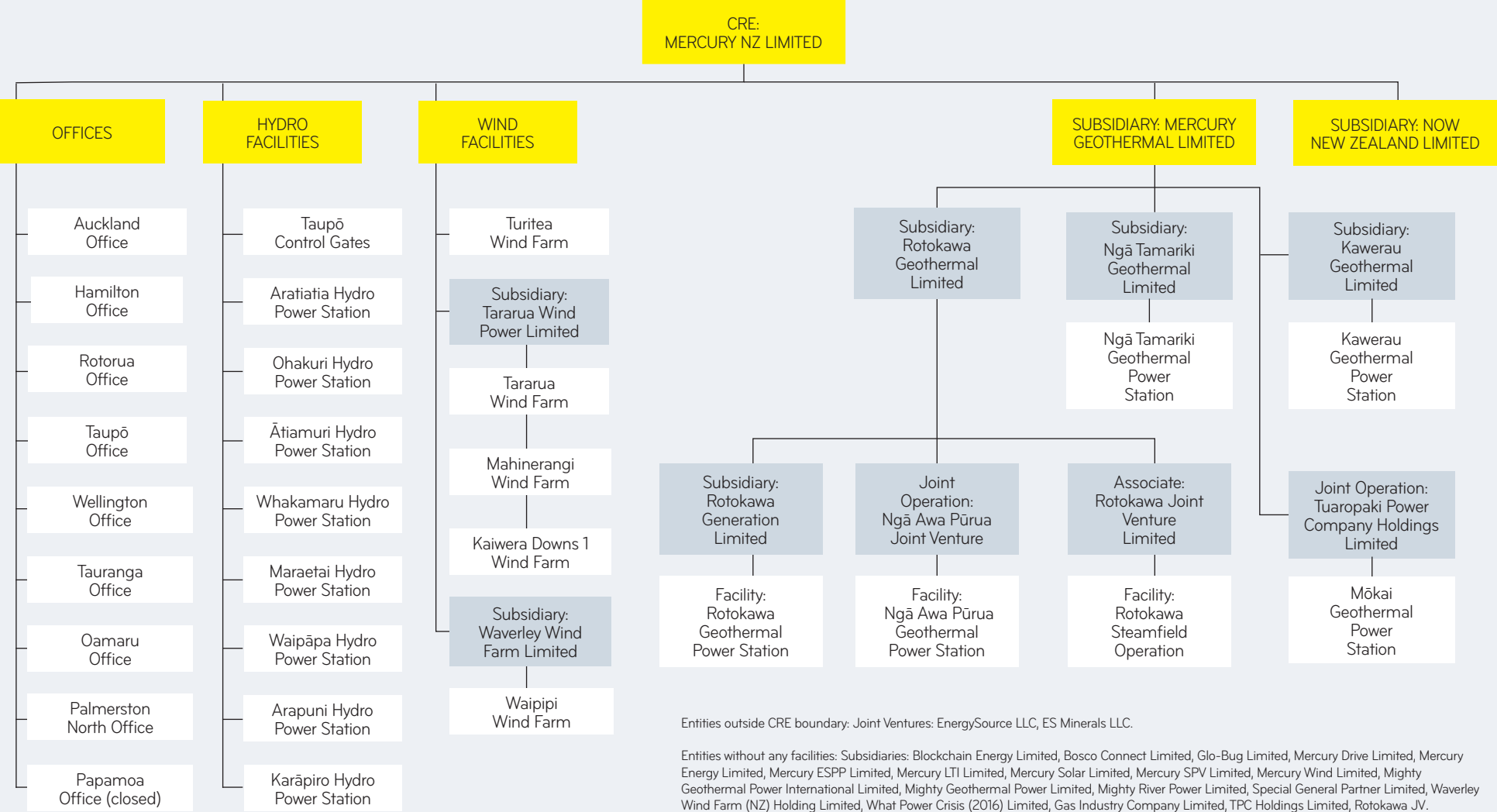


8.4 Other Facilities.

Other facilities include offices in Auckland, Hamilton, Rotorua, Taupō, Wellington, Taurangā, Oamaru, and Palmerston North. The Papamoa office was closed on August 31, 2023.

8.5 Organisation Chart.

Mercury, as the Climate Reporting Entity (CRE), its associated entities and facilities are shown in the organisation chart below:



## 9.0 EMISSIONS SOURCE INCLUSIONS.

### 9.1 Emissions Assessment and Categorisation.

Mercury has used the GHG Protocol to assess its business activities and facilities for emissions sources and identify the emission sources required to complete this inventory. This has been done on the basis that emissions sources from prior years are maintained unless the associated business activity or facility has ceased or been divested.

