

# GREENHOUSE GAS

## INVENTORY

Spark Greenhouse Gas  
Inventory Report FY24

# About this report

This document is the 2024 Greenhouse Gas Inventory Report for Spark New Zealand Limited ('Spark' and together with its subsidiaries, the 'Spark Group'). This report covers the emissions for FY24 (the period of 1 July 2023 to 30 June 2024) and the previous four financial years, FY20, FY21, FY22, and FY23. It has been prepared in accordance with **The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004)** ('the GHG Protocol') and **Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Standard (2011)** ('the Corporate Value Chain'). For a detailed summary of our organisational and operational boundaries please see appendices A and B.

This complements our climate-related disclosures contained within our integrated **Annual Report**, which includes climate risk reporting prepared in compliance with the Aotearoa New Zealand Climate Standards (NZ CS 1, NZ CS 2 and NZ CS 3) issued by the External Reporting Board (XRB).

This report was approved by the Spark New Zealand Board on 22 August 2024.



Justine Smyth, CNZM  
Chair

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**Spark New Zealand Limited (NZX: SPK, ASX: SPK)**

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# Performance summary FY24



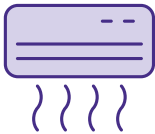
**16,874**  
tonnes CO<sub>2</sub>e

Scope 1 and 2 emissions tracking 18.6% above our SBTi reduction target pathway (or 5.7% above when adjusting for one-off event below)



**26.7%**  
scope 1 and 2 emissions

Scope 1 and 2 emissions increased year-on-year, driven largely by a one-off event impacting Scope 1 fugitive emissions



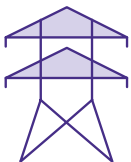
**311%**  
scope 1 fugitive emissions

Increase in scope 1 fugitive emissions, due to an alarm that triggered a fire suppressant gas flood response at an exchange



**2.6%**  
growth in electricity consumption

Driven by investment in mobile networks and data centres, offsetting efficiency and network simplification savings



**11.9%**  
grid emissions intensity

Smaller share of renewables in the generation mix has increased emissions per unit of electricity consumed from the national grid

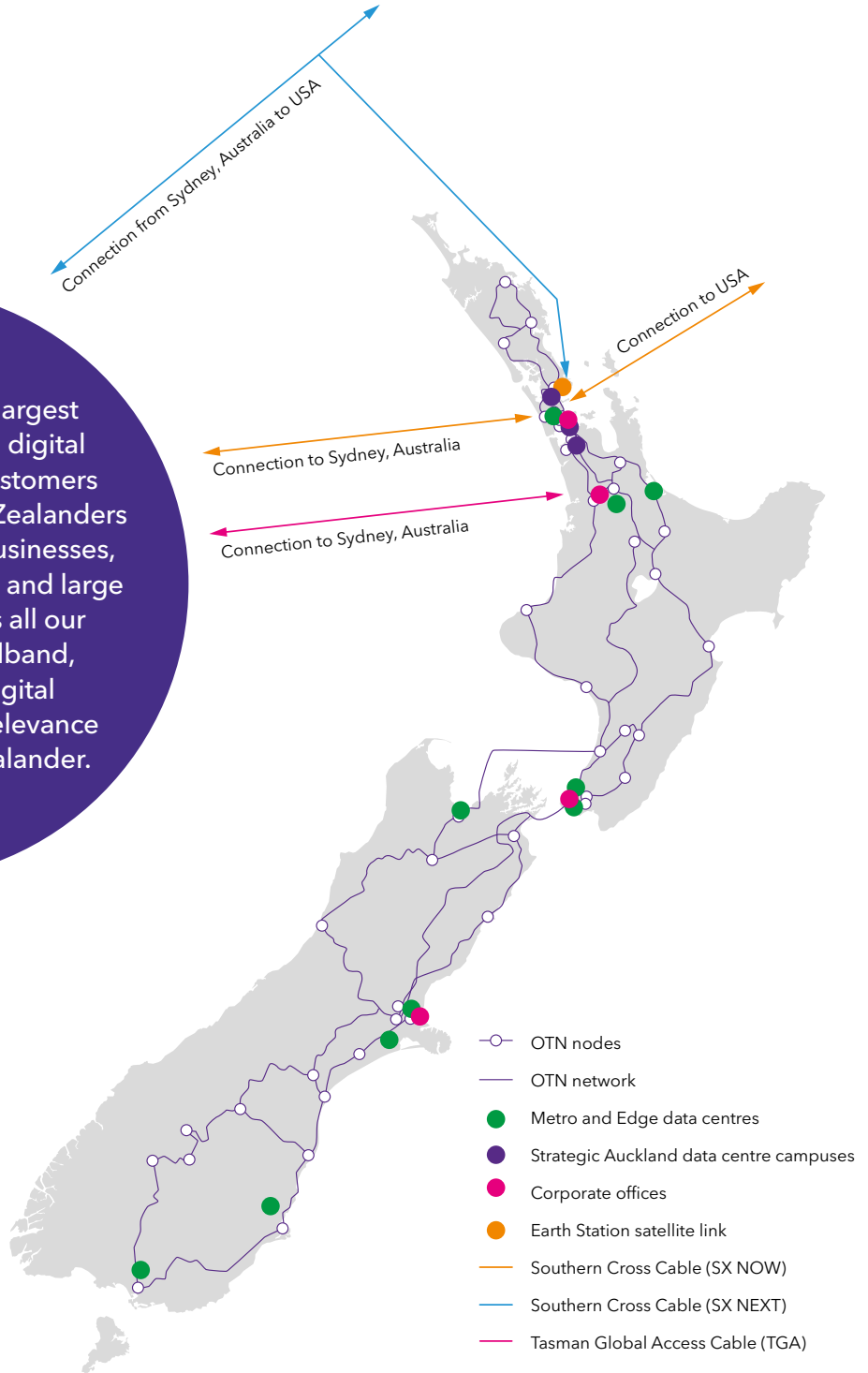


**10 year**  
renewable energy partnership

Once operational, our solar partnership with Genesis Energy will account for ~60% of Spark's annual electricity requirements, which will significantly reduce future scope 2 emissions

# About Spark New Zealand

Spark is New Zealand's largest telecommunications and digital services company. Our customers range from individual New Zealanders and households to small businesses, not-for-profits, government, and large enterprise clients. Across all our services - mobile, broadband, digital services, and digital infrastructure - we have relevance for almost every New Zealander.



**98%**

of New Zealanders reached by our 4G network

**99%**

of the population reached by our Internet of Things network<sup>1</sup>

**5,291**

employees

**>2.7m**

mobile connections

**>680k**

broadband connections

**>110k**

small-medium business customers

**~1,100**

enterprise and government customers

**61**

retail stores

**24**

regional business hubs













**2,176**

mobile sites housing our active infrastructure<sup>2</sup>

**>22MW**

data centre capacity

**We operate the following brands and businesses:**

Consumer	Business	Community	Other brands
 	<p>Spark Business Group</p>   	  	   

1 Cat-M1 Internet of Things network.

2. Includes Spark active equipment on 1,549 third party towers, 514 RCG towers, 98 small cells, and 15 temporary sites active at 30 June 2024.

All data at 30 June 2024.

