Mercury

GREENHOUSE GAS EMISSIONS INVENTORY REPORT

For FY2023 - the 12 months from 1 July 2022 to 30 June 2023

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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.

Prepared by:	**David Chua – Sustainability Strategy Analyst**		**DATE: 11 August 2023**
Signed off by:	Lucie Drummond – GM Sustainability		DATE: 11 August 2023

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1 GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY

SCOPE	CATEGORY	FY2022	FY2023
Scope 1 - direct emissions	Geothermal emissions for exported power	222,345	212,382
Sub-total generation emissions		**222,345**	**212,382**
Scope 1 – direct emissions contd.	Mobile combustion (company vehicle fleet)	246	398
	Stationary combustion (generation site plant and equipment)	93	462
	Fugitive emissions (SF6 releases)	52	403
Scope 2 – indirect emissions	Electricity consumption (location based)	1,108	632
Total Scopes 1 & 2		**223,844**	**214,277**
Scope 3 – indirect emissions	Transmission and distribution losses for electricity consumption	102	73
	Business travel and accommodation	210	1,176
	Use of sold products (gas sales)	84,597	133,529
Total All Scopes		**308,753**	**349,055**

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

1.1 FY2023 Changes in Organisational Structure

In December 2022 Mercury acquired the remaining 51.54% shareholding of NOW New Zealand Limited, becoming a 100% owner. Consequently the operations of NOW New Zealand Limited have been included in Mercury's operational boundary.

1.2 Material Restatements of Emissions

There have been no material restatements of prior year emissions in this FY2023 Emissions Inventory report. FY22 Scope 3 and total emissions have increased due to the inclusion of Scope 3 emissions associated with business travel and accommodation that were previously assessed and calculated but not disclosed.

1.3 Notable Movements in Emissions

The significant increase in Scope 3 gross emissions was primarily due to the acquisition of the Trustpower retail business, which included ~44,000 new natural gas connections, which was completed in May 2022. The increased emissions figures in FY2023 reflect a full year of accounting for the emissions associated with the larger post-acquisition gas sales portfolio versus two months (May and June 2022) in FY2022.

2 INTRODUCTION

Mercury New Zealand Limited (Mercury) is a 100% renewable electricity generator and multi-product retailer using natural resources such as hydro, geothermal and wind to provide our customers with low carbon electricity and retailing electricity, gas, broadband and telecommunication services.

This report covers Mercury's greenhouse gas (GHG) inventory spanning eight financial years and 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 STATEMENT OF INTENT

Mercury's reporting legislation is the Aotearoa New Zealand Climate Standards[1] with particular reference to parts 22-24 of Aotearoa New Zealand Climate Standard 1 (NZ CS1) which come 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[2] (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 DESCRIPTION OF MERCURY

4.1 Mercury

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

Mercury has recently commissioned the Turitea wind farm in the Tararua Ranges of the Manawatū region which is currently New Zealand's largest wind farm by capacity. Mercury has a pipeline of future wind development sites across the country.

Mercury also retails electricity, gas, broadband and telecommunications products to ~660,000 customers across New Zealand.

4.2 Sustainability Policies, Strategies and Programmes

In FY23, Mercury introduced our new 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 long-term cover five focus areas, Kiritaki / Customer, Arumoni / Commercial, Ngā Tāngata / Our People, Kōtuitanga / Partnerships and Kaitiakitanga / Stewardship. Sustainability underpins all of our long-term aspirations and is expressed under our Kaitiakitanga / 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 with one of our FY22-24 objectives being to:

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

[1] https://www.xrb.govt.nz/standards/climate-related-disclosures/aotearoa-new-zealand-climate-standards/
[2] https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf

Our Sustainability Policy[3] 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 PERSONS RESPONSIBLE

The person responsible for this GHG inventory is the GM Sustainability.

A team of people across Mercury are responsible for greenhouse gas accounting and reporting and have contributed to the creation of this report including:

Sustainability Strategy Analyst, Sustainability and Planning Manager, Trading Analytics Manager, Environmental Advisor, Business Support Co-ordinator, Senior Plant Chemist, Head of Telco, Commercial Services Manager, Commercial Services Specialist, BI Business Analyst, Energy Analyst, Analyst Lead, Commercial & Reconciliations Team Leader, Finance Services Team Leader, SAS Technology Lead, Facilities Manager

6 REPORTING PERIOD COVERED

This GHG inventory covers the period 1st July 2022 to 30th June 2023. Historical data (unverified) is provided for the period from 1st July 2014 to 30th June 2021.

