



ENERGY

# **CY23 Greenhouse Gas Inventory Report**

**Z Energy Limited**

# Executive Summary

## This is the greenhouse gas (GHG) emissions inventory report for Z Energy Ltd and subsidiaries (Z) for the financial year 1 January to 31 December 2023 (CY23).

This is Z's first full year (twelve-month) report following the change to Z's financial year to start 1 January and end 31 December to align with its ultimate parent company, Ampol Limited, a company registered in Australia. It is also Z's first report following a base year re-calculation from FY20 (1 April 2019 – 31 March 2020) to CY19 (1 January 2019 to 31 December 2019), see section 4 for more details.

Z's inventory has been prepared in accordance with guidance from the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (GHG Protocol). The GHG Protocol is the widely accepted methodology for organisational carbon accounting and is supplemented by the Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

In 2023, Z engaged third party consultants Thinkstep to complete a GHG Reporting Policy Guide, including a base year recalculation policy, to guide preparation of this inventory from inception through to final reporting and ensure alignment of the GHG inventory with the accounting requirements of the GHG Protocol standards.

The inventory accounts for all direct Scope 1 and Scope 2 emissions and selected Scope 3 emissions of the six Kyoto GHGs (CO<sub>2</sub>, SF<sub>6</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs) and are expressed as CO<sub>2</sub>-e (CO<sub>2</sub> equivalent).

This document details the methodologies and accounting principles used to estimate Z's GHG emissions, the emission sources included in Z's GHG inventory, organisational and operational boundaries.

In CY23 Z's total GHG emissions were 12,939,963 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>-e).

Table 1 summarises Z's annual GHG emissions from the re-baselined year of CY19. Table 2 summarises Scope 1 and 2 emissions by GHG type.

**Table 1 – Emissions trend by Scope from CY19 in tCO<sub>2</sub>-e**

Emissions category	CY19	CY20	CY21	CY22	CY23
Scope 1 – direct emissions	1,127	784	490	462	315
Scope 2 – indirect emissions from electricity consumption	3,888	3,913	3,589	2,349	2,417
Scope 3 – indirect emissions from value chain	11,904,821	9,724,826	10,087,723	11,320,204	12,937,231
<b>Total emissions</b>	<b>11,909,835</b>	<b>9,729,523</b>	<b>10,091,802</b>	<b>11,323,015</b>	<b>12,939,963</b>

Note: Subtotals might not add up to totals due to rounding.

**Table 2 – Scope 1 and 2 emissions in CY23 by GHG**

Scope	Carbon Dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous Oxide (N <sub>2</sub> O)	HFCs	TOTAL tCO <sub>2</sub> -e
1	96	1	2	215	315
2	2,348	63	5	0	2,417
<b>Total Scope 1 &amp; 2</b>	<b>2,445</b>	<b>64</b>	<b>8</b>	<b>215</b>	<b>2,731</b>

Note: PFCs and SF<sub>6</sub> are excluded from the above as they are not relevant to Z's activities. Subtotals might not add up to totals due to rounding.

# Executive Summary (continued)



## Report purpose and limitations

The purpose of this report is to disclose Z's emissions and how they are quantified. Its intended users are all interested stakeholders including Ampol and its shareholders and investors, regulators, customers, communities and suppliers.

It is intended to be read alongside Z's 2023 Annual Report and Financial Statements at <https://www.z.co.nz/about-z/corporate-centre/> which provide further context about Z's business strategy, sustainability goals and financial performance. This report will also be referenced in Z's first set of climate statements, to be published in accordance with the Aotearoa New Zealand Climate Standards (NZ CS1, NZ CS2 and NZ CS3) in April 2024. Z's climate statements will provide further detail on Z's approach to managing climate-related risks and opportunities including progress on emissions reduction targets.

While Z has taken all due care in preparing this report and has taken steps to ensure assumptions and input data have a reasonable basis and are coherent and robust (including basing them on government guidance, sales data, supplier information and subject matter expert opinions), assessments of emissions, particularly for Scope 3 emissions, remain a developing field with a high degree of estimation uncertainty. Z is committed to continuous improvement and working with our suppliers to improve third party data. To the maximum extent permitted under New Zealand law, Z disclaims all liability (whether in tort or otherwise) that may arise in relation to this report. We recommend you seek independent advice before acting or relying on any information in this report.



## Reporting requirements

Z is committed to transparent reporting and has disclosed information about its emissions on an annual basis in each Annual Report since 2012. Z has voluntarily reported its climate-related risks and opportunities using the Task Force for Climate-related Financial Disclosures (TCFD) Framework from 2021. Z is a member of the New Zealand Climate Leaders Coalition (CLC). One of the minimum requirements for signatories of the CLC's 2022 Statement of Ambition is measuring emissions and reporting them publicly.

Z will also publish its first climate statements under the mandatory Aotearoa New Zealand Climate Standards in April 2024. Z is a Climate Reporting Entity (CRE) under the Financial Markets Conduct Act 2013 (FMC Act). CREs are required to publish climate-related disclosures, including Scope 1, 2 and 3 GHG emissions, from financial years commencing on or after 1 January 2023, in accordance with climate standards published by the External Reporting Board (XRB). This document includes details on Z's Scope 1, 2 and 3 GHG emissions to support disclosures in forthcoming climate statements.

# 1. Introduction

**This GHG Inventory report is for Z Energy Limited and subsidiaries (Z). The GHG emissions presented are those of Z together with its interests in associates and jointly controlled operations defined within Z's organisational boundary for GHG reporting (see section 3.2).**

This report discloses Z's GHG emissions, outlines how they are quantified and shows trends over time.