Any additional business activities or facilities commenced or acquired during the financial year have been assessed for emissions sources not previously present.

In accordance with the GHG Protocol, the assessed emissions sources have been classified into:

**Scope 1** – Direct GHG emissions that are operationally controlled by the company.

**Scope 2** – Indirect emissions from the generation of purchased electricity; and

**Scope 3** – Indirect emissions that occur because of the activities of the company but from sources that are not owned and controlled by the company.

### 9.2 Materiality.

Mercury considers Scope 1 and Scope 2 emissions as material. For Scope 3 emissions, Mercury will exclude any emissions from sources estimated as being below 5% of total emissions across all categories, provided the total excluded emissions do not exceed 5% of all emissions.

### 9.3 Other Emissions – Perfluorocarbons (PFCs).

Mercury does not use or hold PFCs so no emissions from these sources are included in this inventory.

### 9.4 Other Emissions – CO<sub>2</sub> emissions from the Combustion of Biomass.

There was no combustion of biomass in Mercury's operations during the reporting period.



## 9.5 Emissions Inclusions.

**Table 8:** Summary of emissions source inclusions.

SCOPE	CATEGORY	GHG EMISSION SOURCE	FACILITIES INCLUDED	DATA SOURCE	DATA COLLECTION UNIT	METHOD, DATA QUALITY, UNCERTAINTY (QUALITATIVE)
Scope 1	Fugitive emissions	Fugitive emissions from geothermal generation	Kawerau, Mōkai, Ngā Awa Pūrua, Ngā Tamariki, Rotokawa	Records from sites, submitted as part of NZ ETS requirements for the Crown	Geothermal Resources	Emissions factors (EFs) from NZ EPA. Captured by Geothermal Resources team, audited by Deloitte for ETS use, high quality data
Scope 1	Thermal emissions (historic)	Gas-fired thermal generation	Southdown	Records from sites, submitted as part of NZ ETS requirements for the Crown	Wholesale markets	Captured by Wholesale Markets, audited by Deloitte for ETS use, high quality data
Scope 1	SF6 releases	SF6 releases during operations	Kawerau, Mōkai, Ngā Awa Pūrua, Ngā Tamariki, Rotokawa, Arapuni, Aratitia, Ātiamuri, Karāpiro, Maraetai I and II, Ōhakuri, Waipāpa, Whakamaru	Maintenance records (SF6 top ups) – Note: Stocks recorded as a liability	Environmental Team	EFs from MfE guidance documents. Review of calendar year records, reasonable data quality, medium level of uncertainty due to use of calendar year for financial year
Scope 1	Mobile combustion	Vehicle fleet fuel	Vehicle fleet	Fuel cards cover most of fuel purchases, there will be a limited number of purchases made by staff using cash/card	Finance	EFs from MfE guidance documents. Review of fuel card records, good data quality, very low level of uncertainty
Scope 1	Stationary combustion	Fuel used in generators and on-site plant and equipment	Kawerau, Mōkai, Ngā Tamariki, Rotokawa, Ngā Awa Pūrua	Delivery company data	Finance	EFs from MfE guidance documents. Review of delivery company data, good data quality
Scope 2	Electricity – Offices and other sites	Electricity consumed in offices and internal sites	Auckland, Wellington, Taupō, Rotorua, Hamilton, Tauranga, Oamaru, Palmerston North	Electricity internal customer category in financial records, electricity bills for facilities billed through agents	Customer	EFs from MfE guidance documents. Calculation based on internal invoicing with some estimation, low level of uncertainty