7 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 2: Summary of entities and treatment of joint ventures

Entity	Principal Activity	Type	Interest Held (end of FY23)	Country	Included/Excluded
Mercury NZ Limited	Electricity Generation (Hydro and geothermal), electricity retail	Listed Company (NZX Main Board)	100%	New Zealand	Included – 100%
Mercury Geothermal Limited	Electricity generation (geothermal)	Subsidiary	100%	New Zealand	Included – 100%
NOW New Zealand Limited	Broadband retail	Subsidiary	100%	New Zealand	Included – 100%
TPC Holdings Ltd	Investment Holding	Associate	25%	New Zealand	Included – 100%
Rotokawa (Joint Venture)	Steamfield Operation	Joint Operation	64.8%	New Zealand	Included – 100%
Nga Awa Purua (Joint Venture)	Electricity Generation	Joint Operation	65%	New Zealand	Included – 100%
EnergySource LLC	Mineral extraction	Joint Venture	20.86%	United States	Excluded

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

EnergySource Minerals LLC	Mineral extraction	Joint Venture	18.99%	United States	Excluded

8 MERCURY FACILITIES

8.1 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. They are listed in the table below.

Table 3: Hydro Generation Facilities

Facility	First Operated	Description
Karapiro	1947	A 96MW plant with an average annual output of 511 GWh
Arapuni	1929	A 198MW plant with an average annual output of 872 GWh
Waipapa	1961	A 51MW plant with an average annual output of 242 GWh
Maraetai I and II	1952 and 1970 respectively	The two plants have a combined capacity of 360MW with an average annual output of 881 GWh
Whakamaru	1956	A 124MW plant with an average annual output of 500 GWh
Atiamuri	1958	A 84MW plant with an average annual output of 291 GWh
Ohakuri	1961	A 112MW plant with an average annual output of 405 GWh
Aratiatia	1964	A 90MW plant with an average annual output of 333 GWh

8.2 Geothermal 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 4: Geothermal Facilities

Facility	First Operated	Description
Kawerau	2008	A 103MW flash plant with an average annual output of 831 GWh
Mokai	2000	A 112MW flash plant with an average annual output of 800 GWh
Rotokawa	2000	A 38MW binary cycle plant with an average annual output of 262 GWh
Nga Tamariki	2013	A 82MW binary cycle plant with an average annual output of 705 GWh
Nga Awa Purua	2010	A 135MW 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 Nga Awa Purua geothermal stations.

8.3 Wind Generation Facilities

Mercury operates six wind farms in the North Island.

Table 5: Wind Generation Facilities

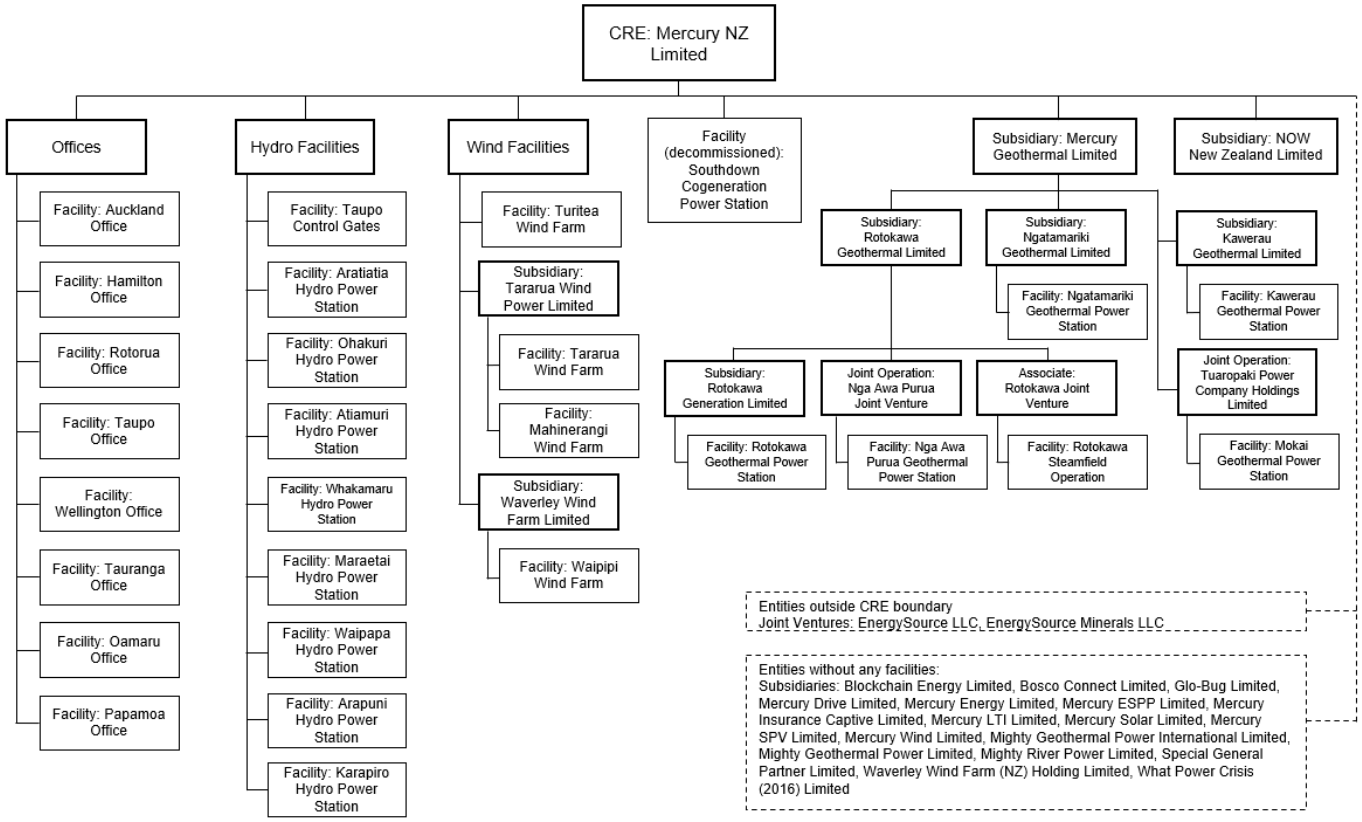
Facility	First Operated	Description
Turitea	2021	A 222MW wind farm with an average annual output of 840 GWh
Tararua I	1999	A 32MW wind farm with an average annual output of 114 GWh
Tararua II	2004	A 36MW wind farm with an average annual output of 131 GWh
Tararua III	2007	A 93MW wind farm with an average annual output of 318 GWh
Mahinerangi	2011	A 36MW wind farm with an average annual output of 101 GWh
Waipipi	2021	A 133MW wind farm with an average annual output of 455 GWh