This report has been prepared in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard ("GHG Protocol Standard") and the Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

The CY23 GHG Inventory covers the financial year reporting period 1 January 2023 to 31 December 2023 (CY23). It is Z's first report following a base year re-calculation from FY20 (1 April 2019 – 31 March 2020) to CY19 (1 January 2019 to 31 December 2019) which took place to align with Z's new financial reporting year end in December in alignment with Ampol Limited, Z's ultimate parent company. GHG emissions from CY19 to CY22 have also been recalculated and are disclosed to allow comparison between years.

The development of this report has been guided by Z's GHG Reporting Policy Guide, a guide prepared for Z by Thinkstep following the base year recalculation. The guide includes a base year recalculation policy, of which elements are disclosed in section 4 alongside the basis for the changes made to Z's GHG emissions inventory as previously disclosed.

This GHG Inventory report has been subject to a reasonable assurance engagement by KPMG, see Appendix 2 for their assurance opinion.

## 2. GHG Inventory

**Table 3 – GHG emissions inventory summary for Z Energy CY23 in tCO<sub>2</sub>-e**

Emissions sources	Emissions category	CY19	CY20	CY21	CY22	CY23
<b>Scope 1 – Direct emissions</b>						
Mobile combustion	Fuel used in corporate vehicles	219	204	193	175	99
Fugitive emissions	HFC emissions during use of refrigeration and air-conditioning equipment	269	269	269	269	215
Stationary combustion	Natural gas consumption	639	311	28	18	-
<b>Total Scope 1</b>		<b>1,127</b>	<b>784</b>	<b>490</b>	<b>462</b>	<b>315</b>
<b>Scope 2 – Electricity consumption</b>						
Electricity consumption (location based)	Electricity – Corporate Offices & EVs	105	94	87	58	122
	Electricity – Commercial	72	80	63	44	10
	Electricity – Retail	3,313	3,411	3,237	2,120	2,153
	Electricity – Terminals	397	328	201	127	132
<b>Total Scope 2</b>		<b>3,888</b>	<b>3,913</b>	<b>3,589</b>	<b>2,349</b>	<b>2,417</b>
<b>Scope 3 – Value chain emissions</b>						
C4 – Upstream Transportation and Distribution	Fuel used in domestic road transport for fuel distribution	12,948	12,402	13,032	13,472	13,696
C5 – Waste generated in operations	Waste to landfill	2,333	1,816	1,692	993	1,127
C6 – Business Travel	Employee business travel	1,504	403	380	791	984
C15 – Investments	Fuel used in domestic marine transport for fuel distribution <sup>1</sup>	13,090	16,419	15,967	3,732	-
<b>1,2,3 – Z Operational emissions as above<sup>2</sup></b>		<b>34,889</b>	<b>35,737</b>	<b>35,151</b>	<b>21,799</b>	<b>18,539</b>
<b>% Change from base year</b>			<b>2%</b>	<b>1%</b>	<b>-38%</b>	<b>-47%</b>
C1 – Purchased goods and services	Crude extraction and transportation to NZ	583,305	325,198	328,214	-	-
	Offshore production of refined products	438,379	506,324	590,544	1,055,683	1,411,034
	Crude processed at NZRC	540,530	519,534	360,194	115,620	-
C3 – Fuel and energy-related activities	Line losses	1,120	941	1,143	488	321
C4 – Upstream Transportation and Distribution <sup>3</sup>	Upstream transportation of refined fuel products	-	-	-	282,012	362,735
C11 – Use of sold products	Sold fuels	10,286,596	8,311,692	8,740,842	9,822,418	11,117,586
	Sold electricity	-	-	-	4	167
	Sold diesel exhaust fluids	1,387	1,700	2,013	2,203	2,379
	Flick Electric scope 3 emissions	23,429	28,223	33,489	22,541	26,878
C15 – Investments	Fuel use at JIFS	56	56	121	165	210
	Electricity use at WOSL	146	119	92	81	114
<b>Total Scope 3</b>		<b>11,904,821</b>	<b>9,724,826</b>	<b>10,087,723</b>	<b>11,320,204</b>	<b>12,937,231</b>
<b>Total Emissions – Scope 1, 2, 3</b>		<b>11,909,835</b>	<b>9,729,523</b>	<b>10,091,802</b>	<b>11,323,015</b>	<b>12,939,963</b>

Subtotals might not add up to totals due to rounding.

1 Coastal shipping operations ceased in CY22 resulting in no further emissions of AGO and HFO bunker fuel from ships.

2 Z's CY19 – CY29 carbon reduction target is benchmarked against operational emissions – those domestic emissions of which Z has the most control and or influence over and can therefore take meaningful action to reduce.

3 In 2022 Z moved to an import only fuel model and as such recalculated the emissions associated with international refining and transportation of fuel from overseas to New Zealand.

