

Working Paper 2023/04

Analysing TCFD information disclosed in 2017–2022 annual reports of NZSX-listed companies

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disclosed in 2017–2022 annual
reports of NZSX-listed companies

Thank you

The Institute would like to especially thank all the preparers who have taken the time to engage early with climate reporting. It shows a commitment to our climate and our country. The resulting analysis shows that climate reporting can be achieved in a timely and effective manner. The challenge is to develop useful, relevant and timely climate reporting and assurance standards to enable decision-makers, such as investors, customers, employees and suppliers, to make informed decisions.

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Research team includes	Wendy McGuinness, Reuben Brady and Patrick Shonakan
Designers	Dana King
Editor	Johanna Knox
For further information	McGuinness Institute Phone (04) 499 8888 Level 1A, 15 Allen Street PO Box 24222 Wellington 6142 New Zealand www.mcguinnessinstitute.org
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1.0 Purpose and overview

This working paper aims to contribute to research on how Aotearoa New Zealand might better report and manage climate risks and maximise opportunities in the transition to a low-carbon economy. This working paper is designed for the External Reporting Board (XRB), New Zealand Stock Exchange (NZX), preparers of climate-related financial disclosures, and climate policy analysts.

This paper provides a quantitative assessment of the state of climate reporting in Aotearoa New Zealand through the lens of NZSX-listed companies that have published annual reports that mention the Task Force on Climate-related Financial Disclosures (TCFD) between the years 2018 and 2022. Benchmarking data sets over time showcases emerging trends.

This quantitative research is intended to show how the Recommendations of the Task Force on Climate-related Financial Disclosures are being applied by the different NZSX-listed companies in a voluntary manner. The passing of the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 gives the External Reporting Board (XRB) a mandate to issue a climate-related disclosure framework for climate reporting entities (CREs) in Aotearoa New Zealand. The standard, NZ CS1, is largely based on the TCFD (Taskforce on Climate-Related Financial Disclosures) framework (see Figure 1 overleaf). The standard mandates climate-related disclosures for 200 CREs – large listed companies with a market capitalisation of more than \$60 million; large licensed insurers; registered banks; credit unions; building societies and managers of investment schemes with more than \$1 billion in assets; and some Crown financial institutions (via letters of expectation).^{1,2}

2.0 Background

2.1 TCFD recommendations

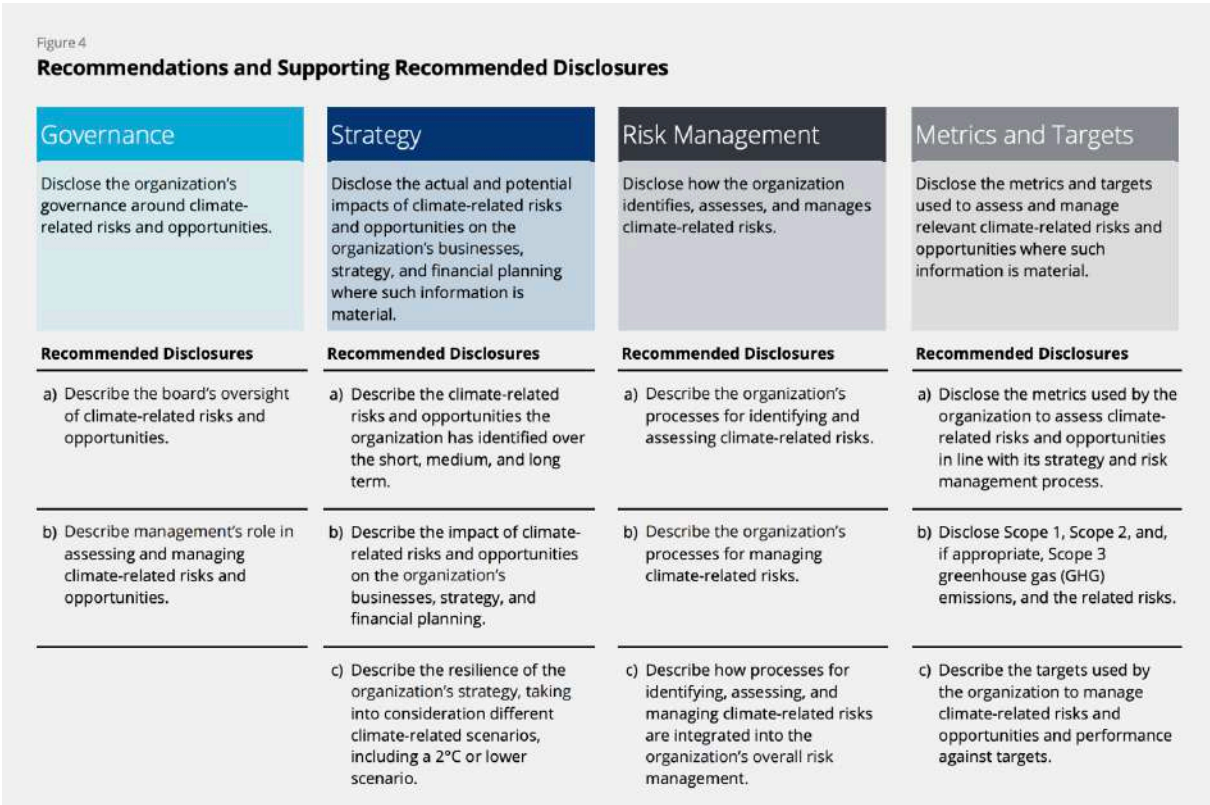
In 2017, the Recommendations of the Task Force on Climate-related Financial Disclosures report was published ‘to develop voluntary, consistent climate-related financial disclosures that would be useful to investors, lenders, and insurance underwriters in understanding material risks’.³ The 2017 report is the TCFD’s key document.^{4,5}

The 2017 report states:

The Task Force structured its recommendations around four thematic areas that represent core elements of how organizations operate—governance, strategy, risk management, and metrics and targets. The four overarching recommendations are supported by key climate-related financial disclosures—referred to as recommended disclosures—that build out the framework with information that will help investors and others understand how reporting organizations think about and assess climate-related risks and opportunities.⁶

See Figure 1 below for a breakdown of the TCFD’s four core elements and 11 recommended disclosures.