## Governance of emissions reduction programme

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Spark's Environmental Policy sets out our expectations for our people to consider environmental impacts when making decisions at work, including examining our business practices, understanding their impacts, and taking reasonable steps to reduce our environmental footprint. This is available at: [www.spark.co.nz/online/about/our-company/governance](http://www.spark.co.nz/online/about/our-company/governance)

To help our people understand their role in creating a sustainable Spark, we have an online training module for all employees that provides information on our approach to sustainability and our expectation that our people consider environmental impacts in their day-to-day activities. We also communicate our progress to our employees through regular sustainability newsletters and direct engagement with teams across the business.

Working within Spark's agile operating model we have an established governance process to manage our most material environmental topics. This includes an Emissions Reduction Squad, led by our Environment Manager and comprising employees working in a variety of roles across the Spark Group. This squad is split into three workstreams, focussed on mobile networks, data centres, and fleet. Over the past year the squad worked to build energy costs and emissions considerations into our capital deployment and funding decision-making processes and templates.

We measure and report our energy use and emissions on a quarterly basis, alongside other broader sustainability key performance indicators (KPIs), to our Leadership Squad. The Leadership Squad act as a steering committee for sustainability across Spark through a standing agenda item at quarterly meetings. We believe sustainability is relevant to all areas of the business, so key updates and decisions are participated in by all members of our Leadership Squad. The Spark Board is provided a sustainability update on a quarterly basis, including as part of annual integrated reporting for year-end. In the past year these updates covered a range of topics, including performance against KPIs (including tracking emissions and energy use) and on broader topics, such as climate risk.

More information on our approach is available in the Environment section of our **Annual Report** or on our website: [www.spark.co.nz/online/about/sustainability/environment](http://www.spark.co.nz/online/about/sustainability/environment)

## Spark’s science-based emissions reduction target

# 56%

Spark New Zealand commits to **reduce absolute Scope 1 and 2 Greenhouse Gas (GHG) emissions 56% by 2030** from a FY2020 base year.

In August 2021, Spark received verification of its science-based emissions reduction target. The Science Based Targets initiative (SBTi) is established as the global standard for corporate emissions reduction targets. All SBTi targets must have a strict absolute reduction target for scope 1 and 2 emissions and include a separate scope 3 target if these emissions are greater than 40% of the total footprint.

- **Scope 1:** Direct emissions from sources owned or controlled by Spark
- **Scope 2:** Indirect emissions from purchased electricity
- **Scope 3:** Indirect emissions from other sources in the value chain - e.g. production of purchased materials, transportation, business travel and use of sold products

SBTi targets are set against sector-specific emissions trajectories. The ICT sector pathways were developed with the International Telecommunications Union (ITU) and provide specific emissions reductions for mobile and fixed networks and data centres, based on projected growth and efficiency gains. The wording of targets are set and verified by the SBTi, and follow a common format requiring companies to 'commit' to the target that has been established.

This means Spark is committed to pursuing our target and we are working towards it. For clarity, this is not a guarantee that we will meet this target.

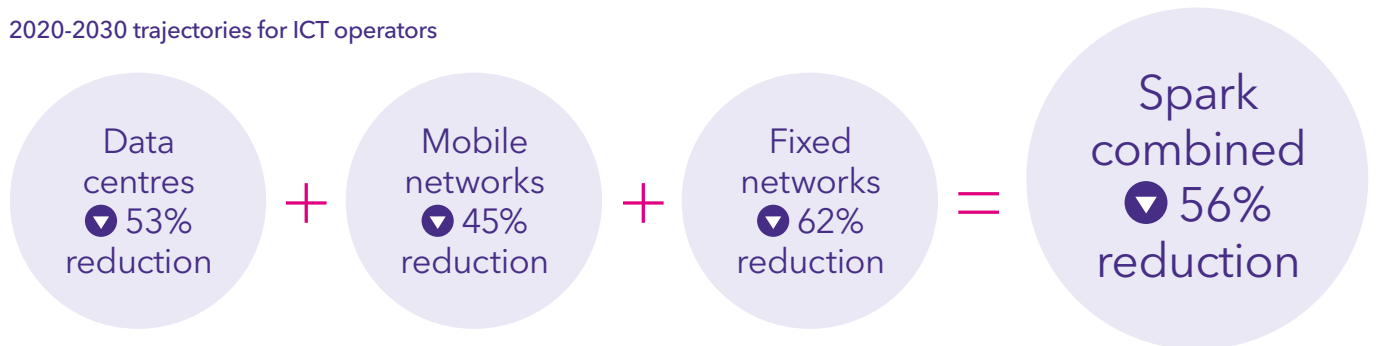
The SBTi also set rules for recalculating targets for organisations that have significant changes to their structure, for example investing or divesting business from group structures. See page 14 for information on our reporting scope and changes made to our reporting in previous years. Any changes in reporting for scope 1 and 2 are backdated to our FY20 emissions baseline, meaning our ambition level remains the same.

# 70%

Spark New Zealand commits that **70% of its suppliers by spend** covering purchased goods and services and capital goods, **will have SBTi-aligned targets in place by 2026.**

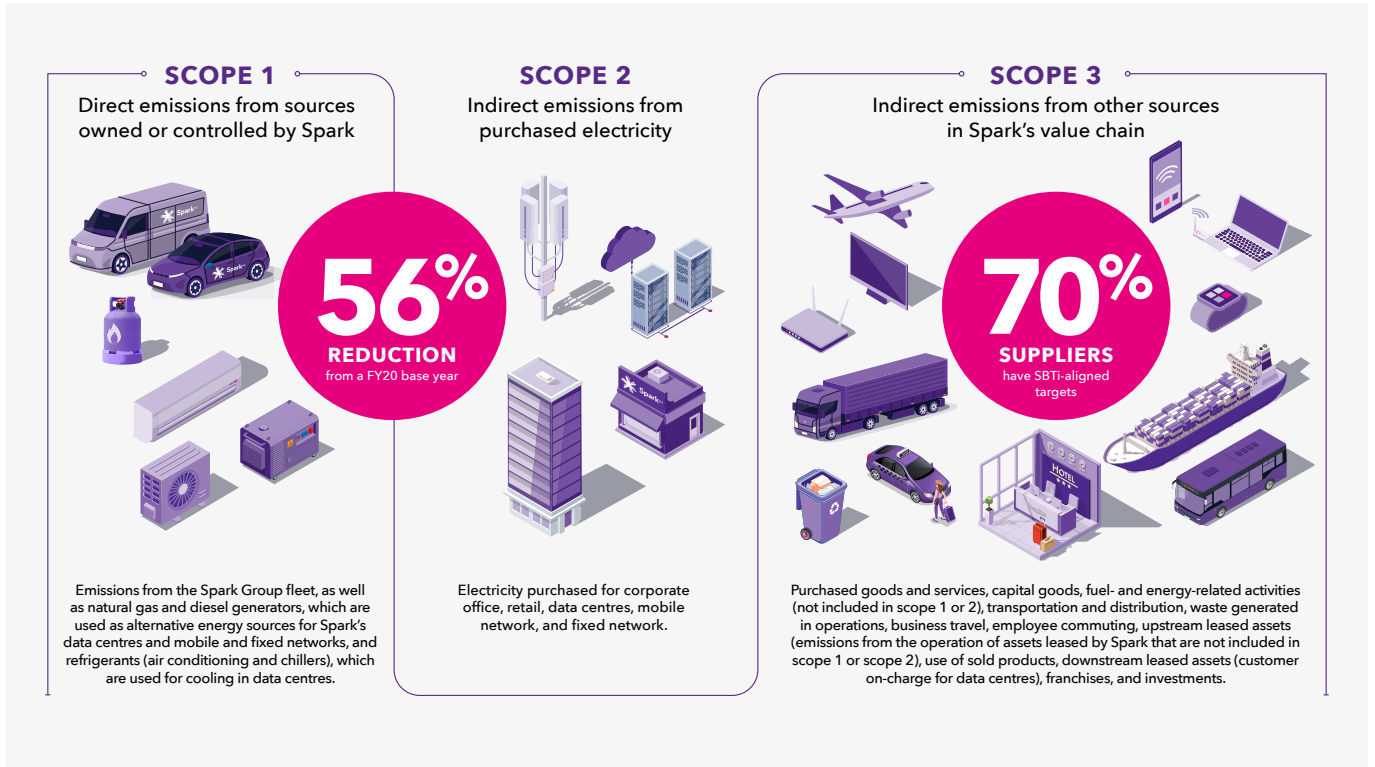
### Setting our scope 1 and 2 emissions target:

2020-2030 trajectories for ICT operators



Source: Guidance for ICT companies setting science-based targets, ITU, GESI, GSMA, SBTi.

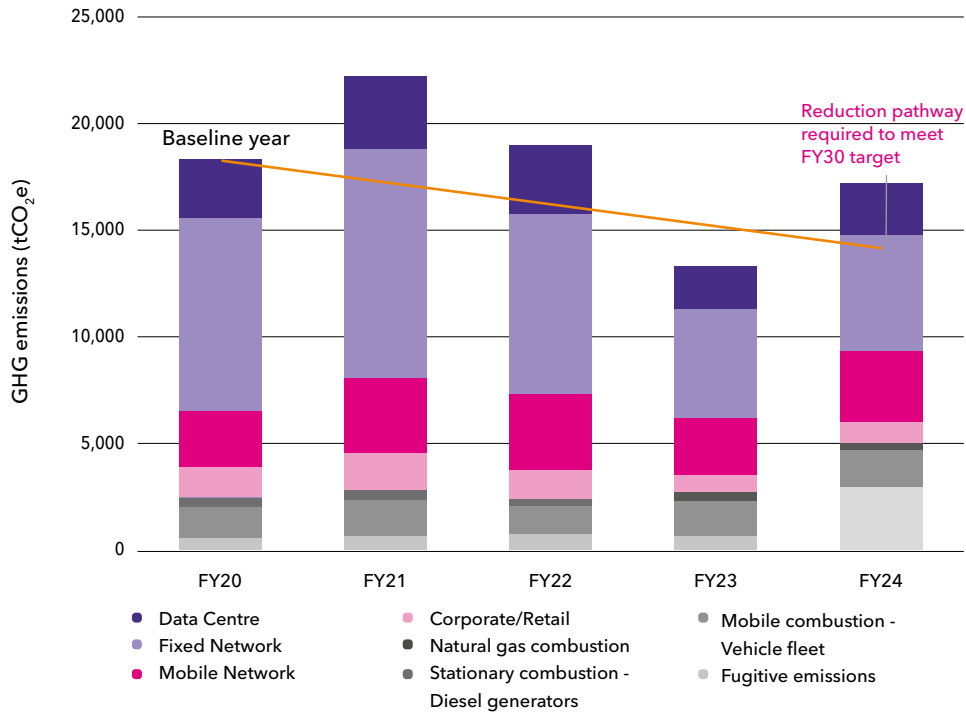
## Spark's scope 1, 2 and 3 emissions





## Our emissions reduction performance

Please see pages 15-17 for our detailed scope 1, 2, and 3 disclosure tables



### Our emissions performance

In the past year we saw our emissions increase, with our scope 1 and 2 emissions up 26.7%. This increase means we are tracking 18.6% above the SBTi pathway required to reach our 56% reduction target from FY20 to FY30. A comprehensive summary of our scope 1 and 2 emissions can be found on page 15.

The majority of this increase was driven by our scope 1 emissions, which increased 73.4%. This increase was primarily due to a single event – a significant fire suppressant release that was triggered by an alarm at one of our exchange sites. Without this one-off event our scope 1 emissions would have been largely flat. See the fugitive emissions section on page 10 for further details.

Our scope 2 electricity use, which powers our networks and infrastructure, remains our largest overall source of emissions related to our direct operations, at 72.3% of our total scope 1 and 2 emissions. The emissions intensity of the electricity we use is dependent on whether it is generated renewably or from fossil fuels, such as coal and gas. The mix of sources determines our emissions factor per unit of electricity. Over the past year our scope 2 emissions increased 14.8%, driven by a 2.6% increase in electricity consumption and an 11.9% increase in the grid emissions factor.

Our scope 1 emissions associated with fleet also increased slightly, up 6.6% compared to FY23. This was due to more diesel consumption as a result of additional field service vehicles added to our Entelar Group fleet. We saw a decrease in reported stationary diesel combustion emissions (measured through diesel purchase records from the year) of 82 tonnes of CO<sub>2</sub>e, down 20.9% compared to FY23. This reduction was due to having no major diesel tank top-ups this year, in contrast to FY23 where a significant volume of diesel was purchased to fill tanks at our new data centre facilities.

## Our emissions reduction performance (continued)



### Fugitive emissions

In FY24, we worked closely with our refrigerant supplier to enhance our fugitive emissions reporting. Beginning in Q3, we now receive monthly refrigerant recharge data. This improvement has allowed us to transition from a screening method to a more accurate measurement of refrigerant recharges, enabling year-round monitoring. Through this improved methodology, we identified slow refrigerant leaks as the most common source of fugitive emissions.

During the last quarter of the year, an alarm triggered a fire suppressant gas flood response at one of our exchange sites. Due to the high global warming potential of the gas released, this incident resulted in emissions of 1,892 tonnes CO<sub>2</sub>e. This contributed to a 311% increase in our fugitive emissions compared to FY23.

In FY25 we plan to deploy IoT sensors across relevant assets and investigate low-carbon refrigerant and fire suppressant alternatives to avoid similar events occurring in the future.

### Our fleet

In FY24, Spark's fleet was responsible for 10.5% of our scope 1 and 2 emissions. Our fleet emissions were up 6.6% on the previous year, due to increased fuel use in the fleet of our subsidiary Entelar Group. Entelar Group provides services to all of New Zealand, including network and fibre build and maintenance. This work requires an extensive tool-of-trade fleet that is partially made up of diesel-fuelled utes and vans. To keep pace with business demands, Entelar added 19 diesel vehicles to its field fleet in FY24, while also looking for opportunities to adopt more sustainable options, including 26 new hybrids to support non-field operations and the ongoing removal of petrol vehicles.

We introduced our 'Electric First' policy for Spark Corporate fleet in FY22, with all vehicles due for renewal to be replaced by an electric vehicle (EV). In FY24 all vehicles introduced were electric or plug-in hybrid electric vehicles (PHEVs), with an increase of 39 EVs.