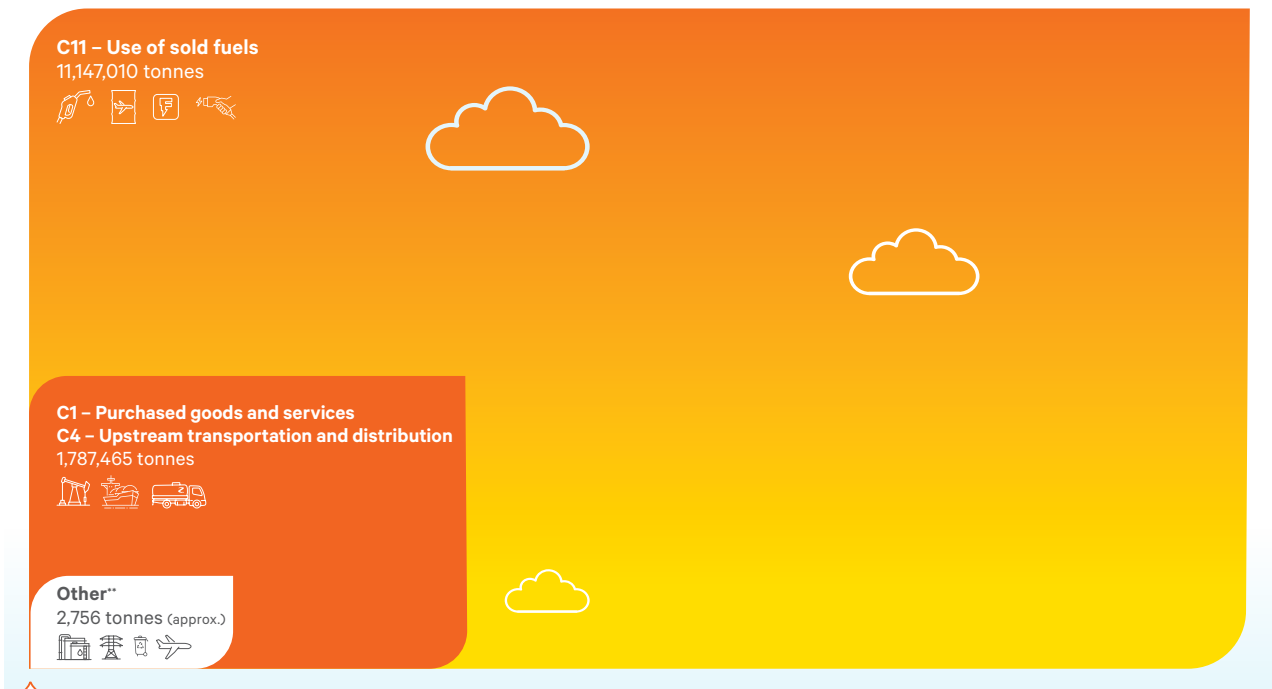
4 Electricity sold to consumers from Z's owned and operated EV charging sites and through Z's electricity plans.

## 2. GHG Inventory (continued)

Figure 1: Z's CY23 GHG emissions inventory (tCO<sub>2</sub>-e)  
(not shown to scale)



### Operational emissions\*



### Value chain Scope 3 emissions\*\*\*

\* The Operational emissions infographic shows all of Z's Scope 1 and 2 emissions and the following sources of Scope 3 emissions: business travel (C6), waste (C5) and fuel distribution (C4 – domestic distribution).

\*\* 'Other' includes all other reported Scope 3 categories, including C3, C5, C6 and C15.

\*\*\* The Value chain infographic includes all of Z's Scope 3 emissions, including those in the Operational emissions infographic above.

### 3. Boundaries

**Z is one of Aotearoa New Zealand’s leading transport energy companies. Z supplies fuel to retail and large commercial customers including airlines, trucking companies and vehicle fleet operators. Z has begun to offer new energy solutions including EV charging at select Z retail sites and electricity plans for homes.**

Z owns and operates a network of assets across the country, providing commercial refuelling stations, retail service stations and bulk fuel storage terminals. Over 2023, Z also purchased the remaining shares in Flick Energy Limited (Flick Electric), bringing the organisation wholly into Z.



## 3. Boundaries (continued)

### 3.1 Consolidation approach

Z uses the operational control approach, as defined by the GHG Protocol Standard. This means that 100 percent of the carbon emissions from operations over which Z has operational control in the reporting period are accounted for in the GHG inventory.

This approach allows a focus on emissions over which Z has greatest control, and thereby can influence most with emissions reductions measures.

### 3.2 Organisational boundaries

The table below outlines Z's New Zealand operations, including subsidiaries, joint ventures and investments.

**Table 4: Z's organisational boundaries**

List of all legal entities of facilities over which Z has equity share, financial control or operational control	Investment type	% equity share in legal entity	Does reporting company have operational control? (yes, no)	Does entity or facility produce GHG emissions? (yes, no)	Included in the GHG inventory figures? (yes, no, N/A)
Z Energy 2015 Limited (formerly Chevron New Zealand)	Subsidiary	100%	Yes	Yes	Yes
Z Energy ESPP Trustee Limited	Subsidiary	100%	Yes	No	N/A
Z Energy LTI Trustee Limited	Subsidiary	100%	Yes	No	N/A
Z Partner Limited	Subsidiary	100%	Yes	No	N/A
Z Property Manager Limited	Subsidiary	100%	Yes	Yes	No <sup>5</sup>
Flick Energy Limited	Subsidiary	100%	Yes	Yes	Yes
Z General Partner Limited	Subsidiary	51%	Yes	No	No
Z Property Limited Partnership	Subsidiary	51%	Yes	Yes	Yes
Wiri Oil Services Limited (WOSL)	Associate	44.45%	No	Yes	Yes – electricity use <sup>6</sup>
Drylandcarbon One Limited Partnership	Associate	37%	No	Yes	No
Loyalty New Zealand Limited (Loyalty)	Associate	25%	No	Yes	No
Forest Partners Limited Partnership	Associate	21%	No	Yes	No
Red Phase Technologies Limited	Associate	6%	No	Yes	No
Coastal Oil Logistics Limited (COLL) (liquidated) <sup>7</sup>	Associate	0%	No	No	N/A
Mevo Limited <sup>8</sup>	Associate	0%	No	Yes	No
Joint Interplane Fuelling Services (JIFS), Auckland Airport	Joint Venture	50%	No	Yes	Yes
Jointly Owned Storage Facility (JOSF), Christchurch Airport	Joint Venture	50%	Yes	Yes	Yes – electricity use <sup>9</sup>
Wiri to Auckland Airport Pipeline	Joint Venture	40%	No	Yes	No
Joint User Hydrant Installation (JUHI), Auckland Airport	Joint Venture	33.3%	No	Yes	No
Channel Infrastructure NZ Limited	Investment	12.67%	No	Yes	No

<sup>5</sup> Z Property Manager Limited is a managing company for Z Property Ltd Partnership. Scope 3 emissions activity from auditor travel and electricity associated with development of audit reports have been excluded based on materiality.