SCOPE	CATEGORY	GHG EMISSION SOURCE	FACILITIES INCLUDED	DATA SOURCE	DATA COLLECTION UNIT	METHOD, DATA QUALITY, UNCERTAINTY (QUALITATIVE)
Scope 2	Electricity generation sites	Grid electricity consumed at generation sites	Hydro, Geothermal and Wind	Supervisory control and data acquisition (SCADA) extract	Technology	EFs from MfE guidance documents. Calculation based on recorded revenue meter data, low level of uncertainty but some lines consumption may not be Mercury's
Scope 3: Subcategory 3 – Fuel and energy related activities	Transmission and distribution losses for imported electricity	Transmission and distribution losses of imported electricity	Generation sites, offices and other internal sites	Electricity invoicing, internal customer category and SCADA extracts	Customer & Technology	EFs from MfE guidance documents. Calculation based on internal invoicing with some estimation and recorded revenue meter data, low level of uncertainty
Scope 3: Subcategory 6 – Business travel	Business travel, accommodation	Emissions from flights and accommodation	All	Flight and accommodation reports	Travel service provider	EFs from MfE guidance documents. Calculation based on flights and accommodation invoicing, good data quality, low level of uncertainty
Scope 3: Subcategory 6 – Business travel	Mileage	Emissions from staff travel to and from workplaces	All	Mileage expense claim reports	Finance	EFs from MfE guidance documents. Calculation based on spend-based assessment of mileage expenses, moderate level of uncertainty
Scope 3: Subcategory 11 – Use of sold products	Use of sold products (including distribution losses)	Gas purchased. (reticulated gas only)	Captured by customer	Reticulated gas invoices from direct purchases & nomination report.	Customer	EFs from MfE guidance documents. Invoiced volumes & traded nominations provided by Customer so high-quality data, carbon is included in the credits required to be surrendered under the NZ ETS
Scope 3: Subcategory 11 – Use of sold products	Use of sold products	LPG purchases	Captured by customer	LPG invoices	Customer	EFs from MfE guidance documents. Invoiced volumes from purchase invoices so high-quality data



## 10.0 EMISSIONS SOURCE EXCLUSIONS.

In FY2024, Mercury committed over \$700 million to new renewable generation projects. This led to a review of emissions associated with Scope 3, specifically Subcategory 2 Capital Goods, which includes emissions from growth capital expenditure. We are currently developing an accurate method to calculate these emissions and plan to disclose them in the future.

The emissions sources listed in the table below are excluded from Mercury's GHG inventory report because they are considered immaterial in the context of the inventory and for our stakeholders, may not be applicable, or have not been assessed sufficiently to determine their materiality.

Table 9: Emissions Source Exclusions.

SCOPE	GHG EMISSION SOURCE	FACILITIES DESCRIPTION	ASSESSMENT/REASON FOR EXCLUSION
1 - Refrigerant releases	HFCs from air-conditioning systems	All generation sites and office locations	Not Assessed. Difficulties in obtaining the necessary data.
Scope 3: Subcategory 1 – Purchased goods and services	Emissions associated with acquiring operational goods & services	All	Not yet assessed. Calculation methodology being refined
Scope 3: Subcategory 2 – Capital goods	Embodied emissions from procurement of capital goods and related expenditures	All	Not yet assessed. Calculation methodology being refined
Scope 3: Subcategory 4 – Upstream transportation and distribution	Emissions associated with purchased transport and distribution services, e.g. delivery of print, mail and post	N/A	Assessed as below materiality threshold, high level of data uncertainty
Scope 3: Subcategory 5 – Waste generated in operations	Emissions associated with waste to landfill from offices and wastewater treatment	All	Assessed as below materiality threshold, high level of data uncertainty
Scope 3: Subcategory 7 – Employee commuting	Emissions associated with employee travel to and from work	All	Assessed as below materiality threshold
Scope 3: Subcategory 8 – Upstream leased assets	Emissions associated with telecommunications network from leased assets	All	Assessed as below materiality threshold



SCOPE	GHG EMISSION SOURCE	FACILITIES DESCRIPTION	ASSESSMENT/REASON FOR EXCLUSION
Scope 3: Subcategory 9 – Downstream transportation and distribution	Emissions associated with non-Mercury purchased transportation and distribution services of products to customers	N/A	Assessed and considered not applicable as Mercury does not conduct business activities in this area
Scope 3: Subcategory 10 – Processing of sold products	Emissions associated with processing of sold products	N/A	Assessed and considered not applicable as Mercury's sold products do not undergo further processing
Scope 3: Subcategory 12 – End-of-life treatment of sold products	Emissions associated with end-of-life of broadband routers and household appliances	N/A	Assessed as below materiality threshold
Scope 3: Subcategory 13 – Downstream leased assets	Agricultural emissions	Mercury leases small landholdings near its generation facilities to local farmers, mainly for grazing	Assessed as below materiality threshold
Scope 3: Subcategory 14 – Franchises	Emissions from operations of franchises	N/A	Assessed and considered not applicable as Mercury does not grant franchise licenses
Scope 3: Subcategory 15 – Investments	Emissions from companies that Mercury provides capital and/or financing services	Energy Source LLC, ES Minerals LLC	Not yet assessed. Calculation methodology being refined

## 11.0 DATA COLLECTION AND UNCERTAINTIES.

### 11.1 Data Collection.

Mercury has developed robust GHG information systems to record fugitive geothermal emissions as this forms most of its carbon footprint and have been required to meet its obligations under the NZ ETS since 2010. These geothermal unique emissions factors are subject to external audit and assurance and are therefore robust.

