Mercury

GREENHOUSE GAS EMISSIONS INVENTORY REPORT

For FY2022 - the 12 months from 1 July 2021 to 30 June 2022

DISCLAIMER

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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 offsets 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.

Historical data in this emissions inventory report has been restated, namely:

Mercury's geothermal emissions from FY2015-FY2021 have been restated due to a change in the operational consolidation approach in the determination of organisational boundaries. Emissions from non-wholly owned entities under Mercury's operational control that were previously partially accounted for in proportion to Mercury's equity share have now been fully included, i.e. at a 100% proportion.

Historical Scope 2 and Scope 3 emissions from previous years that were previously reported have also been excluded due to a change in reporting methodology.

Prepared by:	**David Chua – Sustainability Strategy Analyst**		**DATE: 23 May 2023**
Signed off by:	Lucie Drummond – GM Sustainability		DATE: 23 May 2023

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1 GREENHOUSE GAS EMISSIONS INVENTORY SUMMARY

SCOPE	CATEGORY	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022
Scope 1 - direct emissions	Geothermal emissions for exported power	362,375	361,553	321,565	291,950	289,776	265,212	241,544	222,345
	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**	**222,345**
Scope 1 – direct emissions contd.	Mobile combustion (company vehicle fleet)	461	492	485	449	458	281	316	246
	Stationary combustion (generation site plant and equipment)	1,712	36	1,611	27	70	85	63	93
	Fugitive emissions (SF6 releases)	98	26	26	10	10	1,249	3,208	52
Scope 2 – indirect emissions	Electricity consumption (location based)	n/r	n/r	n/r	n/r	n/r	n/r	n/r	1,108
Total Scopes 1 & 2		**532,171**	**425,625**	**323,687**	**292,436**	**290,314**	**267,468**	**243,866**	**223,844**
Scope 3 – indirect emissions	Use of sold products (gas sales)	57,293	54,513	57,356	63,392	62,009	67,104	66,576	84,597
	Transmission and distribution losses for electricity consumption	n/r	n/r	n/r	n/r	n/r	n/r	n/r	102
Total All Scopes		**589,464**	**480,138**	**381,043**	**355,828**	**352,323**	**334,572**	**310,442**	**308,543**

1.1 FY2022 Changes in Organisational Structure

In August 2021 Mercury acquired the New Zealand assets of Tilt Renewables which included five operating wind farms and an office in Papamoa. In May 2022 Mercury acquired the Trustpower retail business, adding offices in Tauranga and Oamaru to its physical footprint and broadband and telecommunications products to its product offerings.

1.2 Material Restatements of Emissions

Mercury's geothermal emissions from FY2015-FY2021 have been restated due to a change in the operational consolidation approach in the determination of organisational boundaries. Emissions from non-wholly owned entities under Mercury's operational control that were previously partially accounted for in proportion to Mercury's equity share have now been fully included, i.e. at a 100% proportion.

Historical scope 2 and Scope 3 emissions from previous years that were previously reported have also been excluded due to a change in reporting methodology.

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 (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).

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 commissioned the northern section of the Turitea wind farm in the Tararua Ranges of the Manawatū region and is currently building the southern section which, once complete, will make Turitea New Zealand's largest wind farm. Mercury also has a pipeline of future wind development sites across the country.

Mercury also retails electricity, gas, broadband and telecommunications products to over 500,000 customers across New Zealand.

[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

4.2 Sustainability Policies, Strategies and Programmes

Mercury's mission of energy freedom envisages the whole of Aotearoa New Zealand being stronger economically and more sustainable through better use of homegrown, renewable energy.

Sustainability at Mercury is built on our five strategic pillars of Commercial, People, Customer, Partnerships and Kaitiakitanga. These pillars support a strategy integrating sustainable business practice integrating what matters most to both Mercury and our stakeholders. They form the framework for our long-term strategy and short-term business planning and reflect the six capitals of the Integrated Reporting <IR> framework.

Our strategic framework includes a 2030 long-term goal for all five pillars. Under our Kaitiakitanga pillar, our goal for 2030 is: Mercury will be recognised as a leader in the ultra-long-term management of both physical and natural assets. Sustainability is also integrated into our short-term business planning; one of our FY22-24 strategic objectives is to 'Play a leading role in New Zealand's successful transition to a low-carbon economy.'