<sup>6</sup> WOSL is a joint owned terminal that is material to Z's operations receiving and storing fuel prior to distribution. WOSL manages the site and assets, which are owned by Channel Infrastructure New Zealand Limited. Z accounts for its share of the electricity used at WOSL to store fuel on Z's behalf.

<sup>7</sup> Coastal Oil Logistics Limited (COLL) was liquidated during 2023.

<sup>8</sup> Z divested its 31.8 percent shareholding back to Mevo in 2023.

<sup>9</sup> JOSF is a fuel storage facility at Christchurch Airport, jointly owned by Z and BP and operated by Z. Z accounts for the scope 2 electricity emissions consumed at JOSF.



## 3. Boundaries (continued)

### 3.3 Operational boundaries

Z measures its emissions in accordance with the GHG Protocol. This splits emissions into three categories:

**Scope 1** – Emissions that Z directly controls, such as natural gas combustion at the biodiesel plant<sup>10</sup>, fuel combustion in corporate vehicles and fugitive emissions resulting from the loss of refrigerants in HVAC and refrigeration systems at retail sites.

**Scope 2** – Indirect emissions from Z's purchased electricity consumption for Z's offices, retail sites, truck stops, Flick Electric and Z managed terminals including the biodiesel plant, and for the charging of Z's corporate electric vehicle (EV) fleet

**Scope 3** – All other indirect value chain emissions that occur outside the boundary of the organisation but are a result of the activities of the organisation. Z's emissions sources include cradle-to-gate emissions for crude<sup>11</sup> and refined product purchased, indirect losses resulting from the transmission of electricity and other fuels, transportation of finished products to retail sites and truck stops, electricity at joint venture terminals, waste sent to landfill, business travel (air, rental cars and taxis), Flick Electric operations and sold electricity, and the use of Z's sold products.

### 3.4 Reporting criteria

Z endeavours to include all Scope 1 and Scope 2 emissions in its GHG inventory, due to the direct influence it has over these emissions.

For Scope 3, a range of criteria are applied in screening emissions sources. The principal criteria is materiality. Z's materiality threshold is one percent, meaning that any Scope 3 category that makes up less than one percent of Scope 3 emissions can be excluded from the inventory. A cumulative threshold for exclusion of Scope 3 emissions is set to five percent. Excluded Scope 3 emissions sources are described in Table 7 below. Of those excluded, S3C2 – Capital goods, S3C7 – Employee commuting and S3C9 – Downstream transportation have been estimated on a qualitative basis to be below the one percent threshold due to difficulty obtaining and verifying supplier information.

In addition to the materiality threshold, Z considers several other criteria when determining whether to include emissions in its inventory, including:

**Table 5: Criteria for identifying Scope 3 emissions (WBCSD, WRI & Carbon Trust, 2013)**

Criteria	Description of activities
<b>Size</b>	They contribute significantly to the company's total anticipated Scope 3 emissions (as indicated by the materiality threshold).
<b>Influence</b>	There are potential emissions reductions that could be undertaken or influenced by the company.
<b>Risk</b>	They contribute to the company's risk exposure (e.g. climate change related risks such as financial, regulatory, supply chain, product and technology, compliance/litigation, and reputational risks).
<b>Stakeholders</b>	They are deemed critical by key stakeholders (e.g. customers, suppliers, investors or civil society).
<b>Outsourcing</b>	They are outsourced activities previously performed in-house or activities outsourced by the reporting company that are typically performed in-house by other companies in the reporting company's sector.
<b>Sector guidance</b>	They have been identified as significant by sector-specific guidance.
<b>Spending or revenue analysis</b>	They are areas that require high level of spending or generate a high levels of revenue (and are sometimes correlated with high GHG emissions).
<b>Other</b>	They meet any additional criteria developed by the company or industry sector.

To confirm the materiality of each category, Z conducted a screening exercise to review historical emissions data against the new baseline CY19 to assess their contribution to total Scope 3 emissions.

In line with Z's internal GHG Reporting Policy Guide, this screening exercise will now be conducted every three years to confirm if any material categories have changed, or where there has been a significant change in business activity.

#### 3.4.1 Materiality assessment and criteria for inclusion

The GHG Protocol Standard splits Scope 3 emissions into 15 categories. During the screening process seven categories were identified as applicable to Z. Two of the seven applicable categories were defined as material – use of sold products and purchased goods and services, making up 87 percent and 13 percent of scope 3 emissions respectively in the base year CY19.

The use of sold products (Scope 3 category 11) pushes most categories under the materiality threshold. The six other categories identified as applicable to Z meet at least one of the additional criteria for inclusion of scope 3 emissions outlined in table 5 above and are therefore disclosed. Emissions from all seven applicable categories are disclosed and detailed in Table 6 below. Excluded categories are detailed in Table 7.

<sup>10</sup> Emissions from natural gas used at the biodiesel plant ceased in February 2023 with the final removal of biodiesel from the facility following a period of hibernation from March 2020.

<sup>11</sup> Z ceased purchases of crude following closure of Refining New Zealand in 2022.

## 3. Boundaries (continued)

### 3.5 Summary of data sources, methodologies, and key assumptions

Table 6 provides an overview of all emissions sources included in Z's GHG Inventory according to the relevant category in the GHG Protocol Standard including their data sources, calculation methods and data quality.

Emissions activity data comes from a variety of sources including sales data, invoices and supplier information. Z uses carbon accounting and utility management software BraveGen by Energy Solution Providers Limited (ESP) to measure and manage sustainability data for greenhouse gas reporting. Processes for collecting and uploading activity data are outlined in the software and sent to relevant business owners or suppliers to action.