The preparation of this emissions inventory report has prompted collation of additional, less material, datasets in a way that ensures ongoing conformance with

the GHG Protocol. Future emissions inventory reports will follow the same data collection and collation process, with opportunities taken to improve data integrity, completeness and emissions reporting accuracy.

Additional data required to produce this emissions inventory comes from internal operational data, with datasets around scope 2 and 3 emissions sourced from specific providers or from internal financial systems, both of which are robust systems. Quantification of the associated emissions currently uses spreadsheets to relate consumption to emissions factors. Emissions factors are sourced from either New Zealand Government guidance documents, IPCC publications or recognised GHG emission databases.





## 11.2 Impact of Uncertainties.

The most significant sources of emissions are from fugitive geothermal sources at geothermal generation sites and emissions from the use of sold products (gas), both of which have low levels of uncertainty. Geothermal emissions data is subject to independent measurement and is audited to a reasonable level of assurance. Gas sales data is obtained via gas measuring systems that are subject to New Zealand gas measurement technical standards.

Mercury operates various facilities, including offices, internal sites, and generation sites for which Scope 2 imported electricity emissions are calculated. There are uncertainties in our calculation approach for our smaller offices and generation sites where we rely on estimations based on employee numbers and energy usage from our other offices in the absence of comprehensive data.

Our scope 3 emissions from business travel comprise of air travel, accommodation and staff mileage. Air travel and accommodation are derived from a third-party report, and staff mileage is derived from our staff mileage claims. We reconcile these invoices against our business travel spend to ensure there are no significant discrepancies. While these uncertainties exist, we consider that the impact on our overall emissions reporting is not material. We do, however, acknowledge these limitations and will continue to work on improving data accuracy and reliability.

## 12.0 THE BASE YEAR SELECTED.

The chosen base year is 1 July 2021 to 30 June 2022 and is unchanged from previous reports. We have also chosen to retrospectively recalculate Scope 3 Use of sold products emissions in our FY2022 base year to include a full year of Trustpower retail emissions. The base year emissions previously only included the two months in FY2022 when Trustpower retail was under Mercury's operational control. Total and scope 3 emissions in the FY2022 base year have increased due to this recalculation. This resulted in a 63.46% increase in scope 3 emissions and a 17.39% increase in overall emissions.

Section 19.1 of this report compares our direct emissions over the past three financial years to FY15, when we began measuring CO<sub>2</sub>. This comparison highlights the improvements and progress we've made since 2015.

## 12.1 Base Year Recalculation Methodology:

Mercury's base year emissions will be recalculated if misstatements or changes in methodology would have resulted in changes of more than 5% to total emissions in the base year. If the recalculation is significantly uncertain or unable to be carried out (due to lack of data) then Mercury will establish a new base year.

## 13.0 GHG EMISSIONS CALCULATIONS AND RESULTS.

Emissions source datasets were gathered from across the business from metered consumption points, financial records and from specific third-party suppliers such as liquid fossil fuel providers. The factors required to calculate the associated emissions are sourced from:

- Analysis of physical samples (for geothermal fugitive emissions only)
- New Zealand Government guidance documents published by the Ministry for the Environment (MfE), namely the:
  - Measuring emissions: A guide for organisations: 2024 detailed guide
  - Measuring emissions: A guide for organisations: 2023 detailed guide
- Environmentally Extended Input-Output Analysis, namely the Market Economics Limited, 2023, Consumption Emissions Modelling, report prepared for Auckland Council – referenced as a source of spend-based factors by MfE guidance.
- Ecoinvent, a life cycle inventory database.

Following these calculations, Mercury's emissions profile is dominated by Scope 1 emissions, namely fugitive emissions from geothermal electricity generation, which account for approximately 62.78% of all emissions. Scope 3 emissions from the sale of gas to Mercury customers are also material.



## 14.0 GHG SPECIFIC INFORMATION.

Mercury's base year (FY2022), FY2023 and FY2024 direct emissions by greenhouse gas, source and their respective Global Warming Potentials (GWP) are shown in the table below.

Mercury's direct emissions are converted to CO<sub>2</sub>e using GWP conversion factors from the latest MfE guidance documents. In previous years, direct methane emissions from geothermal sources were converted using different GWP factors due to variations in calculation methodologies.

Specifically, geothermal fugitive emissions were calculated and disclosed based on Mercury's submissions to the New Zealand Environmental Protection Authority for NZ ETS compliance, differing from the GWP used for non-geothermal sources. These methodologies have now been aligned.