Figure 1: TCFD core elements and recommended disclosures⁷



2.2 Where annual reports are published

There is an obligation in the Financial Markets Conduct Regulations 2014 for a Financial Markets Conduct (FMC) reporting entity to make its annual report public on its website and ensure it remains ‘available for at least 5 years after it is first made available’:

The report must be available, free of charge, on an Internet site maintained by, or on behalf of, the entity in a way that ensures that— (a) the report is prominently displayed on the site; and (b) members of the public can easily access the report at all reasonable times. (Clause 61D)⁸

Listed issuers, being e-reporting entities, are also obliged under the NZX Listing Rules (see Rule 3.6) to prepare and deliver an annual report ‘within three months after the end of each financial year’.⁹ The annual report is then published on NZX’s website for each entity.¹⁰

Although they are only required to upload their financial statements to the Companies Register (which is managed by the Ministry of Business, Innovation and Employment [MBIE]), many entities instead decide to upload their full annual report (which includes the financial statements).¹¹ About 66% (see Table 1 below) of NZSX-listed companies lodge their annual report (not just their financial statements) as a matter of good practice (see Table 1 below). This means that many companies are actively making their annual reports easier for the public to access for reputation and branding benefits – not for compliance purposes.

Table 1: 2020 annual reports found on the Companies Register of NZSX-listed companies (as at 31 December)¹²

Year	NZSX-listed companies found on the Companies Register		
	(i) Annual report filed (including financial statements)	(ii) Financial statements only filed (no annual report)	(iii) No report or financial statements filed (e.g. in receivership or liquidation)
2020 [132]	87 [66%]	36 [27%]	9 [7%]

2.3 Where TCFD information is published

The XRB’s climate reporting standard (NZ CS 1) took effect on 1 January 2023 – creating a mandate for CREs to prepare and disclose climate statements. Under this reporting standard, the annual reports of CREs must include a statement that the entity is a CRE, and a copy of its climate statement or a link to the website where a copy of the statement can be accessed.¹³

While NZ CS 1 is largely based on the TCFD framework, the two are different reporting frameworks. As TCFD is a voluntary reporting regime, TCFD information may be published by a company in its annual report, a specific TCFD report, a sustainability report, or even simply on the company’s website. This also means that companies may have published TCFD information that the Institute did not find, which therefore will not be included in this analysis. The Institute has looked first at the annual report of each company, then used this as a way to find TCFD information. If TCFD information is not mentioned in a company’s annual report, it is unlikely to have come to the Institute’s attention.

3.0 Methodology

3.1 Method

This research was made up of four key steps:

Step 1: Find a soft copy of each NZSX-listed entity’s annual report

Annual reports were grouped by date. For example, a report that was dated 31 December 2022, but published in 2023, was grouped in the 2022 data set (see Table 2 below). Annual reports were found on the NZX website (under each entity). NZSX-listed company data sets are taken directly from the NZX Main Board website (NZSX). The Institute removed trusts and funds by only including companies with the term ‘Limited’ in their names.

Given that the NZSX changes over time as companies list and de-list, the data set is derived from the calendar year-end. For example, when looking at the 2022 annual reports of NZSX-listed companies, the list of companies was derived from the list of NZSX-listed companies as at 31 December 2022.

Further, if a company’s annual report was not found, it was excluded from step 2.

One company was excluded in 2022 as it was listed on the NZSX on 2 December 2022. This means that in 2022, 132 annual reports went through to step 2.

The data sets found for each year are set out in Table 2.

Table 2: Data sets of NZSX-listed companies (excluding trusts and funds), 2017–2022

Data sets		
Year	No. of entities	No. of available annual reports
2017	129	126
2018	124	123
2019	132	130
2020	132	130
2021	138	132
2022	133	132

Step 2: Use the search tool in Adobe Acrobat Pro to find key information

All annual reports found were searched for mentions of the term ‘TCFD’. The results were recorded in an Excel spreadsheet with a sheet for each year, listing each company’s name and the relevant page number/s in their annual report. The number of mentions of the TCFD in annual reports can be found in Table 4 and relate to 2018–2022 data sets.

There were five instances where a company’s annual report did not mention the term ‘TCFD’, but did mention the XRB’s climate-related disclosure framework (NZ CS 1). Although the information covered is very similar (as NZ CS 1 is largely based on the TCFD framework), they are different frameworks, and because of this the Institute decided not to include these companies in this research. We did, however, acknowledge them in Table 4 as they are undertaking work in this space, and we did not wish to discredit that.

Step 3: Categorise the results

After scoping the results (see list in Table 3 below), the Institute determined that how companies reported TCFD information fell into six categories.