### Spark New Zealand fleet composition

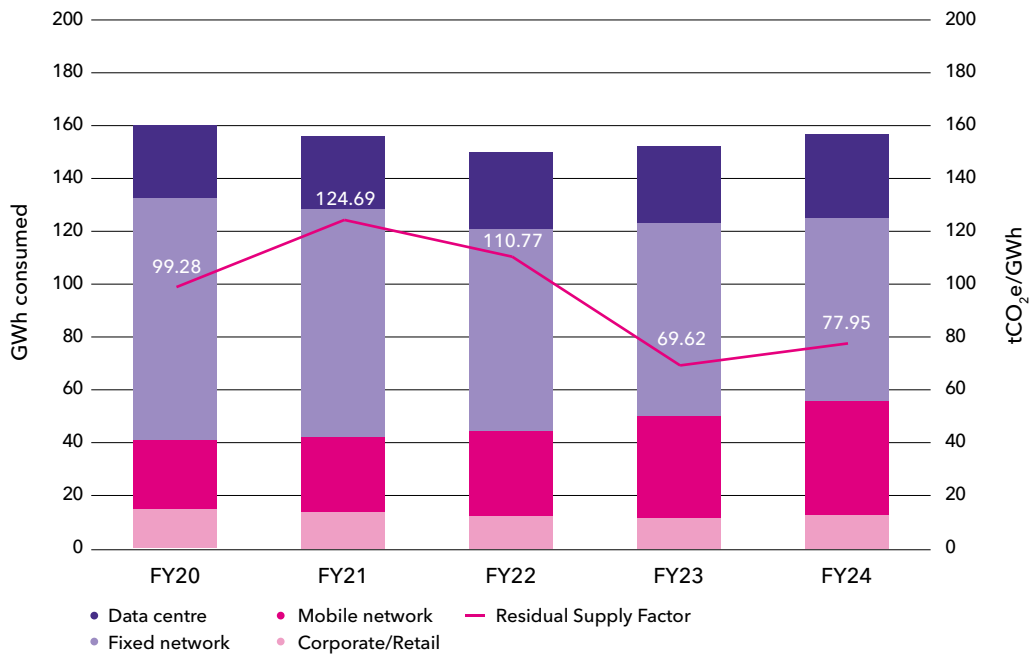
Vehicle type	Spark	Spark Subsidiaries
EV	80 (+39)	4 (+2)
PHEV	13 (-8)	0 (-2)
Hybrid	85 (-47)	76 (+24)
Combustion engine	3 (N/C)	201 (+1)
<b>Total</b>	<b>181 (-16)</b>	<b>281 (+25)</b>

Bracketed figures represent the change from FY23.

Over the past year we have made great progress in transitioning our Spark corporate fleet to EV. However, we continue to face challenges across the Spark Group, particularly in areas where low-carbon alternatives for tool-of-trade vehicles are limited. We also have roles that require long-distance travel or involve areas with insufficient fast charging infrastructure, proving a barrier to the uptake of EV.

For those who have range and charging issues, we have looked to extend the leases on hybrid vehicles. Additionally, when a low-carbon vehicle is no longer needed in one part of the business, we reassign it to another driver who is operating a less efficient vehicle, improving the overall efficiency of our fleet. We are continually monitoring the New Zealand market for new electric vehicle options, focussing on models that offer extended range and field-service capabilities.

## Our electricity consumption performance



### Our electricity consumption performance

In the past year we have seen an increase in electricity consumption across the Spark Group, as we have continued to roll-out our 5G network and invested to increase data centre capacity. Overall electricity consumption is up 2.6%, from 152.6 GWh to 156.6 GWh. The majority of the variance in our emissions since setting our target against our FY20 baseline has been in changes to annual hydrological conditions impacting hydroelectric generation. This saw a significant increase in non-renewable electricity generation on the New Zealand grid in FY21. In FY22 and FY23 this trend was reversed, with a cleaner electricity mix and underlying reductions in energy use delivering a significant emissions reduction over the previous two years.

In FY24 we saw this trend reverse again, with a slight increase in the grid emissions factor, which is up from 0.0696 kg/kWh to 0.0779 kg/kWh, an 11.9% increase.

The largest user of electricity across the Spark Group is our fixed network, which includes our exchanges and legacy copper networks. We have a long-running programme of network simplification, including the decommissioning of legacy equipment, such as the public switched telephone network (PSTN), which has driven year-on-year reductions in electricity use across our business. Over the last year our fixed network energy consumption reduced 5.5%. We will continue to reduce electricity consumption through a focus on energy efficiency and removing old, inefficient equipment.

We expect our fixed network consumption to continue to decrease over time, with our data centres expected to become our largest energy users over the medium term. In FY24, our electricity consumption associated with data centres increased by 8.2%. Our investment in expanded connectivity, network capacity, and data centre capacity is important to support innovation and enable emissions reductions across all sectors of the economy. However, we cannot pursue this growth without also reducing our own emissions against our SBTi target pathway.

Our strategy is to decouple our business growth from emissions growth by working in partnership with our energy partner to utilise our electricity procurement to support the development of new renewable energy generation in New Zealand.

## Our electricity consumption performance (continued)

### Supporting renewable energy investments

Through our existing energy supply agreement, dating back to 2021, Spark has been working with our energy partner, Genesis Energy, on opportunities to work together to achieve Spark's SBTi target. In May 2024 this culminated in the announcement of a new renewable energy partnership with Genesis.

Under a ten-year Power Purchase Agreement (PPA), we will purchase all of the electricity generated by Genesis' first solar farm in Lauriston Canterbury. The 63MW Lauriston solar farm is expected to generate enough electricity to meet 60% of our current annual requirements and will make a significant contribution towards our scope 1 and 2 emissions reduction target.

The energy generated by the Lauriston site will be zero-carbon and we will be able to

count this renewable energy against our market-based scope 2 emissions target through the transfer of Renewable Energy Certificates. These certificates transfer the renewable attributes of the energy to Spark and enable transparent tracking and reporting.

In exploring renewable energy partnership opportunities, it was important to us to support investment in new renewable energy - rather than buying certificates for existing renewables that were added to the grid many years ago. It is only through the addition of new renewable sources that New Zealand's grid will further decarbonise and our country will reach its long-term climate goals. Long-term commercial commitments, delivered by PPAs, support new renewable generation to become

operational faster by providing projects with commercial backing and increasing confidence to invest in further developments.

Under the agreement, the remaining 40% of our electricity needs will continue to be sourced by Genesis from the grid as occurs today. However, as we continue to grow our energy use, and we look beyond our FY30 emissions target to our long-term transition to net-zero, we will ultimately need to transition 100% of our electricity consumption to new renewable sources. The partnership with Genesis includes a commitment to explore additional renewable energy opportunities, supporting Genesis to achieve its target to have 95% renewable generation by 2035.



## Scope 3 emissions commentary

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This year we have expanded our scope 3 emissions reporting (see page 16). The majority of our scope 3 emissions are related to category 1 (purchased goods and services). We calculate these emissions by analysing our spend across different categories and applying spend-based emissions factors. To do this we use the UK Department for Environment, Food and Rural Affairs (DEFRA, 2021) standard industrial classification emission factors, which we have adjusted for inflation and New Zealand currency. These factors account for the emissions intensity of different industries, with higher factors for more emission intensive spend (e.g. construction) and lower factors for spend that is less emission intensive (e.g. software). For each spend category, we apply the closest aligned adjusted DEFRA industry factor to the total dollar amount spent in that category. See Appendix B, Operational Boundary (page 21) for a detailed description of our reporting inclusions and methodology.

Our biggest categories by spend are:

- Electronic equipment, mobiles, accessories, network equipment
- Telecommunications services: interconnect, broadband
- Software and IT services

We report our performance against our scope 3 supplier engagement target in our integrated **Annual Report**.