Emissions are calculated automatically within BraveGen by multiplying the provided activity data with each applicable emission factor. Unless otherwise stated below, Ministry for the Environment (MfE) emission factors, 2023 release, are used to calculate the tonnes of carbon dioxide equivalent generated.

Assessments of GHG emissions, in particular for Scope 3 emissions, remain a developing field with a high degree of estimation uncertainty. Z is committed to continuous improvement and working with our suppliers to improve third party data.

**Table 6 – Emissions sources by GHG Protocol Standard category, calculation methods and data sources for CY23**

Inventory Category	Emissions Activity	Calculation Method	Data Source	Data quality and uncertainty
<b>Scope 1</b>				
Stationary combustion – Natural gas <sup>12</sup>	Water and space heating at biodiesel plant	Fuel-based method	Invoices	Supplier invoices. Low uncertainty.
Mobile combustion – Diesel and petrol	Diesel and petrol used in corporate vehicle fleet	Fuel-based method	Z Business Card reports.	Fuel purchased through Z Business Card accounts for corporate use. Low uncertainty.
Fugitive emissions	Fugitive gas losses from Z controlled HVAC and refrigeration equipment.	Top-up method	Top-up maintenance records and refrigerant data sheets.	Records on refrigerant top-ups from multiple suppliers. Moderate uncertainty due to number of suppliers and GWP sources including industry-supplied where unavailable from MfE (2023). Plans to improve processes with suppliers.
<b>Scope 2</b>				
Electricity consumption from grid	Electricity use at Z offices, retail sites, terminals, truck stops, and the corporate electric vehicle fleet.	Location based method	Invoices. An estimate for a very small number of sites has been extrapolated from third party reporting.	Electricity consumption data in kWh provided by retailers. Low uncertainty.
Electricity consumption from grid	Flick use	Location based method	Billing report.	Electricity consumption data in kWh provided by Flick. Low uncertainty.

<sup>12</sup> Emissions from natural gas used at the biodiesel plant ceased in February 2023 with the final removal of biodiesel from the facility following a period of hibernation from March 2020.

<sup>13</sup> Reported from CY19-CY21. Calculation method updated in CY22 and reported under 'Offshore production of refined products'.

### 3. Boundaries (continued)

Inventory Category	Emissions Activity	Calculation Method	Data Source	Data quality and uncertainty
<b>Scope 3</b>				
C1 – Purchased goods and services	Crude extraction and transportation to NZ <sup>13</sup>	Average-data method	Product purchase reports. Emissions factor by third-party.	Emissions factors based on product purchases and calculated by a third party using emissions data from Sphera. Approach updated in CY22. Moderate uncertainty.
	Crude processed at the NZ Refinery (closed April 2022).	Supplier specific-method	NZ oil industry sales volumes Emissions factor supplied by Refining New Zealand.	Sales volumes obtained from New Zealand oil industry exchange reporting for Z's share of refinery. Emissions factor supplied by Refining New Zealand. Moderate uncertainty.
	Offshore production of refined products	Average-data method	Product purchase reports. Emissions factors calculated by third-party.	Emissions factors based on product purchases and calculated by a third party. Emissions factor updated in CY22. Moderate uncertainty.
C3 – Fuel and energy related activities	Transmission and distribution (T&D) line losses from electricity and gas use.	Average-data method	Invoices.	T&D lines losses based on electricity and gas consumption data provided for scope 1 and 2. Low uncertainty.
	Well-to-tank (WTT) emissions from upstream electricity use and gas use.	Average-data method	Invoices. Emissions factor from BEIS, 2019.	WTT emissions based on electricity and gas consumption data provided for scope 1 and 2. Moderate uncertainty from emissions factors.
C4 – Upstream transportation	Upstream transportation of refined fuel products.	Distance-based method	Product purchase reports. Emissions factors calculated by third-party.	Refined product transportation emissions factors updated in 2023 based on product purchases and shipping routes. Moderate uncertainty from emissions factors.
	Fuel used in domestic road transport for fuel distribution.	Fuel-based method	Fuel reports.	Monthly fuel consumption reports provided by Z's fuel distributor, MOVE. Low uncertainty.
		Supplier specific-method	Distance reports and portion of Z product delivered.	Monthly third party provided distance reports for Mini-Tankers divided by Z's proportion of fuel deliveries. Kilometre based emissions factor used based on fleet vehicle age and weight. Moderate uncertainty.
C5 – Waste generated in operations	Landfill waste generated at Z's offices, terminals and retail sites.	Average-data method	Waste reports.	Waste reports per retail site provided as actual weights and estimates. Corporate waste weights estimated through annual waste audit. Assumed all waste goes to landfills with gas recovery. Moderate uncertainty.
C6 – Business travel	Air travel and rental car use.	Distance-based method	Supplier trip reports.	Monthly flight details by km and class of travel. Low uncertainty.
	Taxi use.	Spend-based method	Taxi spend reports.	Taxi emissions estimated on spend. Moderate uncertainty.
C11 – Use of sold products	Sold fuel, electricity and diesel exhaust fluid (DEF)	Direct use-phase method	Sales reports.	Monthly sales data provided by Finance for fuels and DEF. Sold electricity reports in kwh from Z and Flick. Low uncertainty.
C15 – Investments	Energy used at jointly owned operations. Electricity use at WOSL .	Investment-specific method	Electricity use reports.	Electricity consumption data in kWh provided by supplier. Low uncertainty.
	Fuel used for coastal shipping with COLL (operations ceased in 2022).	Investment-specific method	Fuel reports.	Monthly fuel report provided by supplier and divided by Z's portion of fuel deliveries. Moderate uncertainty due to the apportionment.