The categories are:

1. Dedicated section (includes all four TCFD core elements)
2. External link (to a separate TCFD report)
3. Indexed throughout (TCFD information throughout the annual report)
4. Partial mention (some but not all of the four TCFD core elements)
5. Intent to publish (intention to publish TCFD information in the near future)
6. Casual reference

Appendices 1–5 provide excerpts of TCFD mentions from 2022 annual reports that fell into categories 1–4.

Step 4: Present the results

Once TCFD mentions were sorted into their relevant categories, the resulting list of companies was then presented and compared to previous years (see Section 4 and 5).

3.2 Limitations and assumptions

1. A key assumption is that it is good practice for all four core TCFD elements to be contained in an entity's annual report.
2. The research looks at the type and quantity of information available (e.g. TCFD information); it does not assess the quality of information available. The extent to which information is accurate or informative is outside the scope of this research.
3. There may be instances where NZSX-listed companies have published reports other than annual reports that specifically mention climate-related risks and opportunities, or even the TCFD. In order to be collected and analysed as part of this research, a reference to a TCFD report or some other report (e.g. a sustainability report) must be specifically mentioned in the entity's annual report.
4. The research did not look at whether the reports that mentioned the TCFD were assured or not.
5. There may be other information in the existing reports that was not found during the search.

4.0 Research results

4.1 Analysis of TCFD mentions in annual reports

Tables 3 and 4 summarise the Institute’s analysis of mentions of TCFD reporting by NZSX-listed companies. As noted in Table 3, 55% (73 out of 132) of 2022 annual reports mentioned the TCFD – this is over ten times higher than the 2018 figure. Table 3 illustrates the spread of the 73 mentions of the TCFD across the six categories of how TCFD information was reported. Table 4 shows how reporting by entities has evolved over the last four years.

Table 3: Six ways TCFD information is reported, 2018–2022

Way of reporting	2018	2019	2020	2021	2022	Refer to
1: Dedicated section	1	3	7	9	8	Appendix 1
2: External link	0	1	4	8	13	Appendices 2, 5
3: Indexed throughout	1	2	3	2	5	Appendix 3
4: Partial mention	3	0	2	5	6	Appendix 4
5: Intent to publish	1	3	9	16	40	N/A
6: Casual reference	1	1	2	3	1	N/A
Total number	7	10	27	43	73	N/A
Annual reports searched	123	130	130	132	132	N/A

Table 4: Companies’ mentions of the TCFD framework in annual reports, 2018–2022

	NZSX-listed companies [see Note 1]	2018	2019	2020	2021	2022	Number of pages (2022)	See page (this paper)
1	Air New Zealand [AIR]	Intent to publish	Intent to publish	Dedicated section	Dedicated section	Dedicated section	9	18
2	AFT Pharmaceuticals [AFT]	N/A	N/A	N/A	Intent to publish	Intent to publish	N/A	N/A
3	Ampol Limited [ALD]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
4	ANZ Bank [ANZ]	No mention	Dedicated section	Dedicated section	External link	External link	1	117
5	AoFrio Limited [AOF]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
6	Argosy Property Limited [ARG]	N/A	N/A	N/A	N/A	External link	6	118
7	Arvida Group [ARV]	N/A	N/A	N/A	Intent to publish	Partial mention	12	143
8	Auckland International Airport [AIA]	N/A	N/A	N/A	External link	External link	14	119
9	A2 Milk [ATM]	No mention	Intent to publish	Intent to publish	Intent to publish	Partial mention	4	155
10	Barramundi [BRM]	N/A	N/A	N/A	Casual reference	Intent to publish	N/A	N/A
11	Briscoe Group [BGP]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
12	CDL Investments New Zealand [CDI]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
13	Channel Infrastructure NZ Limited (previously Refining NZ) [CHI] [See Note 2]	No mention	No mention	Intent to publish	Intent to publish	External link	1	120

	NZSX-listed companies [see Note 1]	2018	2019	2020	2021	2022	Number of pages (2022)	See page (this paper)
14	Contact Energy [CEN]	Indexed throughout	Indexed throughout	Indexed throughout	Indexed throughout	Indexed throughout	1	131
15	Comvita [CVT]					Intent to publish	N/A	N/A
16	Downer Group EDI [DOW]	Partial mention	Dedicated section	External link	External link	External link	1	121
17	EROAD [ERD]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
18	Freightways [FRE]	N/A	N/A	N/A	Dedicated section	Dedicated section	20	27
19	F&P Healthcare [FPH]	No mention	No mention	Indexed throughout	Indexed throughout	Indexed throughout	1	132
20	Genesis Energy [GNE]	No mention	No mention	Dedicated section	Dedicated section	External link	23	122
21	Henderson Far East Income [HFL]	N/A	N/A	N/A	N/A	Casual reference	N/A	N/A
22	Heartland Group Holdings [HGH]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
23	Infratil [IFT]	N/A	N/A	N/A	N/A	Partial mention	6	159
24	Investore Property [IPL]	N/A	N/A	N/A	Partial mention	Dedicated section	8	47
25	Just Life Group [JLG]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
26	Kingfish [KFL]	N/A	N/A	N/A	Casual reference	Intent to publish	N/A	N/A
27	KMD Brands [KMD]	N/A	N/A	N/A	N/A	Dedicated section	6	55
28	Kiwi Property Group [KPG]	N/A	N/A	N/A	N/A	External link	7	123
29	Manawa Energy (previously Trustpower)	N/A	N/A	N/A	Partial mention	Partial mention	9	165
30	Marlin Global [MLN]	N/A	N/A	N/A	Casual reference	Intent to publish	N/A	N/A
31	Marsden Maritime Holdings [MMH]	N/A	N/A	N/A	Intent to publish	Intent to publish	N/A	N/A
32	Millennium & Copthorne Hotels New Zealand [MCK]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
33	Mercury [MCY]	No mention	Indexed throughout	Indexed throughout	Dedicated section	Dedicated section	15	61
34	Meridian Energy [MEL]	Partial mention	External link	External link	External link	External link	16	124
35	Metro Performance Glass [MPG]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
36	Move Logistics Group [MLG]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
37	My Food Bag [MFB]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
38	Napier Port Holdings [NPH]	No mention	No mention	Intent to publish	External link	External link	15	125
39	New Windfarms [NWF]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
40	NZ King Salmon Investments [NKS]	No mention	No mention	Intent to publish	No mention	Intent to publish	N/A	N/A
41	NZME [NZM]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
42	NZ Oil and Gas [NZO]	No mention	No mention	Dedicated section	Dedicated section	External link	N/A [see note 4]	126
43	New Zealand Exchange [NZX]	No mention	No mention	Intent to publish	Intent to publish	Indexed throughout	6	133
44	Oceania Healthcare [OCA]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
45	Pacific Edge [PEB]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A