8.4 Other Facilities

Other facilities also include offices in Auckland, Hamilton, Rotorua, Taupo, Wellington, Tauranga, Oamaru and Papamoa.

8.5 Organisation Chart

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



9 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 FY2023, the inclusion of a full year of large-scale broadband retailing activity (following the acquisition of the Trustpower retail business in FY2022) prompted the assessment of emissions associated with the end-of-life of broadband-related and other devices. This assessment has not resulted in the disclosure of any additional emissions sources. 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 Emissions Inclusions

Table 6: Summary of emissions source inclusions

Scope	Category	GHG emission source	Facilities included	Data source	Data collection unit	Method, data quality, uncertainty (qualitative)
1	**Fugitive emissions**	Fugitive emissions from geothermal generation	Kawerau, Mokai, Nga Awa Purua, Nga 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
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
1	**SF6 releases**	SF6 releases during operations	Kawerau, Mokai, Nga Awa Purua, Nga Tamariki, Rotokawa, Arapuni, Aratiatia, Atiamuri, Karapiro, Maraetai I and II, Ohakuri, Waipapa, 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
	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	Commercial Services	EFs from MfE guidance documents. Review of fuel card records, good data quality, very low level of uncertainty
	Stationary combustion	Fuel used in generators and on-site plant and equipment	Hydro, Kawerau, Nga Tamariki, Rotokawa	Delivery company data	Commercial Services	EFs from MfE guidance documents. Review of delivery company data, good data quality
2	**Electricity – Offices and other sites**	Electricity consumed in offices and internal sites	Auckland, Wellington, Taupo, Rotorua, Southdown, Hamilton,	Electricity internal customer category in financial records,	Customer	EFs from MfE guidance documents. Calculation based on internal

Scope	Category	GHG emission source	Facilities included	Data source	Data collection unit	Method, data quality, uncertainty (qualitative)
			Tauranga	electricity bills for facilities billed through agents		invoicing with some estimation, low level of uncertainty
2	**Electricity generation sites**	Grid electricity consumed at generation sites and Southdown	Hydro, geothermal and Southdown	SCADA extract	Wholesale markets	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 & Wholesale Markets	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	Category	GHG emission source	Facilities included	Data source	Data collection unit	Method, data quality, uncertainty (qualitative)
Scope 3: Subcategory 11 – Use of sold products	**Use of sold products (including distribution losses)**	Gas sales to customers (reticulated gas only)	Captured by Customer and Wholesale Markets	Gas sales records	Customer & Wholesale Markets	EFs from MfE guidance documents. Metered consumption from sales records from 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 sales to customers	Captured by	LPG sales invoices	Customer	EFs from MfE guidance documents. Invoiced volumes from purchase invoices so high-quality data

9.4 Other Emissions – PFCs

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

9.5 Other Emissions – CO2 emissions from the Combustion of Biomass

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

10 EMISSIONS SOURCE EXCLUSIONS

The emissions sources below are excluded from Mercury's GHG inventory reports. They are not considered material in the context of the inventory or to any of our specific stakeholders.