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, Trading Analytics Manager, Environmental Advisor, Business Support Co-ordinator, Senior Plant Chemist, Commercial Services Manager, Commercial Services Specialist, BI Business Analyst, Energy Analyst, Analyst Lead, SAS Technology Lead, Facilities Manager

6 REPORTING PERIOD COVERED

This GHG inventory covers the period 1st July 2021 to 30th June 2022. 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 FY22)	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%
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%
NOW New Zealand Limited	Broadband retail	Associate	48.46%	New Zealand	Excluded
EnergySource LLC	Mineral extraction	Joint Venture	20.86%	United States	Excluded
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 plant 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
Ngatamariki	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 112MW wind farm with an average annual output of 470 GWh with a second stage under construction which will lift total capacity to 222MW and annual output to 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

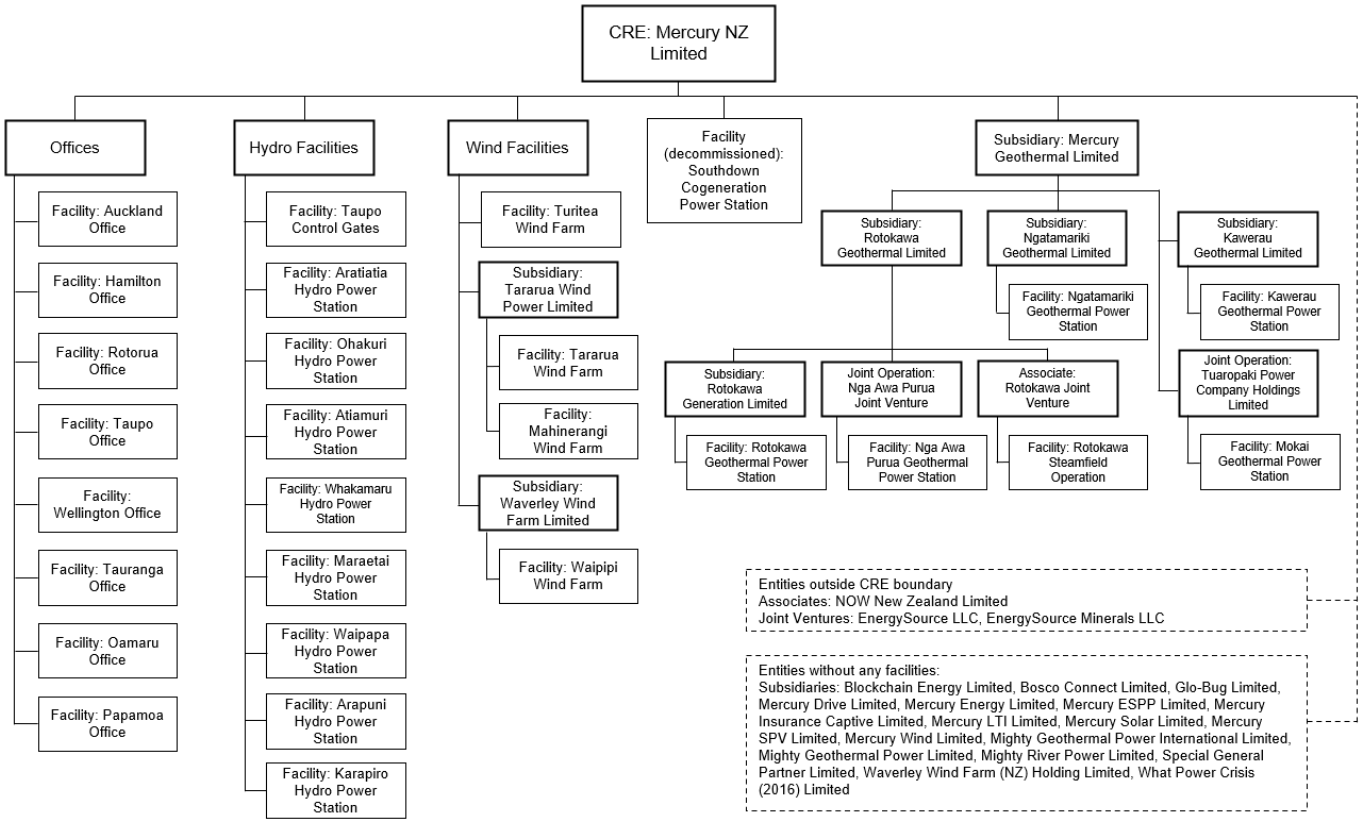
Mahinerangi	2011	A 36MW wind farm with an average annual output of 101 GWh
Waipipi	2021	A 133MW wind farm with an average annual output of 455 GWh

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.