	NZSX-listed companies [see Note 1]	2018	2019	2020	2021	2022	Number of pages (2022)	See page (this paper)
46	Pushpay Holdings [PPH]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
47	Precinct Properties NZ [PCT]	No mention	No mention	Intent to publish	External link	External link	8	127
48	Property for Industry [PFI]	No mention	No mention	Dedicated section	Dedicated section	Dedicated section	8	76
49	Port of Tauranga [POT]	No mention	No mention	Partial mention	Partial mention	Intent to publish	N/A	N/A
50	Rakon [RAK]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
51	Restaurant Brands New Zealand [RBD]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
52	Ryman Healthcare	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
53	Sanford [SAN]	No mention	Intent to publish	Intent to publish	Intent to publish	Intent to publish	N/A	N/A
54	Scales Corporation [SCL]	No mention	No mention	Dedicated section	Dedicated section	Indexed throughout	2	139
55	Scott Technology [SCT]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
56	SkyCity Entertainment Group [SKC]	N/A	N/A	N/A	Intent to publish	Intent to publish	N/A	N/A
57	Skellerup Holdings [SKL]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
58	Serko [SKO]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
59	Sky Network Television [SKT]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
60	Synlait Milk [SML]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
61	South Port New Zealand [SPN]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
62	Spark [SPK]	No mention	No mention	Partial mention	Partial mention	Partial mention	2	174
63	Stride Property & Stride Investment [SPG]	N/A	N/A	N/A	Partial mention	Dedicated section	18	84
64	Summerset [SUM]	No mention	No mention	Intent to publish	Intent to publish	Partial mention	8	176
65	Tourism Holdings [THL]	N/A	N/A	N/A	Intent to publish	Dedicated section	14	102
66	Tower [TWR]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
67	Turners Automotive Group [TRA]	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A
68	Vector [VCT]	Casual reference	Casual reference	Intent to publish	Intent to publish	External link	33	128
69	Ventia Services Group [VNT]	N/A	N/A	N/A	External link	External link	4	129
70	Vista Group [VGL]	N/A	N/A	N/A	Intent to publish	Intent to publish	N/A	N/A
71	Westpac [WBC]	Dedicated section	Dedicated section	External link	Dedicated section	Indexed throughout	1	141
72	Warehouse Group [WHS]	No mention	No mention	Casual reference	Intent to publish	Intent to publish	N/A	N/A
73	Winton Land	N/A	N/A	N/A	N/A	Intent to publish	N/A	N/A

Strong mention – reports on all core elements

- 1: Dedicated section
- 2: External link
- 3: Indexed throughout

Medium mention

- 4: Partial mention
- 5: Intent to publish

Light mention

- 6: Casual reference

Note 1: For the full names of NZSX-listed companies, see the NZX Main Board (NZSX): www.nzx.com/markets/NZSX

Note 2: Channel Infrastructure NZ Limited [CHI] was previously Refining NZ (name change occurred 1 April 2022).

Note 3: Chorus Limited, Fletcher Building Limited, T&G Global Limited, Seeka Limited and Steel & Tube Holdings Limited have been excluded from this table as these companies' annual reports did not specifically mention TCFD. They did, however, mention the XRB's climate-related disclosure framework and so it was important to acknowledge that they are doing work in this space. They have only been excluded because this paper focuses on the TCFD framework.

Note 4: In its 2022 annual report, NZ Oil and Gas Limited referred the reader to its 2022 sustainability report to find TCFD information. However, the web page linked does not contain a 2022 sustainability report.