Table 7: Emissions Source Exclusions

Scope	Category	GHG emission source	Facilities included / description	Assessment / Reason for exclusion
1	**Refrigerant releases**	HFCs from air-conditioning systems	All generation sites and office locations	Difficult to obtain data, considered immaterial
Scope 3: Subcategory 1 – Purchased goods and services	**General maintenance, IT Services, Printing**	Emissions associated with general maintenance, the delivery of IT services and the creation of print materials	All	Assessed as being below materiality threshold
Scope 3: Subcategory 1 – Purchased goods and services	**Purchased goods and services**	Other purchased goods and services	N/A	Not assessed, no data available
Scope 3: Subcategory 2 – Capital goods	**Stay-In-Business Capital Expenditure**	Embodied emissions in capital goods purchased	All	Assessed as below materiality threshold, high level of data uncertainty due to spend-based assessment

Scope	Category	GHG emission source	Facilities included / description	Assessment / Reason for exclusion
Scope 3: Subcategory 2 – Capital goods	**Capital Expenditure**	Other capital expenditure	N/Z	Not assessed, no data available
Scope 3: Subcategory 4 – Upstream transportation and distribution	**Transportation and distribution of mail and sold products**	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	**Office Waste, Wastewater**	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	**Employee commuting**	Emissions associated with employee travel to and from work	All	Not assessed, no data available
Scope 3: Subcategory 8 – Upstream leased assets	**Leased Assets**	Direct emissions and emissions associated with power consumption from leased assets	All	Not assessed, considered immaterial as Mercury does not lease any significant assets
Scope 3: Subcategory 9 – Downstream transportation and distribution	**Transportation and distribution of products to customers**	Emissions associated with non-Mercury purchased transportation and distribution services of products to customers	N/A	Not assessed, considered irrelevant as Mercury does not conduct business activities in this area
Scope 3: Subcategory 10 – Processing of sold products	**Processing of sold products**	Emissions associated with processing of sold products	N/A	Not assessed, considered immaterial as Mercury's sold products do not undergo further processing
Scope 3: Subcategory 12 – End-of-life treatment of sold products	**End-of-life treatment of sold products**	Emissions associated with end-of-life of broadband routers, modems and household appliances	N/A	Assessed as below materiality threshold
Scope 3: Subcategory 13 – Downstream leased assets	**Leased Assets - Land Use**	Agricultural emissions	Mercury has very small landholdings around some of its hydro facilities which it leases to local farmers, mainly for grazing	Not assessed as these are outside Mercury's operational control, uncertain of methodology for calculating emissions and considered immaterial
Scope 3: Subcategory 14 – Franchises	**Franchises**	Emissions from operations of franchises	N/A	Not assessed, considered immaterial as Mercury does not grant franchise licenses
Scope 3: Subcategory 15 – Investments	**Investments**	Emissions from companies that Mercury provides capital and/or financing services	EnergySource LLCs, EnergySource Minerals LLC	Not assessed, Mercury does not have overall control of these entities and data has not been made available. Mercury will work on getting access to this data to assess materiality.

11 DATA COLLECTION AND UNCERTAINTIES

11.1 Data Collection

Mercury has developed robust GHG information systems to record fugitive geothermal emissions as these form 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 are 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 or assurance. Gas sales data is obtained via gas measuring systems that are subject to New Zealand gas measurement technical standards. Therefore, uncertainties within other datasets are considered to have no material impact on the resultant emissions inventory report.

12 THE BASE YEAR SELECTED

The chosen base year is 1st July 2021 to 30th June 2022 and is unchanged from previous reports; it has not been adjusted following the acquisition of the Trustpower retail business. We have also chosen not to retrospectively recalculate our FY2022 base year to include a full year of Trustpower retail emissions, i.e. the base year emissions only include the two months in FY2022 where Trustpower retail was under Mercury's operational control.

As noted in section 1, there have been no material restatements of prior year emissions in the FY2023 Emissions Inventory report. Total and Scope 3 emissions in the base year have increased due to the inclusion of Scope 3 emissions associated with business travel and accommodation that were previously assessed and calculated but not disclosed. This inclusion resulted in a 0.1% and 0.2% increase in total and Scope 3 emissions respectively.