For FY2022, the addition of broadband retailing and wind farm facilities has not resulted in 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 5: 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, Ngatamariki, Rotokawa	Records from sites, submitted as part of Emissions Trading Scheme requirements for the Crown	Geothermal Resources	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 Emissions Trading Scheme 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, Ngatamariki, 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	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	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, Ngatamariki, Rotokawa	Delivery company data	Commercial Services	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,	Electricity internal customer category in financial	Customer	Calculation based on internal invoicing with some

Scope	Category	GHG emission source	Facilities included	Data source	Data collection unit	Method, data quality, uncertainty (qualitative)
			Southdown, Hamilton, Tauranga	records, electricity bills for facilities billed through agents		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	Calculation based on recorded revenue meter data, low level of uncertainty but some lines consumption may not be Mercury's
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	Metered consumption from sales records from Customer so high-quality data, carbon is included in the offsets required under the ETS
Scope 3: Subcategory 11 – Use of sold products	**Use of sold products**	LPG sales to customers	Captured by	LPG sales invoices	Customer	Invoiced volumes from purchase invoices so high-quality data
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	Calculation based on internal invoicing with some estimation and recorded revenue meter data, low level of uncertainty

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 6: Emissions Source Exclusions

Scope	Category	GHG emission source	Facilities included	Reason for exclusion
1	**Refrigerant releases**	HFCs from air-conditioning systems	All generation sites and office locations	Difficult to obtain data, considered immaterial
3	**Land Use**	Agricultural emissions	Mercury has very small landholdings around some of its hydro facilities which it leases to local farmers, mainly for grazing	Outside Mercury's operational control, uncertain of methodology for calculating emissions and considered immaterial
3	**Drilling and development (one-time)**	Fuel used in generators and on-site plant and equipment	Hydro, Kawerau, Ngatamariki, Rotokawa	Below materiality threshold in FY22
3	**Business travel, accommodation**	Emissions from flights and accommodation	All	Below materiality threshold
3	**Mileage**	Emissions from staff travel to and from workplaces	All	Below materiality threshold, high level of uncertainty.
3	**Stay-In-Business Capital Expenditure**	Embodied emissions in capital goods purchased	All	Below materiality threshold, high level of data uncertainty.
3	**General maintenance**	Emissions associated with general maintenance	All	Below materiality threshold, high level of data uncertainty
3	**IT Services**	Emissions associated with the delivery of IT services	All	Below materiality threshold, high level of data uncertainty
3	**Printing**	Emissions associated with creation of print materials	All	Below materiality threshold, high level of data uncertainty
3	**Postage**	Emissions associated with delivery of print, mail and post	All	Below materiality threshold, high level of data uncertainty
3	**Office Waste**	Emissions associated with waste to landfill from offices	All offices	Below materiality threshold
3	**Waste & Wastewater**	Emissions associated with water and wastewater treatment	All offices	Below materiality threshold

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 Emissions Trading Scheme 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, audit 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. This has been changed from the previous base year of FY2015 due to the acquisition of the Trustpower retail business and the associated significant (~90%) increase in Scope 3: Subcategory 11 – Use of Sold Products (Gas) emissions due to this acquisition.

12.1 Base Year Recalculation Methodology

Mercury's base year emissions will be recalculated in the future if changes to the business (e.g. through acquisition or divestment) would result 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 calculated from physical samples or sourced from New Zealand Government guidance documents, namely the *Measuring Emissions: A guide for organisations: 2022 summary of emission factors* and the associated *Measuring emissions: A guide for organisations: 2022 detailed guide* both published by the Ministry for the Environment.

Following these calculations, Mercury's emissions profile is dominated by Scope 1 emissions, namely fugitive emissions from geothermal electricity generation, which account for approximately two thirds of all emissions. Scope 3 emissions from the sale of gas to Mercury customers are also material and are expected to increase following the acquisition of the Trustpower retail business. Other sources of emissions are considered immaterial.