Table 5: Nature of business of companies that mentioned the TCFD framework in annual reports, 2022

Agriculture, forestry and fishing	<ol style="list-style-type: none"> 1. The A2 Milk Company 2. NZ King Salmon Investments 3. Sanford 4. Scales Corporation 5. Synlait Milk [SML]
Mining	N/A
Manufacturing	<ol style="list-style-type: none"> 1. Ampol (refinement, wholesale and retail petrol) 2. Metro Performance Glass [MPG] 3. New Windfarms 4. Skellerup Holdings
Electricity, gas, water and waste services	<ol style="list-style-type: none"> 1. Channel Infrastructure NZ (previously Refining NZ) 2. Contact Energy 3. Genesis Energy 4. Mercury NZ 5. Meridian Energy 6. New Zealand Oil and Gas 7. Manawa Energy (previously Trustpower) 8. Vector
Construction	<ol style="list-style-type: none"> 1. Downer Group 2. Investore Property 3. Marsden Maritime Holdings 4. Precinct Properties New Zealand 5. Property for Industry 6. Stride Property & Stride Investment 7. Ventia Services Group
Wholesale trade	N/A
Retail trade	<ol style="list-style-type: none"> 1. Briscoe Group 2. KMD Brands 3. Turners Automotive Group 4. The Warehouse Group
Accommodation and food services	<ol style="list-style-type: none"> 1. Comvita 2. Just Life Group 3. Millennium & Copthorne Hotels New Zealand 4. My Food Bag 5. Restaurant Brands New Zealand

Transport, postal and warehousing	<ol style="list-style-type: none"> 1. Air New Zealand 2. Auckland International Airport 3. Freightways 4. Napier Port Holdings 5. Port of Tauranga 6. South Port New Zealand [SPN]
Information media and telecommunications	<ol style="list-style-type: none"> 1. NZME 2. Spark New Zealand 3. Sky Network Television [SKT]
Financial and insurance services	<ol style="list-style-type: none"> 1. ANZ Group Holdings 2. Barramundi 3. Henderson Far East Income 4. Heartland Group Holdings 5. Kingfish 6. Marlin Global 7. New Zealand Exchange 8. Pushpay Holdings 9. Tower 10. Westpac
Rental, hiring and real estate services	<ol style="list-style-type: none"> 1. Argosy Property Limited 2. CDL Investments New Zealand 3. Kiwi Property Group 4. Winton Land
Professional, scientific and technical services	<ol style="list-style-type: none"> 1. AoFrio Limited [AOF] 2. EROAD 3. Move Logistics Group [MLG] 4. Rakon 5. Scott Technology 6. Serko 7. Vista Group [VGL]
Administrative and support services	N/A
Education and training	N/A
Health care and social assistance	<ol style="list-style-type: none"> 1. AFT Pharmaceuticals 2. Arvida Group 3. F&P Healthcare 4. Oceania Healthcare 5. Pacific Edge 6. Ryman Healthcare 7. Summerset
Arts and recreation services	<ol style="list-style-type: none"> 1. SkyCity Entertainment Group 2. Tourism Holdings
Nature of business not clear	<ol style="list-style-type: none"> 1. Infratil (industrial/infrastructure investing conglomerate)

5.0 Observations

- Dedicated TCFD sections of 2022 annual reports ranged between 1 and 15 pages in length.
 - The longest was Mercury NZ Limited (15 pages).
 - The average length of a dedicated TCFD section was 9 pages.
 - Vector had the longest TCFD report (33 pages), but it was a separate report.
- The number of reports that mention the TCFD has increased over time.
 - In 2018, 6% (seven out of 123) of annual reports included TCFD mentions.
 - In 2019, 8% (ten out of 130) of annual reports included TCFD mentions.
 - In 2020, 21% of annual reports (27 out of 130) included TCFD mentions.
 - In 2021, 33% of reports (43 out of 132) included TCFD mentions.
 - In 2022, 55% of reports (73 out of 132) included TCFD mentions.
- The number of companies that include a dedicated TCFD section in their annual report increased until 2021.
 - In 2018, only one company out of 123 had a dedicated TCFD section in its annual report.
 - In 2019, 2% (three out of 130 companies) had dedicated TCFD sections in their annual reports.
 - In 2020, 5% (seven out of 130 companies) had dedicated TCFD sections.
 - In 2021, 7% (nine out of 132 companies) had dedicated TCFD sections.
 - In 2022, 6% (eight out of 132 companies) had dedicated TCFD sections (see Table 3).
- The most common type of TCFD mention in 2022 was a statement that the company intended to provide TCFD information in the future.
 - In 2018, 1% (one out of 123) of annual reports mentioned TCFD as part of a statement that the company intended to provide TCFD reporting in the future.
 - In 2019, 2% (three out of 130) of annual reports included this kind of statement.
 - In 2020, 7% (nine out of 130) of annual reports included this kind of statement.
 - In 2021, 11% (15 out of 132) of annual reports included this kind of statement.
 - In 2022, 30% (40 out of 132) annual reports included this kind of statement.

An intention to report often delivers an action. For example, in Air New Zealand's 2018 and 2019 annual reports, the company indicated its intent to report against the TCFD and in 2020, it published a dedicated TCFD section in its annual report (see Table 3). Air New Zealand continued to publish a dedicated section in 2021 and 2022.

- The number of companies that provide an external link to TCFD information in their annual report has increased since 2018.
 - In 2018, no companies provided external links to separate documents, such as specific sustainability reports, in their annual reports.
 - In 2019, 1% (one out of 130) of annual reports provided external links to these documents.
 - In 2020, 2% (three out of 130) of annual reports provided external links to these documents.

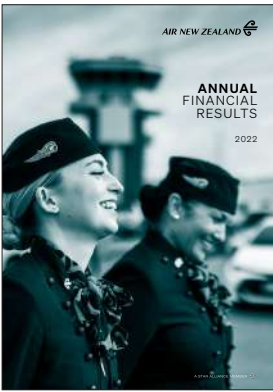
- In 2021, 6% (eight out of 132) of annual reports provided external links to these documents.
- In 2022, 10% (13 out of 132) of annual reports provided external links to these documents (see Table 2).