### Business travel

Flights and business travel are classed as scope 3 emissions, so are not included in our scope 1 and 2 emissions reduction target. However, business travel is a significant source of emissions that can be easily influenced by our policies and behaviour.

Following the post-Covid travel rebound we saw in FY23, emissions associated with business travel have reduced by 13.0% in FY24, which is 35.4% below our FY20 baseline. We saw a decrease across all business travel activities, most notably a 32.1% reduction in domestic air travel emissions.

To contain growth in business travel we have implemented a new sign-off process for international travel. We have also built quarterly travel data into our sustainability dashboard to maintain greater oversight and determine whether any further action is required to manage business travel.



## Our base year for reporting

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FY20 is our baseline year for scope 1 and 2 emissions reporting and for our SBTi-verified emissions reduction target.

In FY23 we rescoped our scope 1 and 2 emissions reporting and baseline to account for changes to our business. This included the:

- sale of a 70% stake in our passive mobile tower assets to Connexa. At these sites we have retained ownership of the site electricity consumption and associated emissions. This includes emissions from electricity used to run cooling systems and lights, alongside active mobile network equipment
- investment to take full control of Connect 8, which has been integrated into Entelar Group. This includes the integration of a fleet of field services vehicles and equipment, and two depots.

These changes were not significant enough to require recalculating our scope 1 and 2 SBTi emissions reduction target, which remains a 56% reduction from FY20 to FY30. These reporting scope changes were applied to our FY20 emissions baseline, so our ambition level remains unchanged. No adjustments were made to our scope 1 and 2 emissions reporting in FY24.

This year we expanded our scope 3 inclusions, prompting us to rebase our scope 3 emissions to FY24 as it now represents the most complete and accurate year of data. This approach aligns with the GHG Protocol, which recommends updating the base year when significant changes in data completeness or boundary definitions occur.

In the future we will re-baseline our emissions for significant changes in Spark's operational footprint or reporting boundary, including acquisitions and divestments, or outsourcing and insourcing of activities that have a 5% or greater impact on our scope 1 and 2 emissions. We will apply the same 5% threshold to changes in our scope 3 emissions reporting. A recalculation of baseline emissions will also be triggered in the instance of a discovery of significant errors, a number of cumulative errors that are cumulatively significant, changes in calculation methodology, improvements in the accuracy of emissions factors, or activity data that results in a significant impact on the base year.

## Greenhouse gas emissions inventory

### Scope 1 and 2 emissions

Scope/category	GHG Emissions (tCO <sub>2</sub> e)				
	FY20 (SBTi baseline year)	FY21	FY22	FY23	FY24
<b>Scope 1</b>	<b>2,485</b>	<b>2,799</b>	<b>2,372</b>	<b>2,694</b>	<b>4,670</b>
Fugitive emissions	561	637	702	628	2,581
Mobile combustion - vehicle fleet	1,483	1,678	1,337	1,659	1,768
Stationary combustion - diesel generators	426	470	325	393	311
Natural gas combustion	15	15	8	14	10
<b>Scope 2 (Market based)*</b>	<b>15,855</b>	<b>19,428</b>	<b>16,609</b>	<b>10,624</b>	<b>12,204</b>
Corporate/Retail	1,450	1,722	1,361	799	989
Mobile network	2,589	3,535	3,546	2,687	3,350
Fixed network	9,061	10,725	8,474	5,116	5,415
Data centre	2,756	3,446	3,228	2,023	2,450
Scope 2 (Location based)*	15,836	19,319	16,318	10,301	11,684
<b>Total scope 1 and 2 (SBTi target emissions, market based)</b>	<b>18,341</b>	<b>22,227</b>	<b>18,981</b>	<b>13,318</b>	<b>16,874</b>

#### Notes:

Please see appendices A and B for information on methodologies used to calculate and measure emissions and specific exclusions of sources. Note: numbers may not sum due to rounding.

We split our scope 2 electricity reporting across four categories - Corporate/Retail, Mobile network, Fixed network, and Data centre. These operational categories align with the ICT sector pathways developed with the International Telecommunications Union (ITU) in its guidance for setting a science-based emissions reduction target.

\* For reporting and tracking our performance against our emissions reduction target we use a market-based emissions factor. This will allow us to account for emissions savings from our renewable energy partnership and Power Purchase Agreements, an important mechanism to reduce our emissions and support investment in new renewable generation (see page 12). This year we have also included scope 2 emissions reporting using a location-based factor, using historic activity data to report previous years' emissions. We use the Residual Supply Factor (for market based) and National Supply Factor (for location based) published by BraveTrace. Refer to page 21 for more information.

## Greenhouse gas emissions inventory (continued)

### Scope 3 emissions

GHG Protocol category	GHG Emissions (tCO <sub>2</sub> e)				
	FY20	FY21	FY22	FY23	FY24
Category 1: Purchased goods and services					358,987
Category 2: Capital goods					401
Category 3: Fuel and energy-related activities					1,489
Category 4: Upstream transport and distribution					17,128
Category 5: Waste generated in operation					391
Category 6: Business travel	3,236	707	620	2,402	2,089
Category 7: Employee commuting					3,565
Category 8: Upstream leased assets					567
Category 9: Downstream transport and distribution					1,302
Category 11: Use of sold products					9,699
Category 13: Downstream leased assets	1,647	2,063	1,728	1,104	1,176
Category 14: Franchises					338
Category 15: Investments					158
<b>Total scope 3 emissions (tCO<sub>2</sub>e)</b>					<b>397,290</b>

#### Notes:

Please see appendices A and B for information on methodologies used to calculate and measure emissions and specific exclusions of sources.

Note: numbers may not sum due to rounding.

We have expanded our reporting to include all relevant scope 3 categories and have rebaselined to FY24 as this is our most comprehensive year of scope 3 reporting. We have provided comparisons of our historical reporting for category 6 and category 13.



## Greenhouse gas emissions inventory (continued)

### Greenhouse gas emissions by gas type

Scope/category	GHG emissions (tCO <sub>2</sub> e)	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	HFC
<b>Scope 1</b>	<b>4,670</b>	<b>2,040</b>	<b>12</b>	<b>37</b>	<b>2,581</b>
Fugitive emissions	2,581	-	-	-	2,581
Mobile combustion - fleet fuel	1,768	1,721	11	36	-
Stationary combustion - diesel	311	309	1	1	-
Natural gas combustion	10	10	-	-	-
<b>Scope 2</b>	<b>12,204</b>	<b>11,839</b>	<b>244</b>	<b>122</b>	-
Corporate/Retail	989	959	20	10	-
Mobile network	3,350	3,250	67	34	-
Fixed network	5,415	5,253	108	54	-
Data centre	2,450	2,377	49	25	-

**Note:** Spark does not have emissions of SF<sub>6</sub>, NF<sub>3</sub>, and PFCs. We exclude scope 3 emissions from our reporting by gas type due to incomplete data. Numbers may not sum due to rounding. Greenhouse gas emissions are calculated by multiplying the Ministry for Environment (2024) factor for each gas by the activity level (e.g., kWh or litres). For scope 2, we use the proportional gas breakdown of the Ministry for Environment's scope 2 emission factor to derive the gas breakdown associated with the market-based emission factor published by BraveTrace.