### 3. Boundaries (continued)

**Table 7 – Excluded scope 3 emissions sources from reporting:**

Emissions category	Emissions activity	Reasons for exclusion
C2 – Capital goods	Extraction, production, and transportation of capital goods or assets purchased or acquired.	Previously determined immaterial. Limited data availability.
C7 – Employee commuting	Transportation of employees between their homes and their worksites.	Previously determined immaterial. To be re-assessed based on 2023 collection data for next reporting year.
C8 – Upstream leased assets	Operation of assets leased by Z (lessee).	Captured in Scope 1 (fugitive emissions) and Scope 2 electricity consumption for Z leased assets including Z Retail sites, truck stops and terminals.
C9 – Downstream transportation	Transportation and distribution of products sold by Z.	Captured in C4 – Upstream transportation and distribution.
C10 – Processing of sold products	Processing of intermediate products sold in the reporting year by downstream companies (e.g. manufacturers).	Not applicable – Z does not sell intermediate products that require further processing.
C12 – End-of-life of sold products	Waste disposal and treatment of products sold by Z.	Captured in C11 – use of sold products.
C13 – Downstream leased assets	Operation of assets owned by Z (lessor) and leased to other entities.	Determined immaterial.
C14 – Franchises	Operation of franchises in the reporting year.	Not applicable – no franchises operated.

The exception to any exclusions is where there is relative difficulty in obtaining accurate data and/or the emissions source has a very low materiality (less than 0.005 percent of total emissions). Other known exclusions include:

- Scope 1 emissions from fugitive losses in corporate vehicles and the combustion of fuels in back-up generators is currently excluded.
- Scope 3 Category 1 – Purchased goods and services excludes purchase of convenience retail products such as food and drinks.
- Scope 3 Category 11 – use of sold products excludes the use of convenience retail products such as food and drinks.

## 4. Reporting year and base year recalculation

### 4.1 Reporting year

Z's GHG Inventory covers the calendar year (CY) 1 January to 31 December.

Z was 100 percent acquired by Ampol Holdings NZ Limited (Ampol) in May 2022. Z has changed its financial and GHG reporting date from 31 March to 31 December to align with its ultimate parent company, Ampol Limited, a company registered in Australia. Z's FY23 Annual Report and GHG Inventory covered the nine-month period from 1 April 2022 to 31 December 2022. Z will continue to report on a calendar year basis going forward.

### 4.2 Base year

Z's base year for emissions reporting is CY19 (1 January 2019 to 31 December 2019).

### 4.3 Base year recalculation

The GHG Protocol requires companies to recalculate base year emissions if any of these activities or changes occur:

- Mergers
- Acquisitions
- Divestments
- Outsourcing and insourcing of emitting activities
- Changes in calculation methodology
- Improvements in the accuracy of emission factors or activity data
- Discovery of significant errors, or a number of cumulative errors

A screening exercise of the changes to the business in line with the GHG Protocol informed the decision to amend the base year from FY20 (1 April 2019 – 31 March 2020) to CY19 (1 January 2019 – 31 December 2019). Z chose CY19 as the most appropriate base year as it covers the majority of months included in the original FY20 base year.

Z has recalculated its base year emissions due to acquisitions, divestments, changes in calculation methodology and improvements in the accuracy of emissions factors or activity data.

The result of these changes amount to an increase of 2.8 percent or 327,062 tCO<sub>2</sub>-e of Z's total Scope 1, 2 and 3 emissions from FY20 to CY19. Table 8 details this. The 2.8 percent increase from FY20 to CY19 is largely driven by the amount of sold fuels during the respective periods.

**Table 8 – Emissions of scopes before and after base year recalculation**

Emissions category	CY19 (tCO <sub>2</sub> -e) after base year recalculation	% of scope	FY20 (t CO <sub>2</sub> -e) before base year recalculation	% of scope	Difference
Scope 1	1,127	0.01%	4,127	0.04%	-72.7%
Scope 2	3,888	0.03%	3,371	0.03%	15.3%
Scope 3	11,904,821	99.96%	11,575,275	99.94%	2.8%
<b>Total scope 1, 2 &amp; 3</b>	<b>11,909,835</b>		<b>11,582,773</b>		<b>2.8%</b>

Subtotals might not add up to totals due to rounding.  
Percentages might not add up to 100 due to rounding.

Emissions for all categories changed when recalculated from FY20 to CY19. This is due to applying the emission factors used in FY20 (1 April 2019 to 31 March 2020) to CY19 (1 January to 31 December 2019) and using the activity data for 1 January to 31 December 2019 instead of 1 April 2019 to 31 March 2020. These changes are detailed in Table 9 below and results are detailed by category in Appendix A.

The total change in emissions resulting from the recalculation from FY20 to CY19 is below the five percent significance threshold outlined in the base year recalculation policy included in Z's GHG Reporting Policy Guide. However, Z decided to recalculate the baseline to CY19 and all years in-between due to the number of changes that have occurred across the business, coupled with the need to align Z's GHG Inventory with the new financial year end. This ensures Z's GHG Inventory remains relevant, complete, consistent, transparent and accurate in line with the GHG Protocol.