**Table 10:** GHG Specific Information.

EMISSIONS SOURCE	FY2022			FY2023 <sup>4</sup>			FY2024 <sup>4</sup>		
	t	GWP	tCO <sub>2</sub> e	t	GWP	tCO <sub>2</sub> e	t	GWP	tCO <sub>2</sub> e
<b>Geothermal Emissions</b>									
Carbon Dioxide	183,421	1	183,421	175,732	1	175,732	192,596	1	192,596
Methane	1,557	25	38,925	1,466	25	36,650	1,561	28	43,711
<b>Mobile combustion, stationary combustion and other fugitive emissions</b>									
Carbon Dioxide	332	1	332	845	1	845	3,218	1	3,218
Methane	0.188	28	5	0.368	28	10	0.666	28	19
Nitrous Oxide	0.001	265	0.3	0.002	265	0.7	0.003	265	1
Sulphur Hexafluoride	0.002	22,800	52	0.017	23,500	403	0.00022	23500	5
<b>Total All Sources</b>									
Carbon Dioxide	183,753		183,753	176,577		176,577	195,814		195,814
Methane	1,557		38,930	1,466		36,660	1,562		43,729
Nitrous Oxide	0.001		0.3	0.002		0.7	0.003		1
Sulphur Hexafluoride	0.002		52	0.017		403	0.00022		5

<sup>4</sup> Numbers may not exactly total summary figures in Section 1 due to rounding.



15.0 GHG REMOVALS AND REDUCTIONS.

All emissions figures presented in this inventory are gross emissions, i.e. they exclude any biogenic or other removals.

Mercury has 10 contracts with forestry companies for the purchase of Emission Units (NZUs) under the New Zealand Emission Trading Scheme (NZ ETS) that have seen ~300kt of carbon sequestered annually. GHG removals resulting from these contracts have not been included or netted off from any emissions figures in this inventory.

16.0 GHG LIABILITIES.

Mercury uses a gas, sulphur hexafluoride (SF6), in circuit breakers that has a global warming potential much higher than carbon dioxide. Its storage and use require annual audit under the Resource Management Act and as a matter of good practice.

Total GHG holdings for the previous seven years have been calculated and are provided in the table opposite. The significant decrease in holdings during FY2020 is due to consolidation and centralisation of stored SF6 across Mercury sites.

Table 11: GHG Holdings.

GHG HOLDINGS	FY18	FY19	FY20	FY21	FY22	FY23	FY24
SF6 Holdings (kg)	12,397	12,373	1,191	1,156	1,574	1,726	1,928

Data from FY18 to FY21 presented in table 11 has not been subject to assurance procedures.

Mercury also has HFCs in refrigerators and some air conditioning systems; these have been estimated as well below materiality thresholds so are not reported here.

17.0 AUDIT OF THE GHG INVENTORY.

Mercury's FY2024 GHG Emissions Inventory report (excluding Appendixes A and B) has been audited to a limited level of assurance (refer Appendix C – Auditor's Opinion). Mercury's fugitive geothermal emissions are subject to monthly sampling and annual review and audit under the NZ ETS.

18.0 DESCRIPTION OF ADDITIONAL INDICATORS.

Mercury presents its generation emissions intensity and compares that to the New Zealand grid average<sup>5</sup> in Table 12.

<sup>5</sup> From Ministry for the Environment. 2024. Measuring emissions: A guide for organisations: 2024 detailed guide.





## 19.0 ASSESSMENT OF PERFORMANCE AGAINST RELEVANT BENCHMARKS.

### 19.1 Emissions Intensity.

Mercury's emissions intensity for FY2015, the base year (i.e., FY2022), FY2023, and FY2024, are shown in Table 12 and Figure 1. Mercury's emissions intensity is impacted by the volatility of hydro and wind generation. The intensity calculation uses gross Scope 1 generation emissions only, no adjustments have been made in relation to NZUs surrendered under the NZ ETS.