### Scope 1 and scope 2 energy usage by type

Scope/category	FY20	FY21	FY22	FY23	FY24
<b>Scope 1</b>					
Fugitive emissions	N/A	N/A	N/A	N/A	N/A
Vehicle fleet - premium petrol (litres)	60,079	60,387	24,624	26,235	29,258
Vehicle fleet - regular petrol (litres)	225,672	212,408	183,263	307,627	272,302
Vehicle fleet - diesel (litres)	197,756	245,046	240,181	309,282	392,537
Stationary combustion - diesel generators (litres)	160,004	176,367	121,763	146,304	116,082
Natural gas combustion (KWh)	78,927	75,731	43,460	70,564	52,934
<b>Scope 2</b>					
Corporate/Retail (GWh)	14.67	13.83	12.28	11.48	12.69
Mobile network (GWh)	26.18	28.38	32.02	38.59	42.97
Fixed network (GWh)	91.62	86.12	76.50	73.48	69.47
Data centre (GWh)	27.87	27.67	29.14	29.05	31.43

## Appendix A: Organisational boundary

Our organisational emissions reporting boundary takes an operational control approach as defined by the GHG Protocol and includes Spark and its subsidiaries.

Spark New Zealand Limited is the parent entity of the Spark Group. Spark is publicly listed, and our issued shares are quoted on the New Zealand Stock Exchange (NZX) and Australian Securities Exchange (ASX). As at 30 June 2024 the Spark Group comprised 30 controlled entities.

More information on significant subsidiaries and controlled entities in the Spark Group as at 30 June 2024 (including ownership percentages and principal activity information) is available in the Spark FY24 **Annual Report**.

### Spark subsidiary inclusions

Name	Principal activity	Emissions reporting inclusions/exclusions
Adroit Holdings Limited	Environmental IoT solutions	Included in Spark Corporate reporting
Adroit IoT Limited	Environmental IoT solutions	Included in Spark Corporate reporting
Adroit Research Limited	Environmental IoT solutions	Included in Spark Corporate reporting
Computer Concepts Limited (NZ)	IT infrastructure and cloud services	Electricity, business travel, fleet, refrigerants, purchased goods and services, capital goods, fuel-and-energy related activities, employee commuting, use of sold products, downstream leased assets
Circle Investments Limited	Contact centre solutions	Excluded as no operational emissions
Digital Island Limited (NZ)	Business telecommunications provider	Included in Spark Corporate reporting
Entelar Group Limited	Telecommunications and IT infrastructure build, and maintenance services, and distribution and supply chain services	Electricity, business travel, fleet, refrigerants, purchased goods and services, capital goods, fuel-and-energy related activities, employee commuting
Gen-I Australia Pty Limited (Australia)	Provides international wholesale and outsourced telecommunications services	Excluded as no operational emissions
MATTR Limited (NZ)	Software company focussed on decentralised identity and verifiable data	Office electricity (on a headcount estimate basis for FY22 and earlier), natural gas, business travel, fleet, purchased goods and services, capital goods, fuel-and-energy related activities, employee commuting
MATTR Trading US, Inc	Software company focused on decentralised identity and verifiable data	Excluded as no significant emissions
MATTR Trading Australia Pty Limited	Software company focussed on decentralised identity and verifiable data	Excluded as no significant emissions
Qrious Limited (NZ)	Data analytics business	Included in Spark Corporate reporting
Revera Limited (NZ)	IT infrastructure and data centre provider	Electricity, business travel, fleet, refrigerants, purchased goods and services, capital goods, fuel-and-energy related activities, employee commuting, use of sold products, downstream leased assets
Spark Finance Limited (NZ)	Group finance company	Excluded as no operational emissions
Spark New Zealand Cables Limited (NZ)	International telecommunication cable	Included in Fixed network electricity (scope 2)
Spark New Zealand Trading Limited (NZ)	Telecommunication and digital services company	Included in Spark Corporate reporting

## Appendix A: Organisational boundary (continued)

Name	Principal activity	Emissions reporting inclusions/exclusions
Spark Trustee Limited (NZ)	Corporate trustee entity	Excluded as no operational emissions
TCNZ Australia Investments Pty Limited	Australian operations	Excluded as no significant operational emissions
TCNZ (Bermuda) Limited	Holding company	Excluded as no operational emissions
TCNZ Financial Services Limited	Investment company	Excluded as no operational emissions
TCNZ (United Kingdom) Securities Limited	Holding/investment company	Excluded as no operational emissions
Teleco Insurance Limited	Group insurance company	Excluded as no operational emissions
Teleco Insurance (NZ) Limited	Mobile phone insurance	Excluded as no operational emissions
Telecom Capacity Limited (NZ)	Holding company	Excluded as no operational emissions
Telecom Enterprises Ltd )	Investment company	Excluded as no operational emissions
Telecom New Zealand Enterprises Ltd (UK)	Holding/investment company	Excluded as no operational emissions
Telecom New Zealand USA Limited (USA)	Provides international wholesale telecommunications services	Excluded as no significant emissions
Telecom Pacific Limited	Holding company	Excluded as no operational emissions
Telecom Southern Cross Limited (NZ)	Holding company	Excluded as no operational emissions
Telecom Wellington Investments Limited	Investment company	Excluded as no operational emissions

## Appendix A: Organisational boundary (continued)

### Investments in associates and joint ventures (at 30 June 2024)

Name	Type	Country	Ownership / investment	Principal activity	Inclusion/exclusion
Hutchison Telecommunications Australia Limited	Equity	Australia	10%	Telecommunications company	Excluded - no significant operational emissions
Flok Limited	Associate	New Zealand	37.7%	Hardware and software development	Excluded - no operational emissions
FrodoCo Holdings Limited	Associate	New Zealand	17%	A holding company for Connexa	Captured in Mobile network electricity scope 2
Hourua Limited	Joint Venture	New Zealand	50%	Delivering the Public Safety Network	Captured in scope 1 and 2
Pacific Carriage Holdings Limited, Inc.	Associate	United States	41%	A holding company	Excluded - no operational emissions
Rural Connectivity Group Limited	Joint Venture	New Zealand	33%	Rural broadband	Captured in Category 15 - Investments
Southern Cross Cables Holdings Limited	Associate	Bermuda	41%	A holding company	Excluded - no operational emissions
TNAS Limited	Joint Venture	New Zealand	50%	Telecommunications development	Excluded - no operational emissions