## 4. Reporting year and base year recalculation (continued)

Table 9 – Key changes to Z's base year

Inventory Category	Emissions Activity	Reason for recalculation	Result of recalculation
<b>Scope 1</b>			
Mobile combustion – Diesel and petrol	Mobile combustion – Diesel	Z divested the Mini Tankers business on 31 July 2023.	Emissions removed from the diesel of Mini Tankers used from base year onwards.
Fugitive emissions	Fugitive gas losses from Z controlled HVAC and refrigeration equipment.	Calculation approach changed from screening method to top-up method in 2022.	Activity data recalculated from CY19 to April 2022 using the average actual refrigerant loss records. AR5 emissions factors applied from CY19, where available from the Ministry for Environment (MfE) (MfE,2022).
<b>Scope 2</b>			
Electricity consumption from grid	Electricity use at Z offices, retail sites, terminals, truck stops, and the corporate electric vehicle fleet.	MfE 2023 updates to emissions factors for electricity for all years back to 2019.	Emissions factors updated from CY19.
Electricity consumption from grid	Electricity used and sold by Flick Energy.	Z acquired 100% of Flick in April 2023 and was considered under Z's operational control boundary from CY19, having first acquired shares in 2018.	Emissions from electricity used by Flick moved from Scope 3 to Scope 2.
<b>Scope 3</b>			
C3 – Fuel and energy related activities	Electricity line losses	MfE 2023 updates to emissions factors for electricity for all years back to 2019.	Emissions factors updated from CY19.
	Upstream natural gas line losses	Previously not included for WTT emissions.	Line losses included for WTT natural gas from CY19, emissions factor from the UK's BEIS emission factors (BEIS, 2019).
C4 – Upstream transportation	Fuel used in domestic road transport for fuel distribution.	Z retains contracts with several Mini Tankers customers to deliver bulk fuel until 2025.	New activity data captured for Mini-Tankers in Scope 3 – 'Diesel for Waitomo' and apportioned for Z's customers.
C6 – Business Travel	Air travel	Emissions factors changed to 'with radiative forcing' from 1 April 2020	Emissions factors updated to use 'with radiative forcing' from CY19.
C8 – Upstream leased assets	Diesel for Awanuia	Z's interest in the marine refuelling vessel 'Awanuia' was divested in 2022.	Emissions from diesel used by Awanuia removed from Z's inventory from CY19 onwards.
C11 – Use of Sold Products	Sold DEF (diesel exhaust fluid)	Previously included as used for Z's deliveries only.	Activity data included for all sold DEF from CY19.
C3, C6 & C11	Flick sold electricity and associated business activities	Z acquired 100% of Flick in April 2023 and was considered under Z's operational control boundary from CY19, having first acquired shares in 2018.	Recalculated Scope 3 emissions included from CY19: <ul style="list-style-type: none"> <li>Well-to-tank (WTT) emissions and transmission and distribution (T&amp;D) losses for electricity Flick uses.</li> <li>Electricity Flick sells.</li> <li>WTT emissions and T&amp;D losses for electricity Flick Electric sells.</li> <li>Flights &amp; taxis used by Flick employees.</li> </ul> Waste from Flick's office.

# 5. Climate statements

In April 2024, Z will publish its first climate statements under the mandatory Aotearoa New Zealand Climate Standards. These statements will include further information (including metrics and targets) in relation to Z's greenhouse gas emissions.

# References

- BEIS. (2019). 2019 Government Greenhouse Gas Conversion Factors for Company Reporting. Retrieved from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019>
- MfE. (2022). Measuring Emissions: A Guide for Organisations. New Zealand Ministry for the Environment.
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- Sphera. (2020). GaBi LCA Database Documentation. Retrieved from Sphera: <http://database-documentation.gabi-software.com>
- Thinkstep-anz (2023). GHG Reporting Policy Guide. Created by thinkstep-anz on behalf of Z Energy.
- WBCSD, WRI & Carbon Trust. (2013). Technical Guidance for Calculating Scope 3 Emissions.
- WBCSD/WRI. (2011). Greenhouse Gas Protocol – Corporate Value Chain (Scope 3) Standard.
- WBCSD/WRI. (2015). Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard.
- WRI. (2015). Greenhouse Gas Protocol – Scope 2 Guidance.



# Appendix A

The table below details the results of the base year recalculation by emissions category as previously reported by Z in the FY23 GHG Inventory Report.

**Table 10 – Emissions of categories before and after base year recalculation**

Inventory Report Scope	Category	CY19 tCO <sub>2</sub> e	FY20 tCO <sub>2</sub> e	CY19 vs. FY20 Difference (%)
1 – Z offices, terminal & retail sites	Diesel	81	1,526	-94.7%
	HVAC (loss)	171	1,502	-88.6%
	Natural gas	639	798	-20.0%
	Petrol (premium & super)	94	92	2.6%
	Petrol (regular)	43	41	5.5%
	Refrigeration (loss)	99	167	-40.9%
2 – Z offices, terminal & retail sites	Electricity – Corporate Offices & EVs	91	76	19.8%
	Electricity – Commercial	72	69	5.0%
	Electricity – Retail	3,313	2,869	15.5%
	Electricity – Terminals	397	358	11.0%
	Electricity – Flick	14	-	0.0%
3 – Z offices, terminal & retail sites	Air Travel	1,428	714	99.9%
	Rental Car	46	44	4.4%
	Taxis	30	29	3.7%
	Waste to landfill	2,333	2,234	4.4%
3 – NZ Supply	AGO Bunker fuel	1,404	1,507	-6.8%
	HFO Bunker fuel	11,686	13,330	-12.3%
	Diesel for Awanuia	-	2,059	-100.0%
	Diesel for Waitomo	625	0	0.0%
	Diesel for trucking deliveries	12,323	12,148	1.4%
3 – Flick Electric	Flick Electric Scope 1, 2 and 3 emissions	23,429	-	0.0%
3 – JVs	Electricity from WOSL + JIFS Fuel	201	129	55.9%
3 – Line losses	Electricity (line losses)	344	255	35.0%
3 – Line losses	Natural gas (line losses)	75	94	-20.3%
3 – WTT	Upstream Natural Gas	87	-	0.0%
3 – Z DEC	Z DEC for deliveries	-	44	-100.0%
3 – End Use	Sold DEF (AdBlue)	1,387	-	0.0%
3 – Share of Refinery	Crude processed at NZRC	540,530	520,708	3.8%
3 – International supply	Crude extraction & transportation to NZ	583,305	558,788	4.4%
3 – International supply	Offshore production of refined products	438,379	472,521	-7.2%
3 – International supply	Refined product transportation to NZ	-	-	0.0%
3 – International supply	Upstream Electricity	613	569	7.8%
3 – End Use	Sold fuel	10,286,596	9,990,103	3.0%
3 – End Use	Sold electricity	-	-	0.0%
<b>Total Scope 1</b>		<b>1,127</b>	<b>4,127</b>	<b>-72.7%</b>
<b>Total Scope 2</b>		<b>3,888</b>	<b>3,371</b>	<b>15.3%</b>
<b>Total Scope 3</b>		<b>11,904,821</b>	<b>11,575,275</b>	<b>2.8%</b>
<b>Total Scope 1,2,3</b>		<b>11,909,835</b>	<b>11,582,773</b>	<b>2.8%</b>