14 GHG SPECIFIC INFORMATION

Mercury's FY2022 direct emissions by greenhouse gas and their respective Global Warming Potentials are shown in Table 7 below.

Table 7: GHG Specific Information

Greenhouse Gas	2022 (t)	GWP
Carbon Dioxide	183,421	
Methane	1,557	25

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.

Total GHG holdings for the previous five years have been calculated and are provided in Table 8 below. The significant decrease in holdings during 2020 is due to consolidation and centralisation of stored SF6 across Mercury sites.

Table 8: GHG Holdings

GHG Holdings	2018	2019	2020	2021	2022
SF6 Holdings (kg)	12,397	12,373	1,191	1,156	1,574

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

17 AUDIT OF THE GHG INVENTORY

Mercury's FY2022 GHG Emissions Inventory report has been audited to a limited level of assurance (refer Appendix A – 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[3] in Table 8.

19 ASSESSMENT OF PERFORMANCE AGAINST RELEVANT BENCHMARKS

19.1 Emissions Intensity

Mercury's emissions intensity for the previous eight financial years is shown in Table 8 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 8: GHG emissions, reductions and intensity calculations for Mercury's electricity

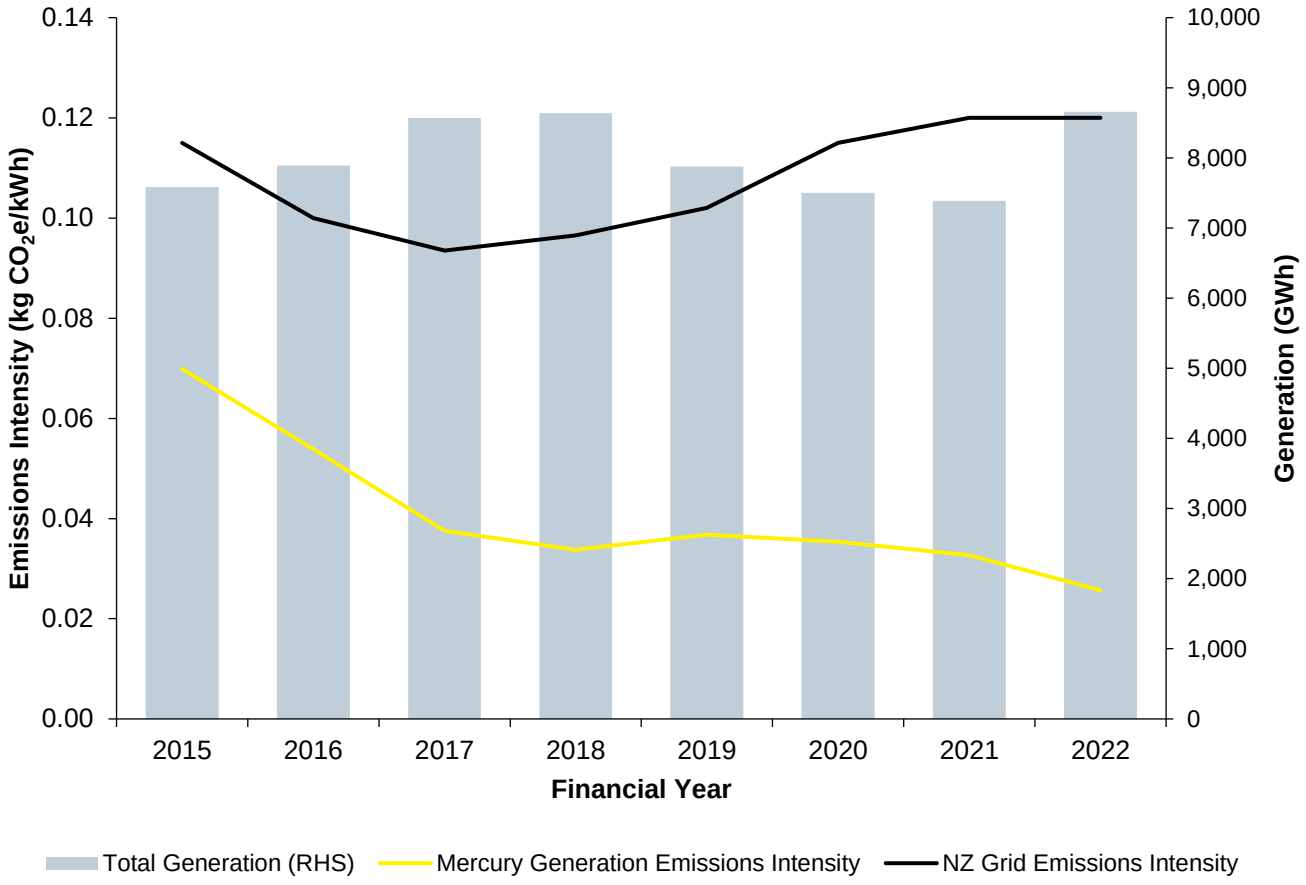
GHG Holdings	2015	2016	2017	2018	2019	2020	2021	2022
Scope 1 - Direct Emissions from generation (tCO_2e)	529,900	425,071	321,565	291,950	289,776	265,212	241,544	222,345
Total annual reductions (tCO_2e)	-	104,829	103,506	29,615	2,174	24,564	23,668	19,199
Total reductions from FY2015 (tCO_2e)	-	104,829	208,335	237,950	240,124	264,688	288,356	307,555
% Reduction from FY2015	-	20%	39%	45%	45%	50%	54%	58%
Total Generation (GWh)	7,583	7,891	8,571	8,640	7,874	7,503	7,386	8,656
Emissions Intensity (kg CO^2e/kWh)	0.070	0.054	0.038	0.034	0.037	0.035	0.033	0.026