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 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, namely the *Measuring Emissions: A guide for organisations: 2023 summary of emission factors* and the associated *Measuring emissions: A guide for organisations: 2023 detailed guide* both published by the Ministry for the Environment (MfE)
- 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 60% of all emissions. Scope 3 emissions from the sale of gas to Mercury customers are also material.

14 GHG SPECIFIC INFORMATION

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

Table 8: GHG Specific Information

Emissions Source	FY2022			FY2023[4]		
	t	GWP	tCO2e	t	GWP	tCO2e
Geothermal Emissions						
Carbon Dioxide	183,421	1	183,421	175,732	1	175,732
Methane	1,557	25	38,925	1,466	25	36,650
Mobile combustion, stationary combustion and other fugitive emissions						
Carbon Dioxide	332	1	332	845	1	845
Methane	0.188	28	5	0.368	28	10
Nitrous Oxide	0.001	265	0.3	0.002	265	0.7
Sulphur Hexaflouride	0.002	22,800	52	0.017	23,500	403
Total All Sources						
Carbon Dioxide	183,753		183,753	176,577		176,577
Methane	1,557		38,930	1,466		36,660
Nitrous Oxide	0.001		0.3	0.002		0.7
Sulphur Hexaflouride	0.002		52	0.017		403

Mercury's direct methane emissions from geothermal sources are converted to CO2e using a different GWP than from other sources due to variances in calculation methodologies. Specifically, geothermal fugitive emissions in this report have been calculated and disclosed on the same basis as Mercury's submissions to the New Zealand Environmental Protection Authority for Mercury's compliance with the NZ ETS with the methane GWP used and accepted for these calculations being sourced from the IPCCs Fourth Assessment Report. This varies from the methane GWP used for emissions from non-geothermal sources which is sourced (via MfE guidance documents) from the IPCCs Fifth Assessment Report.

15 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 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.

[4] Numbers may not exactly total summary figures in Section 1 due to rounding

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

Table 9: GHG Holdings

GHG Holdings	FY2018	FY2019	FY2020	FY2021	FY2022	FY2023
SF6 Holdings (kg)	12,397	12,373	1,191	1,156	1,574	1,726

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 AUDIT OF THE GHG INVENTORY

Mercury's FY2023 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 DESCRIPTION OF ADDITIONAL INDICATORS

Mercury presents its generation emissions intensity and compares that to the New Zealand grid average[5] in Table 10.

19 ASSESSMENT OF PERFORMANCE AGAINST RELEVANT BENCHMARKS

19.1 Emissions Intensity

Mercury's emissions intensity for FY2015, the base year (i.e. FY2022) and FY2023 are shown in Table 10 and Figure 1 below. 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 10: GHG emissions, reductions and intensity calculations for Mercury's electricity