## Appendix B: Operational boundary

### Greenhouse gas emissions source inclusions

Name	Activities	Methodology, data quality, uncertainty
Scope 1: Fugitive emissions	Refrigerant top ups/ leakage	<p>FY20 to FY23 fugitive emissions data (excluding CCL data) is based on the screening method, using a 3% annual loss estimate (based on <i>Ministry for the Environment - Guidance for voluntary greenhouse gas reporting</i>) using cooling system data held in our eMaint asset management system, including estimated holdings for equipment without recorded refrigerant volume or type.</p> <p>Our FY24 data uses a combination of the screening method and actual top-up data, being supplier records of refrigerant top-ups (kg). We worked with our refrigerant supplier to enhance our fugitive emissions reporting, which has been implemented from Q3 FY24.</p> <p>Our fire suppressant gas supplier provided us with the volume (kg) of HFC227ea released to atmosphere, which was used to calculate associated emissions.</p> <p>For CCL (Computer Concepts Limited) data centres actual refrigerant top-up data received from the supplier is reported from FY20 to FY24.</p>
Scope 1: Stationary combustion	Diesel generator fuel usage	Records from supplier invoices and reporting.
Scope 1: Natural gas	Gas usage for heating	Records from supplier invoices and reporting.
Scope 1: Mobile combustion fleet	Petrol and Diesel use for Spark vehicles	<p>Records from vehicle lease supplier reporting, including reporting of fuel card purchases. This includes fuel purchased at filling stations which may be used to fill portable generators deployed in the field.</p> <p>Fuel used by Spark franchisees is excluded where fuel-use data is captured under the Spark lease agreement but fuel cost is paid by franchisees. This data is reported in Scope 3, Category 14: Franchisees</p> <p>For FY20 CCL fleet emissions used a per-km emissions factor due to unavailability of data in litres.</p>
Scope 2: Electricity	Electricity usage	<p>Reporting of monthly electricity supplier billing for all sites. Includes Spark electricity usage in shared Chorus sites based on billing records between Spark and Chorus.</p> <p>FY20/FY21 Spark retail store electricity use is based on an extrapolation of available FY21 data. From FY22 onwards data is from billing records.</p> <p>The split in data across four categories (Corporate/Retail, Mobile network, Fixed network, and Data centre) is based on records from electricity supplier billing against site type, e.g. data centre, telephone exchange, mobile sites. For sites with multiple category types, including exchange sites with significant office space and sites sharing fixed network and data centre equipment, we adjust allocation of electricity based on a standard per-employee or per-rack calculation. For our mobile sites, we assume an additional 10% electricity use in the 'mobile core' based on a conservative estimate referencing a number of industry reports.</p> <p>Electricity consumed by customer equipment hosted in our data centres is reported as Scope 3, Category 13: Downstream leased assets (see below).</p> <p>For reporting and tracking our performance against our emissions reduction target, we use a market-based emissions factor. This will allow us to account for emissions savings from our renewable energy partnership and Power Purchase Agreements, an important mechanism to reduce our emissions and support investment in new renewable generation (see page 12).</p> <p>This year we have also included scope 2 emissions reporting using a location-based factor, using historic activity data to report previous years' emissions. We use the Residual Supply Factor (for market-based) and National Supply Factor (for location-based) published by BraveTrace.</p>

## Appendix B: Operational boundary (continued)

Name	Activities	Methodology, data quality, uncertainty
Scope 3, Category 1: Purchased goods and services	Indirect impacts of procurement, including embedded emissions	<p>Category 1 emissions have been estimated based on Spark's expenditure on purchased goods and services which are not already included in other scopes or other scope 3 categories. Transactional purchase data was sourced from Spark's finance system for the reporting period. The general ledger and sub-ledger mapping of transactions has been utilised to allocate expense groupings to what was determined to be the best available emission factor category. CCL expenditure was separately sourced and the categorisation of spend to emission factor was completed based on expense groupings.</p> <p>UK DEFRA input-output schedule of spend-based emission factors were used. These were adjusted for the currency conversion to NZD and adjusted for average inflation from a 2021 base. The emissions were calculated by multiplying the adjusted emission factor by total spend allocated to each.</p> <p>We also account for emissions associated with call centre services in category 1, using Spark attributed monthly kWh at this site and using the Philippines local electricity emissions factor to determine its impact.</p>
Scope 3, Category 2: Capital goods	Indirect impacts of procurement, including embedded emissions	<p>Category 1 emissions have been estimated based on Spark's expenditure on capital goods which are not already included in other scopes or other scope 3 categories. Transactional purchase data was sourced from Spark's finance system for the reporting period. The general ledger and sub-ledger mapping of transactions has been utilised to allocate expense groupings to what was determined to be the best available emission factor category. CCL expenditure was separately sourced and the categorisation of spend to emission factor was completed based on expense groupings.</p> <p>UK DEFRA input-output schedule of spend-based emission factors were used. These were adjusted for the currency conversion to NZD and adjusted for average inflation from a 2021 base. The emissions were calculated by multiplying the adjusted emission factor by total spend allocated to each.</p>
Scope 3, Category 3: Fuel and Energy Related Activities	Transport and distribution losses for electricity, fuel and gas consumption	<p>Calculated by applying transmission and distribution factors to our electricity usage, gas and fuel consumption data collected for scope 2 reporting as above. Emission factors for electricity and UK DEFRA (2024) well-to-tank emission factors were used for fuel and gas.</p>
Scope 3, Category 4: Upstream transportation and distribution	Spend on upstream transport and distribution of physical goods	<p>Category 4 emissions have been estimated based on Spark's expenditure on upstream transportation and distribution which are not already included in other scopes or other scope 3 categories. Transactional purchase data was sourced from Spark's finance system for the reporting period. The general ledger and sub-ledger mapping of transactions has been utilised to allocate expense groupings to what was determined to be the best available emission factor category. CCL expenditure was separately sourced and the categorisation of spend to emission factor was completed based on expense groupings.</p> <p>UK DEFRA input-output schedule of spend-based emission factors were used. These were adjusted for the currency conversion to NZD and adjusted for average inflation from a 2021 base. The emissions were calculated by multiplying the adjusted emission factor by total spend allocated to each.</p>
Scope 3, Category 5: Waste generated in operations - Waste-to-landfill	Emissions from operational waste-to-landfill	<p>Estimated from office and operational site waste management supplier reporting and site headcount. A waste per person factor was determined and applied across all staff across Spark Group.</p>
Scope 3, Category 6: Business Travel	Flights, taxis, hire cars and accommodation	<p>Records from business travel partners, including type and class of air travel, kms flown, hotel nights, and hire car usage. Taxi and Uber expenditure is extracted from finance reports and supplier data.</p>

## Appendix B: Operational boundary (continued)

Name	Activities	Methodology, data quality, uncertainty
Scope 3, Category 7: Employee commuting	Employee travel to work	Estimated from data collected from a group-wide commuting survey, completed in June 2024. We used survey responses to estimate the total kilometres travelled by Spark staff by mode of transport.
Scope 3, Category 8: Upstream leased assets	Electricity use at leased sites.	Electricity usage at leased sites (e.g., rooftops, in-building sites) where energy costs are included in the site lease is estimated by using the average annual electricity consumption of metered Spark sites. This estimated usage is then applied to sites without direct energy use data, such as those located in buildings without separate electricity meters.
Scope 3, Category 9: Downstream transport and distribution	Spend on downstream transport and distribution of physical goods	<p>Category 9 emissions have been estimated based on Spark's expenditure on downstream transport and distribution which are not already included in other scopes or other scope 3 categories. Transactional purchase data was sourced from Spark's finance system for the reporting period. The general ledger and sub-ledger mapping of transactions has been utilised to allocate expense groupings to what was determined to be the best available emission factor category.</p> <p>CCL expenditure was separately sourced and the categorisation of spend to emission factor was completed based on expense groupings.</p> <p>UK DEFRA input-output schedule of spend-based emission factors were used. These were adjusted for the currency conversion to NZD and adjusted for average inflation from a 2021 base. The emissions were calculated by multiplying the adjusted emission factor by total spend allocated to each.</p>
Scope 3, Category 11: Use of sold products	Emissions from energy use of sold products, e.g. modems, mobile device charging	<p>Emissions calculated from number of units sold to Spark consumer and enterprise customers in FY24 and their estimated lifetime energy emissions. Includes data from supplier device lifecycle assessments, product information sheets and technical specifications. Where kWh was used to determine emissions, we applied the FY24 electricity grid residual supply factor. Where a sold product did not have emissions data available, we have used a similar model's emissions data to estimate. Where no information is available, we use the known usage emissions for a similar item. For smaller products and accessories, we apply a general usage factor based on the average of a small electronic device, for example headphones.</p> <p>This assessment excludes products distributed via Entelar Group. Entelar Group supplies Spark with products that are resold to customers, with their use captured under products sold by Spark (Scope 3, Category 11). Additionally, Entelar Group distributes network and data centre equipment to Spark (captured in scope 2). Entelar Group also supplies other customers, including data centre equipment for customers hosted in our data centres (captured in scope 2 and Scope 3, Category 13). The upstream impacts of Entelar Group's procurement are accounted for in our Scope 3, Category 1.</p>
Scope 3, Category 13: Downstream leased assets	Electricity use on-billed to customers	<p>In many of our data centres we host customer equipment. This equipment draws electricity which is on-billed to our hosted customers.</p> <p>Records from customer billing data based on automated direct metering systems, manual meter and load readings, and maximum input power of customer equipment.</p> <p>Revera Limited (NZ)'s FY20 on-billed electricity is estimated from its FY20 total electricity usage based on the proportion of on-billed electricity to total electricity usage in FY21.</p> <p>Electricity use to power data centre services, including cooling and lighting, are included in our scope 2 reporting.</p>
Scope 3, Category 14: Franchisees	Franchisee electricity and fleet fuel usage	Electricity billing and fuel card data for Spark Business Hub operations.
Scope 3, Category 15: Investments	Electricity use	Electricity billing to RCG (Rural Connectivity Group), adjusted for our 33% ownership share. RCG data for scope 1 emissions is unavailable. An overview of investment inclusions and exclusions can be found on page 20.