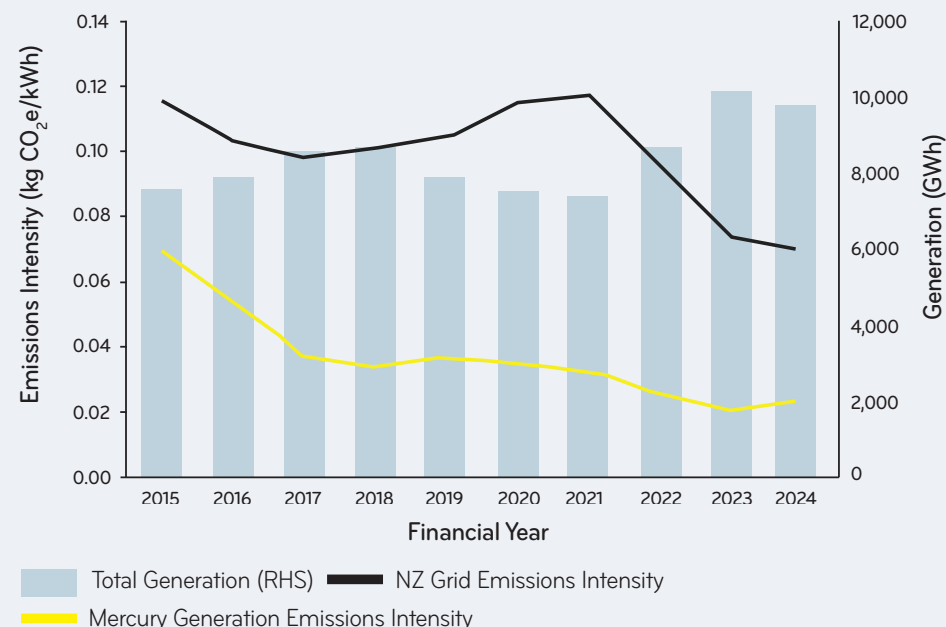
**Table 12:** GHG emissions, reductions and intensity calculations for Mercury's electricity.

GHG METRICS	FY15	-	FY22	FY23	FY24
Scope 1 - Direct Emissions from generation (tCO <sub>2</sub> e)	529,900		222,345	212,382	236,307
Total annual reductions (tCO <sub>2</sub> e)	-		19,199	9,963	-23,925
Total reductions from FY2015 (tCO <sub>2</sub> e)	-		307,555	317,518	293,593
% Reduction from FY2015 (tCO <sub>2</sub> e)	-		58%	60%	55%
Total Generation (GWh)	7,583		8,656	10,131	9,833
Emissions Intensity (kg CO <sub>2</sub> e/kWh)	0.070		0.026	0.021	0.024
Emissions Intensity NZ grid electricity* (kg CO <sub>2</sub> e/kWh)	0.119		0.098	0.075	0.073
Emissions Intensity reduction from FY2022 base year	-		-	18.39%	6.45%
Emissions Intensity reduction from FY2015			63%	70%	66%

\* The NZ grid Electricity Emissions Intensity is based on MfE advised figures. The FY figure is calculated by averaging the emissions intensities from that and the previous calendar years. The FY24 figure is based on CY2023 only.

Data from FY2015 to FY2021 presented in table 12, figure 1, and appendix B has not been subject to assurance procedures. FY16-FY21 information is presented in appendix B.

**Figure 1:** Generation Emissions Intensity FY2015 to FY2024.



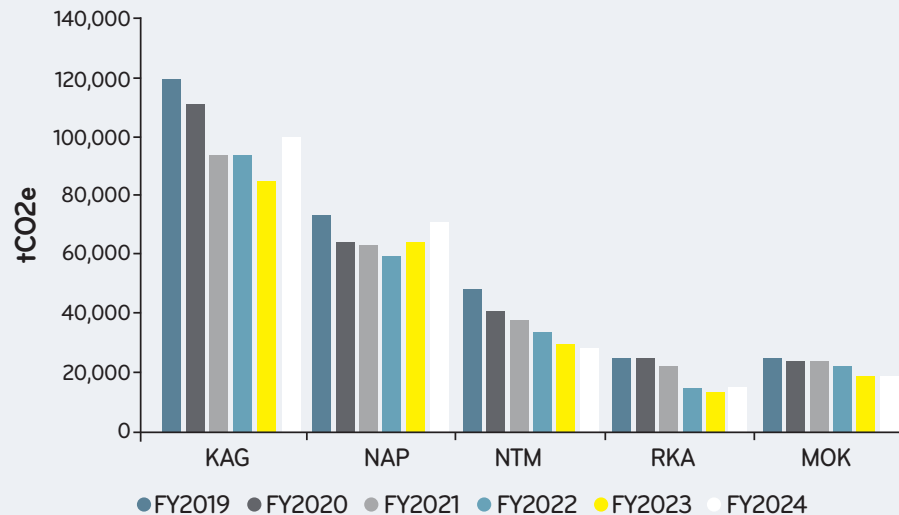
## 19.2 Geothermal Emissions and Emissions Intensity by Station.

Mercury's geothermal fugitive emissions and emissions intensity by station for the past six years are shown in Table 13 and Figures 2 and 3 below.