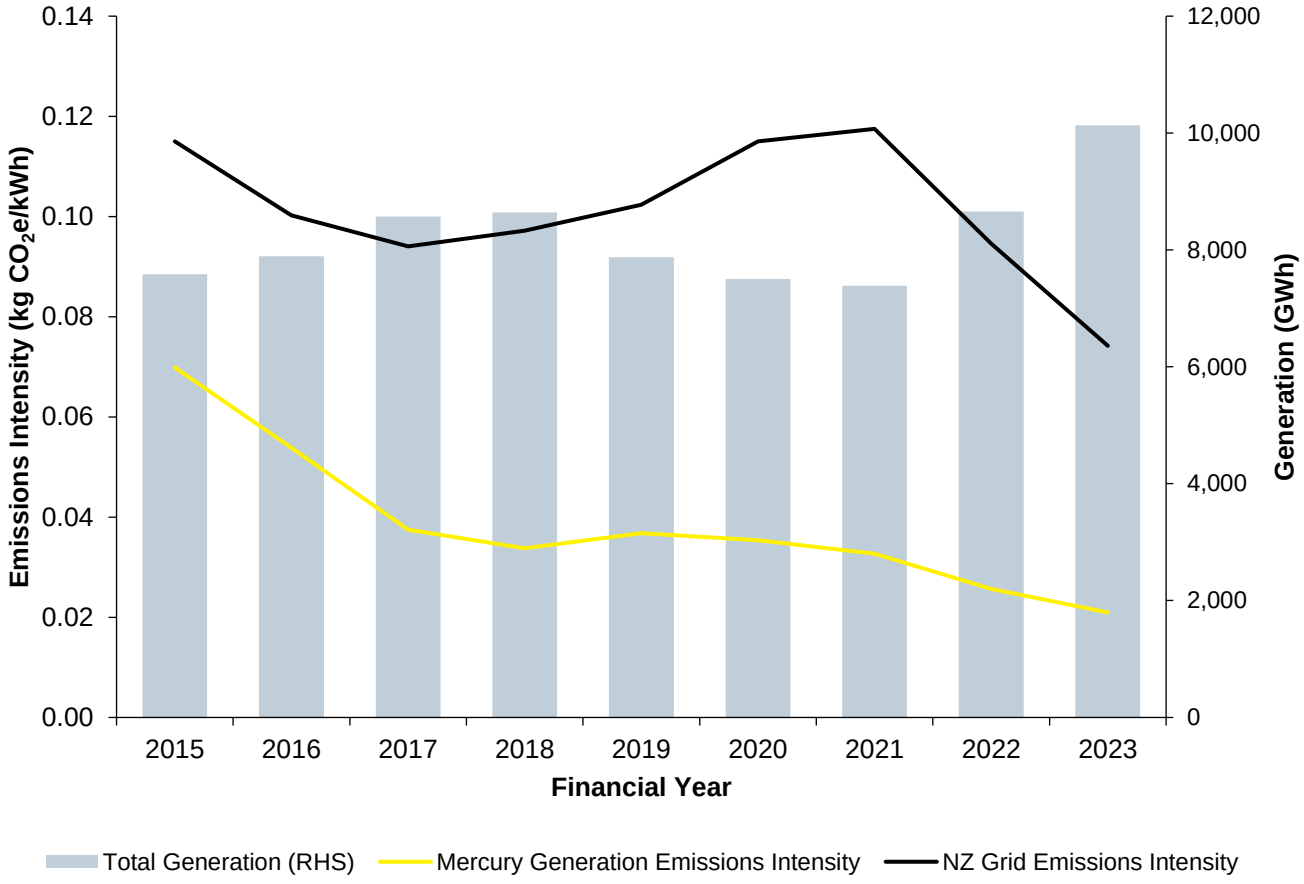
GHG Holdings	FY2015	-	FY2022	FY2023
Scope 1 - Direct Emissions from generation (tCO_2e)	529,900		222,345	212,382
Total annual reductions (tCO_2e)	-		19,199	9,963
Total reductions from FY2015 (tCO_2e)	-		307,555	317,518
% Reduction from FY2015	-		58%	60%
Total Generation (GWh)	7,583	-	8,656	10,131
Emissions Intensity (kg CO^2e/kWh)	0.070		0.026	0.021
Emissions Intensity NZ grid electricity* (kg CO^2e/kWh)	0.115		0.095	0.074
Annual reduction in emissions intensity	-		21%	18%
Intensity reduction from FY2015	-		63%	70%

* FY2023 NZ Grid Electricity Emissions Intensity is based on MfE advised figure for CY2022

Note: Historical data (unverified) for FY2016-2021 is provided in Appendix B

[5] From Ministry for the Environment. 2023. *Measuring Emissions: A guide for organisations: 2023 summary of emission factors.* Wellington: Ministry for the Environment.

Figure 1: Generation Emissions Intensity FY2015 to FY2023



19.2 Geothermal Emissions and Emissions Intensity By Station

Mercury's geothermal fugitive emissions and emissions intensity by station for the past five years are shown in Table 11 and Figures 2 and 3 below.

Table 11: Fugitive geothermal emissions by station

Geothermal Emissions (tCO_2e)	FY2019	FY2020	FY2021	FY2022	FY2023
Kawerau	119,799	111,108	94,065	94,313	85,209
Nga Awa Purua	73,303	64,323	63,772	59,407	64,657
Nga Tamariki	48,417	40,991	37,674	33,101	30,077
Rotokawa	23,498	25,113	22,621	13,899	13,237
Mokai	24,758	23,676	23,411	21,625	19,201