Subtotals might not add up to totals due to rounding.

## Independent Reasonable Assurance Report to the Directors of Z Energy Limited

### Opinion

Our reasonable assurance opinion has been formed on the basis of the matters outlined in this report.

In our opinion, in all material respects, the Greenhouse Gas Statement, comprising the Emissions Inventory and the explanatory notes on pages 2 to 17 (the **GHG Statement**) has been prepared in accordance with the criteria for the period 1 January 2023 to 31 December 2023.

### Emphasis of matter

We draw attention to '4.3 Base year recalculation' and the accompanying disclosure in 'Table 8', which describes the impact of the base year recalculations that have occurred as a result of:

- the change in the base year reporting period from financial year ended 31 March 2020 to calendar year ended 31 December 2019;
- Acquisitions;
- Divestments;
- Changes in calculation methodology; and
- Improvements in the accuracy of emission factors or activity data.

Our opinion is not modified in respect of this matter.

### Information subject to assurance

We have performed an engagement to provide reasonable assurance in relation to Z Energy Limited's GHG Statement for the period 1 January 2023 to 31 December 2023.

### Criteria

The criteria used as the basis of reporting include The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised edition), Scope 2 emissions have been prepared in accordance with The Greenhouse Gas Protocol: GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard and The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard. As a result, this report may not be suitable for another purpose.

### Standards we followed

We conducted our reasonable assurance engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3410 *Assurance Engagements on Greenhouse Gas Statements (ISAE (NZ) 3410)* issued by the New Zealand Auditing and Assurance Standards Board (**Standard**). We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion. In accordance with the Standard we have:

- assessed the suitability of the circumstances of Z Energy Limited's use of the criteria as the basis for preparation of the GHG Statement;
- used our professional judgement to assess the risks of material misstatement and plan and perform the engagement to obtain reasonable assurance that the GHG Statement is free from material misstatement, whether due to fraud or error;

# Appendix B (continued)

- considered relevant internal controls when designing our assurance procedures, however we do not express an opinion on the effectiveness of these controls;
- evaluated the appropriateness of reporting policies, quantification methods and models used in the preparation of the GHG Statement and the reasonableness of estimates made by Z Energy Limited;
- evaluated the overall presentation of the GHG Statement; and
- ensured that the engagement team possesses the appropriate knowledge, skills and professional competencies.

## How to interpret reasonable assurance and material misstatement

Reasonable assurance is a high level of assurance, but is not a guarantee that it will always detect a material misstatement when it exists.

Misstatements, including omissions, within the GHG Statement are considered material if, individually or in the aggregate, they could reasonably be expected to influence the relevant decisions of the intended users taken on the basis of the GHG Statement.

## Inherent limitations

As noted in the GHG Statement page 3, GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emission factors and the values needed to combine emissions of different gases.

## Use of this assurance report

Our report is made solely for the Directors of Z Energy Limited. Our assurance work has been undertaken so that we might state to the Directors of Z Energy Limited those matters we are required to state to them in the assurance report and for no other purpose.

Our report is released to the Directors of Z Energy Limited on the basis that it shall not be copied, referred to or disclosed, in whole or in part, without our prior written consent. No other third party is intended to receive our report.

Our report should not be regarded as suitable to be used or relied on by anyone other than the Directors of Z Energy Limited (**Relying Parties**) for any purpose or in any context. Any other person who obtains access to our report or a copy thereof and chooses to rely on our report (or any part thereof) will do so at its own risk.

To the fullest extent permitted by law, none of KPMG, any entities directly or indirectly controlled by KPMG, or any of their respective members of employees accept or assume no responsibility and deny all liability to anyone other than Z Energy Limited for our work, for this independent reasonable assurance report, and/or for the opinions we have reached.

## Management's responsibility for the GHG Statement

The Management of Z Energy Limited are responsible for the preparation of the GHG Statement in accordance with the criteria. This responsibility includes such internal control as Management determine is necessary to enable the preparation of the GHG Statement that is free from material misstatement whether due to fraud or error.

## Our responsibility

Our responsibility is to express an opinion to the Directors of Z Energy Limited on whether the GHG Statement is, in all material respects, prepared in accordance with the criteria.

# Appendix B (continued)

## Our independence and quality control

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

The firm applies Professional and Ethical Standard 3, 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.

Our firm has also provided pre-assurance services over Z Energy Limited's climate report and financial audit services to Z Energy Limited. Subject to certain restrictions, partners and employees of our firm may also deal with Z Energy Limited on normal terms within the ordinary course of trading activities of the business of Z Energy Limited. These matters have not impaired our independence as assurance providers of Z Energy Limited for this engagement. The firm has no other relationship with, or interest in, Z Energy Limited.

The KPMG logo is displayed in a blue, stylized font. The letters 'K', 'P', 'M', and 'G' are connected, with a small dot above the 'G'.

KPMG  
Wellington  
28 February 2023