## Appendix B: Operational boundary (continued)

### GHG emissions source exclusions

Name	Activities	Methodology, data quality, uncertainty
Category 10	Processing of sold products	Not applicable to Spark – we do not provide unfinished goods.
Category 12	End-of-life treatment of sold products	Not reported. We have product stewardship processes in place to capture sold products (e-waste) for recycling. Reprocessing and recycling emissions are reported as part of the upstream impacts of the next part of the material lifecycle.

## Guidance documents used in the preparation of Carbon Footprint, including source of emissions factors and global warming potential (GWP) rates

### Greenhouse Gas Protocol

- **Scope 2 Guidance**
- **Scope 3 Calculation Guidance**

### Ministry for the Environment

- Measuring emissions – A guide for organisations: 2024 detailed guide (MfE 2024)

### Other emission factor sources

For our scope 2 electricity reporting, we have used National and Residual grid supply factors sourced from BraveTrace – [www.bravetrace.co.nz](http://www.bravetrace.co.nz).

For our reporting of refrigerant R438C, we have used a factor published by **The California Air Resources Board**.

For our scope 3 spend-based emission factors, we used UK Department for Environment, Food and Rural Affairs (DEFRA, 2021) standard industrial classification emission factors, which we have adjusted for inflation and New Zealand currency. We determined the inflation rate from 2021 and 2021 currency from the Reserve Bank of New Zealand (New Zealand's central bank - Reserve Bank of New Zealand – Te Pūtea Matua ([rbnz.govt.nz](http://rbnz.govt.nz))).

For emissions associated with our call centre (Scope 3, Category 1), we used the Philippines 2023 grid electricity factor sourced from [www.carbonfootprint.com](http://www.carbonfootprint.com).

We used suppliers' publicly available lifecycle assessments, product information sheets, and technical specifications to determine emissions associated with our use of sold products (Scope 3, Category 11).





## Independent Assurance Report

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

#### To the Directors of Spark New Zealand Limited

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

We have undertaken a limited assurance engagement relating to the Greenhouse Gas Emissions Inventory Report (the '**Inventory Report**') of Spark New Zealand Limited (the '**Group**' or '**Spark Group**') for the year ended 30 June 2024, comprising the emissions inventory and the explanatory notes set out on pages 14 to 24.

The Inventory Report provides information about the greenhouse gas emissions of the Group for the year ended 30 June 2024 and is based on historical information. This information is stated in accordance with the requirements of the Greenhouse Gas Protocol: *A Corporate Accounting and Reporting Standard (2004)* ('**the GHG Protocol**') and *Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Standard (2011)* ('**the Corporate Value Chain**') which can be accessed at <https://ghgprotocol.org/>.

##### Directors' Responsibility

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

##### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Inventory Report based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3410: *Assurance Engagements on Greenhouse Gas Statements* ('**ISAE (NZ) 3410**'), issued by the New Zealand Auditing and Assurance Standards Board ('**NZAuASB**'). That standard requires that we plan and perform this engagement to obtain limited assurance about whether the Inventory Report is free from material misstatement.

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

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

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

- Through enquiries, obtained an understanding of the Group's control environment and information systems relevant to emissions quantification and reporting, but did not evaluate the design of particular control activities, obtain evidence about their implementation or test their operating effectiveness.
- Evaluated whether the Group's methods for developing estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or separately developing our own estimates against which to evaluate the Group's estimates.
- Undertook site visits at one site to assess the completeness of the emissions sources, data collection methods, source data and relevant assumptions applicable to the sites. The site selected for testing was chosen taking into consideration their emissions in relation to total emissions, emissions sources, and sites selected in prior periods. Our procedures did not include testing information systems to collect and aggregate facility data, or the controls at these sites.

## Independent Assurance Report (continued)

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The 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 we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether Spark New Zealand Limited's Inventory Report have been prepared, in all material respects, in accordance with the GHG Protocol and the Corporate Value Chain.

### Inherent Limitations

Non-financial information, such as that included in the Group's Inventory Report, is subject to more inherent limitations than financial information, given both its nature and the methods used and assumptions applied in determining, calculating and sampling or estimating such information. Specifically, GHG quantification is subject to inherent uncertainty because of incomplete scientific knowledge used to determine emissions factors and the values needed to combine emissions of different gases.

We note that a limited assurance engagement is not designed to detect all instances of non-compliance with the GHG Protocol and the Corporate Value Chain, as it generally comprises making enquires, primarily of the responsible party, and applying analytical and other review procedures.

### Our Independence and Quality Management

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

Our firm carries out other assignments for Spark New Zealand Limited in relation to regulatory audit, other assurance related services (such as trustee reporting and agreed upon procedures in relation to the sustainability linked loans) and non-assurance services provided to the Corporate Taxpayers Group, of which the Group is a member. These services have not impaired our independence as assurance provider to the Company and Group. In addition to this, the Chief Executive has both a sister and brother-in-law that are partners at Deloitte. These Deloitte partners are not involved in the provision of any services to the Group and its subsidiaries and this matter has not impacted our independence. Also, partners and employees of our firm deal with the Group on normal terms within the ordinary course of trading activities of the business of the Company and its subsidiaries. The firm has no other relationship with, or interest in, the Group.

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

### Use of Report

Our limited assurance report is made solely to the Directors of the Group in accordance with the terms of our engagement. Our work has been undertaken so that we might state to the Directors those matters we have been engaged to state in this report and is for no other purpose. To the fullest extent permitted by law, we accept or assume no duty, responsibility or liability to any other party in connection with the report or this engagement, including without limitation, liability for negligence in relation to the conclusions expressed in this report.

### Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that Spark New Zealand Limited's Inventory Report for the year ended 30 June 2024 is not prepared, in all material respects, in accordance with the requirements of the GHG Protocol and the Corporate Value Chain.

*Deloitte Limited*

22 August 2024

Auckland, New Zealand

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



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