Figure 2: Geothermal Emissions By Station

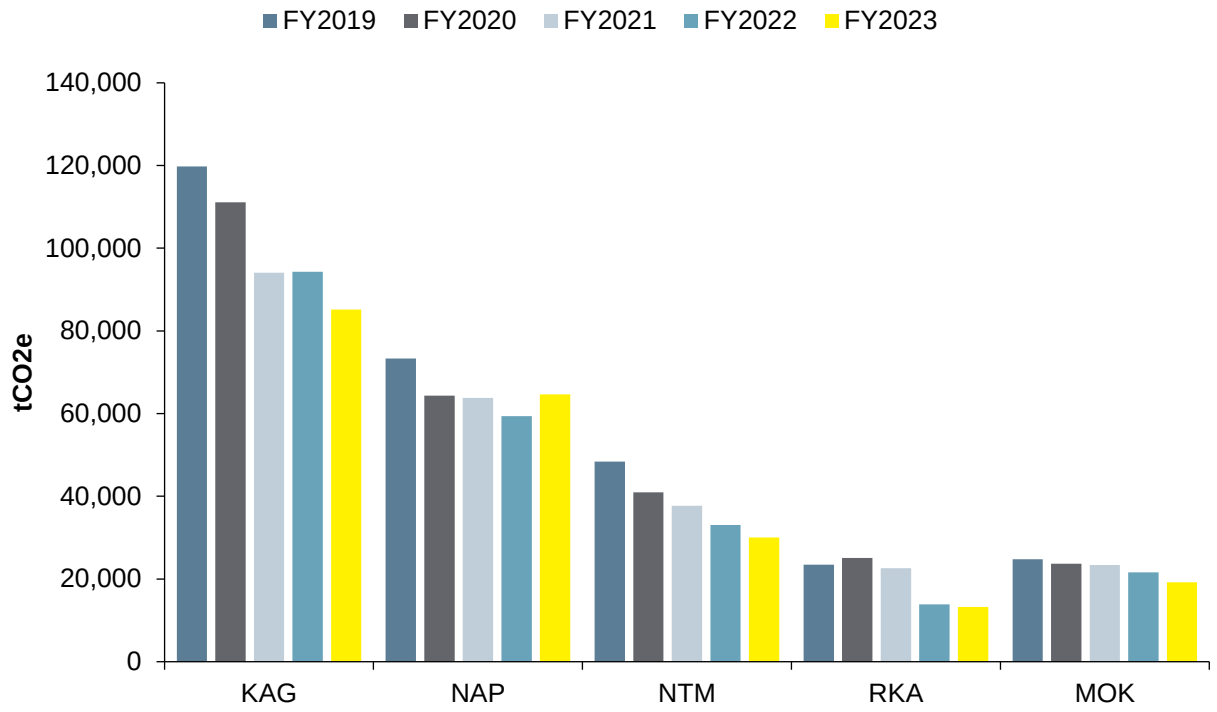
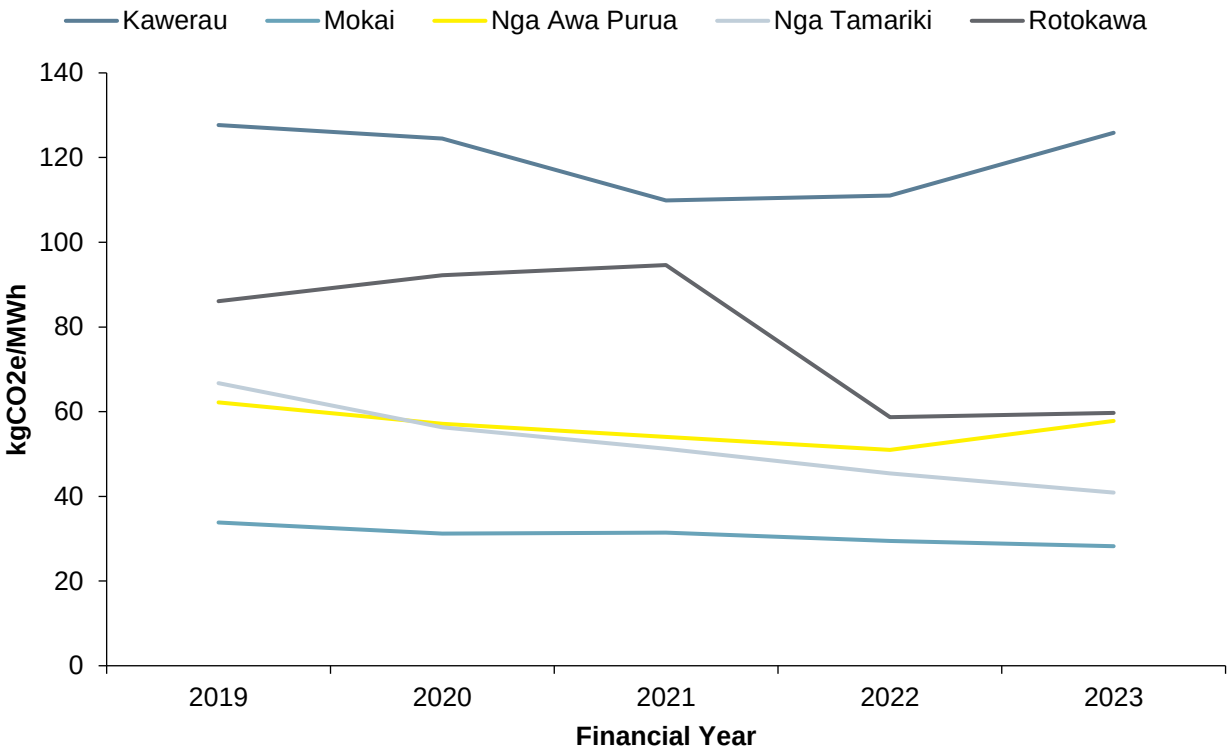