In 2018, Downer Group EDI provided a partial TCFD disclosure. By 2019, Downer Group EDI had progressed to providing a dedicated TCFD section in its annual report to demonstrate its engagement with the framework. In 2020, it did not include a dedicated section in its annual report, but instead provided a link to its TCFD response. In 2021, it did not include a dedicated section in its annual report, but provided a link to its 2021 sustainability report. And in 2022, it did not include a dedicated section in its annual report, but again provided a link to its 2022 sustainability report. The 2022 sustainability report did not contain a full TCFD report, but mentioned a climate change report, which was found on the company's website. This climate change report did contain a dedicated TCFD section. This example highlights inconsistencies around how and where these disclosures have been made and managed.

- Companies that initially provided a detailed index to help users find a range of TCFD information consistently continue with this practice over consecutive years.
 - In 2022, five entities (Contact Energy, F&P Healthcare, NZX limited, Scales Corporation and Westpac Banking Corporation) disclosed full TCFD reports and provided a detailed index for users.
 - In 2018, 2019, 2020, 2021 and 2022, Contact Energy responded to the TCFD in its annual reports by providing an index to each of the four core TCFD elements: governance, strategy, risk management and metrics & targets (see Appendix 3).
 - Similarly, F&P Healthcare provided users with an index to each of the four core reporting TCFD elements in its annual reports in 2020, 2021 and 2022 (see Appendix 3).
 - In 2019 and 2020 Mercury provided users with an index to each of the four core reporting TCFD elements in its annual reports. However, in 2021 and 2022, Mercury's TCFD disclosure was a dedicated section instead.
- The financial and insurance services sector had the highest number of companies (10) mentioning the term TCFD in 2022 annual reports. This was followed by: the electricity, gas, water and waste services sector (8); the health care and social assistance sector (7); the construction sector (7); and the professional, scientific and technical services sector (7). See Table 5.

Appendix 1: NZSX-listed 2022 annual reports – Dedicated section

Row from Table 4	NZSX-listed company name	Page number
1	Air New Zealand [AIR]	18
18	Freightways [FRE]	27
24	Investore Property [IPL]	47
27	KMD Brands [KMD]	55
33	Mercury [MCY]	61
48	Property for Industry [PFI]	76
63	Stride Property & Stride Investment [SPG]	84
65	Tourism Holdings [THL]	102



Appendix 1:
 NZSX-listed 2022 annual reports –
 Dedicated section

Air New Zealand
 Annual Report 2022

AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2022

CLIMATE-RELATED DISCLOSURES (CONTINUED)



Strategy *(continued)*

Transition Risks and Opportunities

Transition risks and opportunities are those related to the transition to a lower carbon economy. These include the impact of policy, legal, technological, reputational or market measures associated with climate change and decarbonisation.

In 2022, the airline engaged third party experts Ernst and Young (EY) to consider for the first time the transition risks and opportunities and the impact of these to the airline across three climate related scenarios. The risks and opportunities were analysed over three different time horizons: short term (2019 2030); medium term (2031 2040); and long term (2041 2050).

The three climate change scenarios, each representing different climate warming and transition trajectories, are outlined in **Figure 1** over page. These three trajectories were chosen to align with the TCFD recommendation to use a 2°C or lower scenario in addition to two or three other scenarios most relevant to the business circumstances.

The three scenarios were developed using a combination of inputs from four leading scenario providers: the Network for Greening the Financial System (NGFS), the International Energy Agency (IEA), the Air Transport Action Group (ATAG) Waypoint 2050 Report, and the New Zealand Climate Change Commission's (NZCCC's) Energy and Emissions modelling.

These four scenario providers were selected to achieve the granularity and aviation specificity required for meaningful and decision useful scenario analysis. This aligns with guidance from the New Zealand External Reporting Board (XRB) on using sector specific scenarios and balances the need for aviation specific data points with the required climate warming trajectories to sufficiently stress test the airline's strategy under different climate change scenarios.

EY used a proprietary transition risk model designed for the aviation sector to perform the modelling. This model calculates the greenhouse gas emissions profile and cost implications based on various data inputs out to 2050. These inputs were compiled from a combination of data from the airline and external data sources and assumptions.

The overarching conclusion from the modelling was that total incremental costs to the airline would be larger in the disorderly scenario due to delayed policy, investment, and emissions reductions, which increases technology costs and results in a higher carbon price.

The airline will continue to build on this scenario analysis to deepen its understanding of the impacts of climate change under different warming scenarios, the resilience of the company strategy in the face of these, and potential resulting material financial implications.

The airline plans to conduct physical risk analysis in the 2023 and 2024 financial years.

Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND GROUP



CLIMATE-RELATED DISCLOSURES (CONTINUED)



Strategy (continued)

Transition Risks and Opportunities (continued)

Figure 1.