[3] From Ministry for the Environment. 2022. *Measuring Emissions: A guide for organisations: 2022 summary of emission factors.* Wellington: Ministry for the Environment.

Emissions Intensity NZ grid electricity* (kg CO^2e/kWh)	0.115	0.100	0.094	0.097	0.102	0.115	0.120	0.120
Annual reduction in emissions intensity	-	23%	30%	10%	-9%	4%	7%	21%
Intensity reductions from FY2015	-	23%	46%	52%	47%	49%	53%	63%

* FY2021 and FY2022 figures based on CY2020 NZ Grid Electricity Emissions Intensity

Figure 1: Generation Emissions Intensity 2015 to 2022



19.2 Geothermal Emissions and Emissions Intensity By Station

Mercury's geothermal fugitive emissions and emissions intensity by station are shown in Table 9 and Figures 2 and 3 below.

Table 9: Fugitive geothermal emissions by station

Geothermal Emissions (tCO_2e)	2018	2019	2020	2021	2022
Kawerau	112,158	119,799	111,108	94,065	94,313
Nga Awa Purua	80,009	73,303	64,323	63,772	59,407
Ngatamariki	50,594	48,417	40,991	37,674	33,101
Rotokawa	23,858	23,498	25,113	22,621	13,899

Mokai	25,332	24,758	23,676	23,411	21,625

Figure 2: Geothermal Emissions By Station

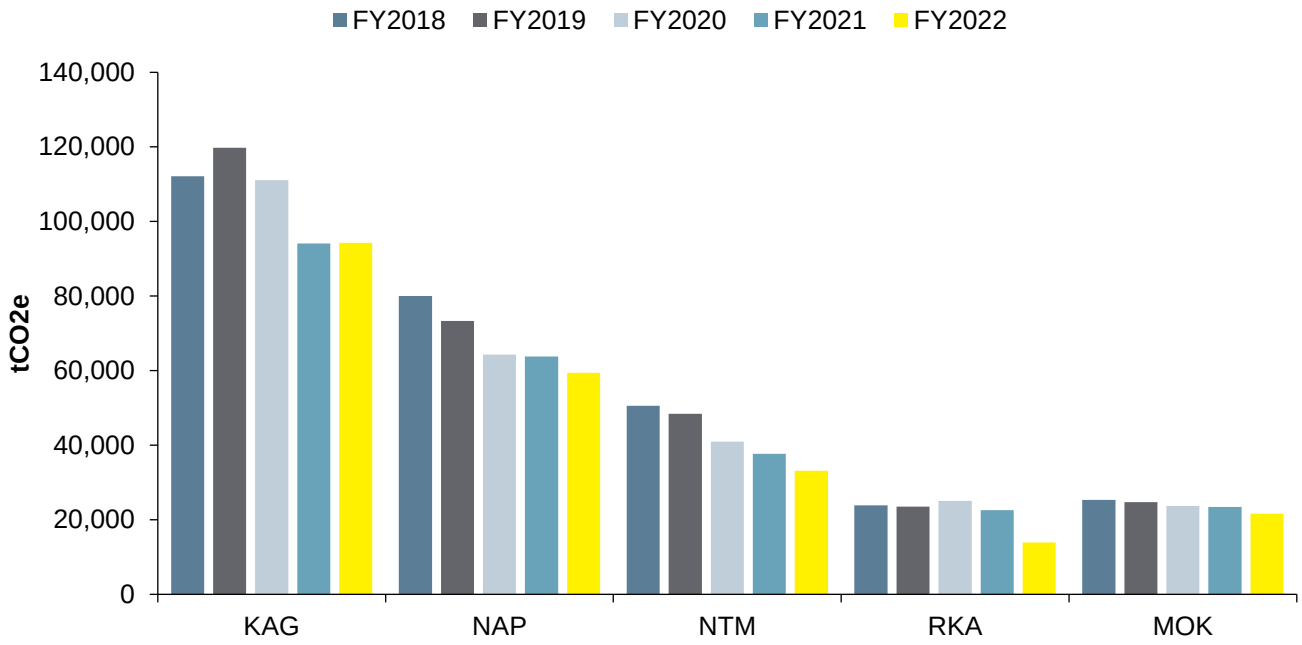
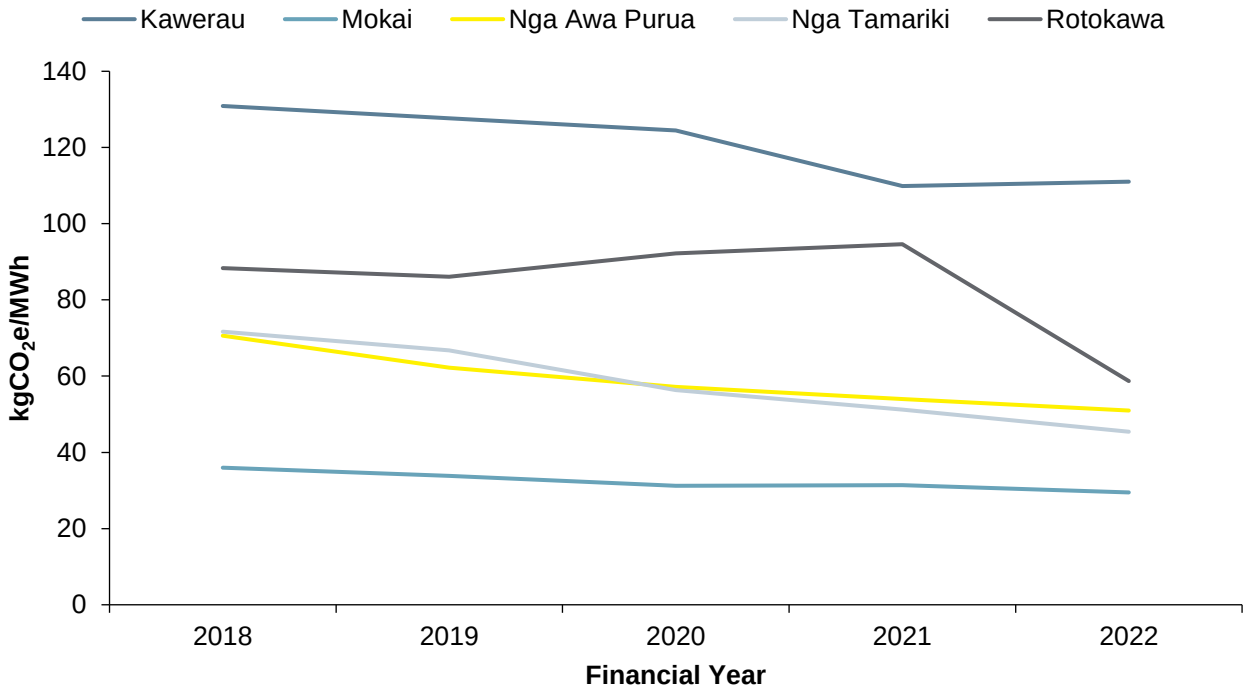