Figure 3: Geothermal Emissions Intensity By Station



20 Appendix A – Historical Data – GHG Emissions Inventory Summary

SCOPE	CATEGORY	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
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		**529,900**	**425,071**	**321,565**	**291,950**	**289,776**	**265,212**	**241,544**
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		**532,171**	**425,625**	**323,687**	**292,436**	**290,314**	**267,468**	**243,866**
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		**589,464**	**480,138**	**381,043**	**355,828**	**352,323**	**334,572**	**310,442**

21 Appendix B – Historical Data - GHG emissions, reductions and intensity calculations for Mercury's electricity

GHG Holdings	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Scope 1 - Direct Emissions from generation (tCO_2e)	425,071	321,565	291,950	289,776	265,212	241,544
Total annual reductions (tCO_2e)	104,829	103,506	29,615	2,174	24,564	23,668
Total reductions from FY2015 (tCO_2e)	104,829	208,335	237,950	240,124	264,688	288,356
% Reduction from FY2015	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^2e/kWh)	0.054	0.038	0.034	0.037	0.035	0.033
Emissions Intensity NZ grid electricity* (kg CO^2e/kWh)	0.100	0.094	0.097	0.102	0.115	0.103
Annual reduction in emissions intensity	23%	30%	10%	-9%	4%	7%
Intensity reductions from FY2015	23%	46%	52%	47%	49%	53%

22 Appendix C – Auditor's Opinion

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Building a better working world

Independent accountant's assurance report to the Directors and Management of Mercury NZ Limited.

Conclusion

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to Mercury NZ Limited's ('Mercury') greenhouse gas ('GHG') inventory emissions for the year ended 30 June 2023, in order for it to be in accordance with the Criteria.

Scope

We have been engaged by Mercury NZ Limited to perform a 'limited assurance engagement,' as defined by International Standards on Assurance Engagements, here after referred to as the engagement, to report on the accompanying GHG statement of Mercury for the year ended 30 June 2023 comprising Mercury's GHG inventory emissions (including Scope 1, Scope 2 and Scope 3 emissions) (the "Subject Matter").

Other than as described in the preceding paragraph, which sets out the scope of our engagement, we did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.

Criteria applied by Mercury NZ Limited

In preparing Mercury's GHG inventory emissions (including Scope 1, Scope 2 and Scope 3 emissions), Mercury NZ Limited applied the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Criteria). The Criteria can be accessed on the Greenhouse Gas Protocol's website.

Mercury NZ Limited's responsibilities

Mercury NZ Limited's management is responsible for selecting the Criteria, and for presenting the GHG inventory emissions (including Scope 1, Scope 2 and Scope 3 emissions) in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the GHG statement, such that it is free from material misstatement, whether due to fraud or error.

EY's responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

Our engagement was conducted in accordance with the *International Standard on Assurance Engagements ISAE (NZ) 3000: Assurance Engagements Other than Audits, ISAE (NZ) 3410: Assurance Engagements on Greenhouse Gas Statements* and the terms of reference for this engagement as agreed with Mercury NZ Limited on 31 May 2023.

Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Subject Matter in order for it to be in accordance with the Criteria, and to issue a report. 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.

Our independence and quality management

We have maintained our independence and confirm that we have met the 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, and we have fulfilled our ethical responsibilities in accordance with these requirements. We confirm we have the required competencies and experience to conduct this assurance engagement.

Ernst & Young applies Professional and Ethical Standard 3 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 for 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.

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Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

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 (or measurement) uncertainty resulting from the measurement and calculation processes used to quantify emissions within the bounds of existing scientific knowledge.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the GHG inventory emissions (including Scope 1, Scope 2 and Scope 3 emissions) and related information, and applying analytical and other relevant procedures.

Our procedures included:

- Conducting interviews with personnel to understand the business and reporting process.
- Checking that the flow of information from site metering or monitoring through to calculation spreadsheets is accurate and any calculations are appropriate for geothermal emissions.
- Confirming 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.
- Tests of calculation and aggregation.
- Comparing year on year activity-based greenhouse gas and energy data where possible.
- Checking organisational and operational boundaries to test completeness of greenhouse gas emissions sources.
- Checking that emissions factors and methodologies have been correctly applied as per the criteria.
- Reviewing the appropriateness of the presentation of disclosures.

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

Restricted use
This report is intended solely for the information and use of Mercury NZ Limited and is not intended to be and should not be used by anyone other than those specified parties.

Ernst & Young

Ernst & Young Limited
11 August 2023