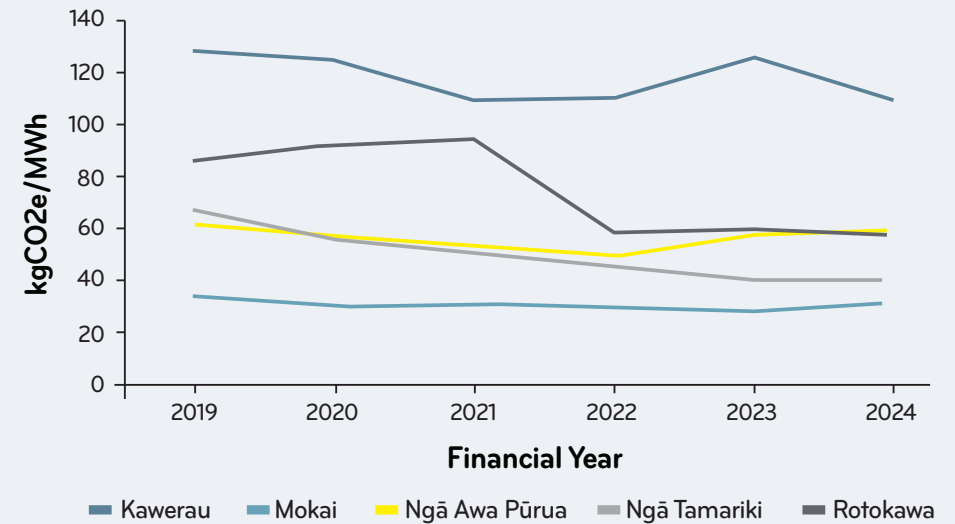
**Table 13:** Fugitive geothermal emissions by station.

GEOTHERMAL EMISSIONS (tCO <sub>2</sub> e)	FY19	FY20	FY21	FY22	FY23	FY24
Kawerau	119,799	111,108	94,065	94,313	85,209	100,933
Ngā Awa Pūrua	73,303	64,323	63,772	59,407	64,657	71,670
Ngā Tamariki	48,417	40,991	37,674	33,101	30,077	28,258
Rotokawa	23,498	25,113	22,621	13,899	13,237	16,082
Mōkai	24,758	23,676	23,411	21,625	19,201	19,364

**Figure 2:** Geothermal Emissions by Station.



**Figure 3:** Geothermal Emissions Intensity by Station.



Data from FY19 to FY21 presented in table 13 and figures 2 & 3 has not been subject to assurance procedures.



## 20.0 APPENDIX A - HISTORICAL DATA - GHG EMISSIONS INVENTORY SUMMARY.

SCOPE	CATEGORY	FY2015 TONNES CO2e	FY2016 TONNES CO2e	FY2017 TONNES CO2e	FY2018 TONNES CO2e	FY2019 TONNES CO2e	FY2020 TONNES CO2e	FY2021 TONNES CO2e
Scope 1 - direct emissions	Geothermal emissions for exported power	362,375	361,553	321,565	291,950	289,776	265,212	241,544
	Thermal combustion (gas-fired generation)	167,525	63,518	-	-	-	-	-
Sub-total generation emissions		<b>529,900</b>	<b>425,071</b>	<b>321,565</b>	<b>291,950</b>	<b>289,776</b>	<b>265,212</b>	<b>241,544</b>
Scope 1 – direct emissions contd.	Mobile combustion (company vehicle fleet)	461	492	485	449	458	281	316
	Stationary combustion (generation site plant and equipment)	1,712	36	1,611	27	70	85	63
	Fugitive emissions (SF6 releases)	98	26	26	10	10	1,249	3,208
Scope 2 – indirect emissions	Electricity consumption (location based)	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Total Scopes 1 & 2		<b>532,171</b>	<b>425,625</b>	<b>323,687</b>	<b>292,436</b>	<b>290,314</b>	<b>267,468</b>	<b>243,866</b>
Scope 3 – indirect emissions	Use of sold products (gas sales)	57,293	54,513	57,356	63,392	62,009	67,104	66,576
	Transmission and distribution losses for electricity consumption	n/r	n/r	n/r	n/r	n/r	n/r	n/r
Total All Scopes		<b>589,464</b>	<b>480,138</b>	<b>381,043</b>	<b>355,828</b>	<b>352,323</b>	<b>334,572</b>	<b>310,442</b>

Data from FY2015 to FY2021 presented in Appendix A has not been subject to assurance procedures.