Figure 3: Geothermal Emissions Intensity By Station



20 Appendix A – Auditor's Opinion

Ernst & Young Limited
2 Takutai Square
Britomart
Auckland 1010
PO Box 2146 Auckland 1140

Tel: +64 9 377 4790
Fax: +64 9 309 8137
ey.com/nz

Building a better working world

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

Assurance Conclusion

Based on our limited assurance procedures described below, nothing has come to our attention that causes us to believe that Mercury NZ Limited's ('Mercury') greenhouse gas ('GHG') emissions inventory ('GHG Inventory') disclosed in Mercury's Greenhouse Gas Emissions Inventory Report for the year ended 30 June 2022, has not been prepared and presented fairly, in all material respects, in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard and emissions factors .

Scope
Ernst & Young Limited ('EY') has performed a limited assurance engagement in relation to Mercury NZ Limited's ('Mercury') Scope 1, Scope 2 and Scope 3 emissions, contained in Mercury's Greenhouse Gas Emissions Inventory Report for the year ended 30 June 2022 (the 'Subject Matter') in order to conclude that nothing has come to our attention that the GHG inventory does not meet, in all material respects, the requirements of the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard ('The GHG Protocol').

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.

Subject Matter and Criteria
The Subject Matter for this limited assurance engagement is Mercury's GHG inventory emissions (including Scope 1, Scope 2 and Scope 3 emissions) for the year ended 30 June 2022.

The criteria for our assurance engagement were the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Emissions factors from the Ministry for the Environment (MfE) Measuring emissions: A guide for organisations: 2022 detailed guide.

The Criteria was primarily designed to guide the preparation of a GHG inventory; As a result, the subject matter information may not be suitable for another purpose.

Management responsibilities
The management of Mercury is responsible for selecting the Criteria, and for presenting the Subject Matter 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 for Assurance Engagements: Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ('ISAE (NZ) 3000') and *International Standard for Assurance Engagements: Assurance Engagements on Greenhouse Gas Statements* ('ISAE (NZ) 3410'), and the terms of reference for this engagement as agreed with Mercury on 4 April 2023. Those standards require that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Subject Matter is presented 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.

Level of Assurance
A limited assurance engagement consists of making enquiries and applying analytical, and other evidence-gathering procedures sufficient for us to obtain a meaningful level of assurance as the basis for providing a negative form of conclusion. The procedures performed depend on the assurance practitioner's judgement including the risk of material misstatement of the specific activity data, whether due to fraud or error. While we considered the effectiveness of Management's internal controls when determining the nature and extent of our procedures, these procedures were not designed to provide assurance on internal controls. We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

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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 control 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. 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.

The engagement consisted of making enquiries, primarily of persons responsible for preparing the Subject Matter 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.

Limitations on scope
There are inherent limitations in performing assurance - for example, assurance engagements are based on selective testing of the information being examined - and it is possible that fraud, error, or non-compliance may occur and not be detected. There are additional inherent risks associated with assurance over non-financial information including reporting against standards which require information to be assured against source data compiled using definitions and estimation methods that are developed by the reporting entity. Finally, adherence to ISAE 3000 (NZ), ISAE 3410 (NZ), and the GHG Protocol is subjective and will be interpreted differently by different stakeholder groups.

Our assurance was limited to the Subject Matter and did not include statutory financial statements. While 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. Our assurance is limited to policies, and procedures in place as of 30 June 2022, ahead of the publication of Mercury's GHG Inventory.

Independence
We confirm that EY has complied with all professional regulations relating to Independence in relation to this engagement. EY has stringent policies and procedures in place to ensure independence requirements are addressed and monitored on a timely basis.

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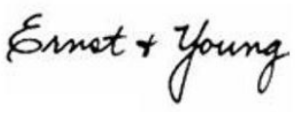
Use of Report

Our responsibility in performing our assurance activities is to the Directors and Management of Mercury only, and in accordance with the terms of reference for this engagement, as agreed with Mercury. We do not therefore accept or assume any responsibility for any other purpose or to any other person or organisation. Any reliance any such third party may place on the Subject Matter is entirely at its own risk. No statement is made as to whether the Criteria are appropriate for any third-party purpose.



Ernst & Young Limited
22 May 2023