The airline's climate scenarios for the consideration of transition risks¹

Scenario – 1	Scenario – 2	Scenario – 3
Orderly Scenario 1.5°C	Disorderly Scenario 1.8°C	Business as Usual Scenario 2.5°C
<p>Emissions in the wider economy decline in a coherent and gradual fashion from now out to net zero emissions in 2050</p> <p>The aviation sector lags the wider economy by 5-10 years with meaningful decarbonisation starting from 2030-2050</p> <p>Global warming is limited to 1.5°C</p>	<p>Emissions in the wider economy slowly rise until 2030, before an abrupt and steep transition to net zero by 2050</p> <p>The aviation sector lags the wider economy, delaying implementation of decarbonisation strategies until 2035-2040 which requires a very sudden fleet turnover to reach net zero in 2050</p> <p>Global warming is limited to 1.8°C</p>	<p>Emissions in the wider economy continue to rise out to 2050 with minimal action by governments to address climate change beyond those already known and in place</p> <p>The airline's current decarbonisation strategy is considered sufficient to mitigate reputational risks</p> <p>The aviation sector does not implement any decarbonisation strategies unless it is economically preferable</p> <p>Global temperatures increase to 2.5°C</p>
<p>Impact</p> <p>Airline impacted by short, medium and long term transition risks due to regulatory action to decarbonise the economy in line with limiting global warming to 1.5°C</p> <p>This scenario has lower potential costs from transition impacts than the Disorderly Scenario</p>	<p>Impact</p> <p>This scenario would see the most impact and cost on the airline from transition risks due to delayed action to decarbonise the economy, requiring rapid change from 2035-2050</p>	<p>Impact</p> <p>Given Business as Usual assumes no further regulatory action, risks related to this would have less impact on the airline than under the other scenarios</p> <p>Physical risks likely to be the highest of the scenarios and significant but not modelled</p>
<p>External scenarios</p> <p>NGFS 2021: Net Zero 2050</p> <p>IEA World Energy Outlook (WEO) 2021: Net Zero Emissions by 2050 Scenario</p> <p>ATAG Waypoint 2050: Scenario 1: pushing technology and operations</p> <p>NZCCC: Demonstration Path</p>	<p>External scenarios</p> <p>NGFS 2021: Delayed transition</p> <p>A combination of Business as Usual / Reference and Orderly Scenario external scenario providers to 2030-2035 before linearly shifting to an end point slightly higher than the Orderly Scenario</p>	<p>External scenarios</p> <p>NGFS 2021: NDCs</p> <p>IEA WEO 2021: Stated Policies Scenario</p> <p>ATAG Waypoint 2050: Scenario 0: Baseline / continuation of current trends</p> <p>NZCCC: Current Policy Reference</p>

¹ The airline selected these three warming scenarios to consider transition risks, in accordance with TCFD and XRB recommendations at the time. For future scenario modeling exercises, including the modeling of physical risks planned for 2023, the airline will include consideration of a 3°C or greater climate related scenario in accordance with the most recent XRB recommendations.

Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2022

CLIMATE-RELATED DISCLOSURES (CONTINUED)

Strategy (continued) Transition Risks

The transition risks defined below have been informed by the climate related scenario modelling outlined above.

S Short term 2022 2030 **M** Medium term 2031 2040 **L** Long term 2041 2050

Risk	TCFD category and timeframe	Risk description	Potential financial impacts	Mitigation
Carbon pricing	Policy and legal S M L	Increased carbon related regulation in New Zealand and internationally. Current compliance obligations include the New Zealand Emissions Trading Scheme (NZETS) for emissions from domestic aviation fuel, and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) for growth in international emissions from a 2019 baseline.	New or increased carbon taxes present risk to EBIT by increasing operating expenditure.	Future carbon pricing assumptions considered in operational and strategic planning. Implementation of the airline's decarbonisation strategy to achieve reductions in gross carbon emissions, including improvements to operational efficiency, ongoing fleet renewal, investment in and advocacy to accelerate the availability and commercial viability of SAF, and advocacy and planning for ZEAT. The airline is advocating for NZETS auction proceeds to be used to accelerate the development and deployment of technologies to enable aviation decarbonisation. The airline's compliance costs for the NZETS were \$14.4 million (calendar year 2021), \$14.5 million (calendar year 2020) and \$14.6 million (calendar year 2019). Monitoring international regulatory developments to understand risk and opportunities.
Government policy changes	Policy and legal S M L	Implementation or expansion of domestic and international policy regulating carbon emitting activities. Examples include emissions trading schemes, carbon taxes, passenger levies, SAF mandates, or demand control measures. Differing international standards could also introduce compliance complexity, and risk distorting the competitive composition of the market.	Increased operational and compliance costs present risk to EBIT.	The airline actively engages in government consultations on climate change policy with the goal of advancing aviation decarbonisation. This includes advocating for new policy measures to support the supply of SAF. Public submissions and advocacy documents can be found on the airline's website . Implementation of the airline's decarbonisation strategy to achieve reductions in gross carbon emissions, including improvements to operational efficiency, ongoing fleet renewal, investment in and advocacy to accelerate the availability and commercial viability of SAF, and advocacy and planning for ZEAT. Monitoring international regulatory developments to understand risk and opportunities.

² Air New Zealand Sustainability Reporting and communications www.airnewzealand.co.nz/sustainability-reporting-and-communication.

Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND GROUP



CLIMATE-RELATED DISCLOSURES (CONTINUED)



Strategy (continued)

Transition Risks (continued)