## 21.0 APPENDIX B – HISTORICAL DATA - GHG EMISSIONS, REDUCTIONS AND INTENSITY CALCULATIONS FOR MERCURY'S ELECTRICITY.

GHG METRICS	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Scope 1 - Direct Emissions from generation (tCO <sub>2</sub> e)	425,071	321,565	291,950	289,776	265,212	241,544
Total annual reductions (tCO <sub>2</sub> e)	104,829	103,506	29,615	2,174	24,564	23,668
Total reductions from FY2015 (tCO <sub>2</sub> e)	104,829	208,335	237,950	240,124	264,688	288,356
% Reduction from FY2015 (tCO <sub>2</sub> e)	20%	39%	45%	45%	50%	54%
Total Generation (GWh)	7,891	8,571	8,640	7,874	7,503	7,386
Emissions Intensity (kg CO <sub>2</sub> e/kWh)	0.054	0.038	0.034	0.037	0.035	0.033
Emissions Intensity NZ grid electricity* (kg CO <sub>2</sub> e/kWh)	0.104	0.097	0.101	0.104	0.115	0.119
Emissions Intensity reduction from FY2022 base year	-	-	-	-	-	-
Emissions Intensity reduction from FY2015	23%	46%	52%	47%	49%	53%

\* The NZ grid Electricity Emissions Intensity is based on MfE advised figures. The FY figure is calculated by averaging the emissions intensities from that and the previous calendar years.  
Data from FY2016 to FY2021 presented in Appendix B has not been subject to assurance procedures.





## 22.0 APPENDIX C.



### **Independent Limited Assurance Report to the Directors of Mercury NZ Limited.**

#### **Assurance Conclusion**

Based on our limited assurance procedures performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Mercury NZ Limited's ("Mercury") Greenhouse Gas ("GHG") emissions inventory report for the year ended 30 June 2024 has not been prepared, in all material respects, in accordance with the Criteria defined below.

#### **Scope**

Ernst & Young Limited ("EY") has undertaken a limited assurance engagement, as defined by International Standards on Assurance Engagements, to report on Mercury's GHG emissions inventory report for the year ended 30 June 2024 (the "Report").

#### **Criteria applied by Mercury**

In preparing the Report, Mercury applied the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised version) (2004),

and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011) (the "Criteria"). The methods, assumptions and emissions factors adopted by Mercury in applying the Criteria are described on pages 14 to 15 of the Report.

#### **Mercury's Responsibility**

Mercury's Management is responsible, on behalf of Mercury for selecting the Criteria and preparation of the Report in accordance with the Criteria. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the Report, such that it is free from material misstatement, whether due to fraud or error.

#### **EY's Responsibility**

Our responsibility is to express a limited assurance conclusion on the Report based on the procedures we have performed and the evidence we have obtained.

Our engagement was conducted in accordance with the *International Standard for Assurance Engagements (New Zealand): Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ('ISAE (NZ) 3000') and *International Standard for Assurance Engagements (New Zealand): Assurance Engagements on Greenhouse Gas Statements* ('ISAE (NZ) 3410'). Those standards require that

we plan and perform this engagement to obtain limited assurance about whether the Report has been prepared, in all material respects, in accordance with the Criteria. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

Ernst & Young provides Audit, review and agreed upon procedures to Mercury. Partners and employees of our firm may deal with Mercury on normal terms within the ordinary course of trading activities of the business. We have no other relationship with, or interest in, Mercury.

#### **Our Independence and Quality Management**

We have complied with the independence and other ethical requirements of the 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.



The 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 or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

### **Description of procedures performed**

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the report and related information and applying analytical and other relevant procedures. Our procedures included:

- Conducting interviews with personnel to understand the business and relevant reporting process.
- Checking that emissions factors and methodologies have been correctly applied as per the Criteria.
- Checking organisational and operational boundaries to test completeness of greenhouse gas emissions sources.
- Comparing year on year activity-based greenhouse gas and energy data where possible.
- Considering sources of GHG emissions and the measurement methodology.
- Confirming the sources of data used in calculating the GHG emissions.
- Identifying and testing assumptions supporting the calculations.
- Testing of calculation and aggregation.
- Reviewing the appropriateness of the presentation of disclosures.
- Obtaining management representation.

We also performed such other procedures as we considered necessary in the circumstances.

### **Inherent Uncertainties**

The GHG quantification process is subject to scientific uncertainty, which arises because of incomplete scientific knowledge about the measurement of GHGs. Additionally, GHG procedures are subject to estimation uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

### **Use of our Assurance Report**

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than the Directors of Mercury, or for any purpose other than that for which it was prepared.

*Ernst & Young Limited*

Ernst & Young Limited,  
Auckland, New Zealand.  
16 August 2024.