Risk	TCFD category and timeframe	Risk description	Potential financial impacts	Mitigation
Cost and supply of Sustainable Aviation Fuel (SAF)	Technology S M L	Cost of SAF is around 2 to 5 times the cost of jet fuel. SAF supply is limited: current SAF production is equivalent to less than 1% of the jet fuel that is consumed globally. In addition, supply is geographically constrained, with production based in jurisdictions with supporting policy; there is currently no SAF produced in the Asia Pacific region.	SAF cost presents a risk to EBIT by increasing operating expenditure and compliance costs. SAF supply limitations present a risk to EBIT from increased compliance costs and reputational damage.	Continuing advocacy ³ for new policy measures to support the supply and commercial viability of SAF in New Zealand, including advocating for a SAF specific mandate, and SAF specific policies to support the establishment of import supply chains and domestic production. Partnership ⁴ with the New Zealand Government to explore domestic SAF production in New Zealand, to secure local supply and improve fuel security. Membership in World Economic Forum Clean Skies for Tomorrow Coalition ⁵ . Collaboration with partner airlines on developing global SAF supply, including Star Alliance members.
Rapid fleet renewal	Technology M L	Rapid fleet renewal to mitigate emissions. Risk that technology does not develop sufficiently to meet emissions reduction goals.	Acquiring ZEAT represents an upfront cost increasing capital and operating expenditures. Technology lag presents a risk to EBIT from increased compliance costs and reputational damage.	Engaging with aircraft designers to support the development of these aircraft, including providing the airline's own specifications ⁶ for ZEAT. Partnership ⁷ with Airbus to explore the deployment of hydrogen powered aircraft in New Zealand. Continuing advocacy for new policy and regulatory measures to support the deployment of ZEAT in New Zealand, including through new infrastructure and energy supply. Partnership ⁷ with ATR to explore hybrid and zero emissions aircraft technology. Partnership ⁷ with Wisk Aero exploring how electric vertical take off and landing (eVTOL) aircraft could potentially enable zero emissions short range domestic flights.
Reduced travel demand due to changes in consumer preferences, and damage to brand value	Reputation / Market S M L	Increasingly climate conscious customers leisure and business travellers seeking to reduce their own emissions footprint may reduce air travel consumption.	Reduced air travel demand and eroded brand value presents risk to EBIT by reducing revenue.	Building on current carbon reporting provided to corporate customers, providing Air New Zealand specific carbon data to better inform customers as to their emissions footprints from travel. Developing a corporate and cargo SAF purchasing programme, to enable emissions reductions in line with the Science Based Targets initiative guidelines. Flight NZ0 ⁸ to inform customers as to the actions the airline is taking to decarbonise, and further plans for decarbonisation as the technology matures in the medium to long term.

³ Air New Zealand Sustainability Reporting and communications www.airnewzealand.co.nz/sustainability-reporting-and-communication.

⁴ Air New Zealand Flight NZ0 Sustainable aviation fuel www.flightnz0.airnewzealand.co.nz/#saf.

⁵ World Economic Forum Clean Skies for Tomorrow Coalition www.weforum.org/projects/clean-skies-for-tomorrow-coalition.

⁶ Air New Zealand Zero Emissions Aircraft Product Requirements Document www.flightnz0.airnewzealand.co.nz/initiatives/zero-emissions-aircraft-technology.

⁷ Air New Zealand Flight NZ0 Zero emissions aircraft technology www.flightnz0.airnewzealand.co.nz/initiatives/zero-emissions-aircraft-technology.

⁸ Air New Zealand Flight NZ0 www.flightnz0.airnewzealand.co.nz.

Air New Zealand Annual Report 2022 (continued)




AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2022


CLIMATE-RELATED DISCLOSURES (CONTINUED)



Strategy *(continued)*






Transition Opportunity

Opportunity	TCFD category and timeframe	Description	Potential financial impacts	Mitigation
Increased demand for net zero emissions flying	Products and services   	Increasing market share and potential price premiums from business and leisure customers seeking net zero emissions flying.	Increased revenue through demand for lower emission air travel.	Continue to implement decarbonisation roadmap and to identify new opportunities to decarbonise. Continue to engage with stakeholders through Flight NZ0 ⁹ , as outlined on previous page. Engage with corporate and cargo customers to develop SAF purchasing programme and provide airline specific carbon emissions data, as outlined on previous page.
			Better competitive position resulting in increased revenue.	
			Improved access to decarbonisation technologies.	
			Continued access to capital.	



Physical Risks

Physical risks are risks arising from changes in the regional and global climate and the consequential impacts and events. These may include acute physical damage from variations in weather patterns (for example severe storms, coastal/tidal flooding, drought) or chronic impacts (for example sea level rise and temperature increase).

Risk	TCFD category and timeframe	Description	Potential financial impacts	Mitigation
Extreme weather events	Acute Physical   	Increasing frequency of extreme weather events resulting in greater disruption to flights and the wider network.	Decrease in flying presents risk to EBIT by reducing revenue.	Implementation of flight planning software using advanced data analytics to optimise flight paths both in planning and dynamically once aircraft are airborne. Investment in advanced operations control thunderstorm detection in Auckland enabling proactive direct to aircraft crew notification. The airline is a member of New Zealand's New Southern Sky Programme which has been established to future proof New Zealand's airspace with the deployment of advanced technology adoption.
			Damage to infrastructure presents risk of increasing capital costs.	
			Increased insurance premiums and potential for reduced availability of insurance on assets in high risk locations.	
Sea level rise and coastal intrusion	Chronic Physical  	Sea level rise and coastal intrusion causing network disruption and loss of access to airports, other aviation support facilities, critical infrastructure and supply chains.	Decrease in flying presents risk to EBIT by reducing revenue.	Spatial master planning process identifies infrastructure risks and these are reflected in master planning. Ensuring maintenance is fit for purpose and current to legislation and regulation for building resilience.
			Damage to infrastructure presents risk of increasing capital costs.	
			Increased insurance premiums and potential for reduced availability of insurance on assets in high risk locations.	

⁹ Air New Zealand Flight NZ0 www.flightnz0.airnewzealand.co.nz.

Air New Zealand

Annual Report 2022 (continued)

AIR NEW ZEALAND GROUP



CLIMATE-RELATED DISCLOSURES (CONTINUED)



Risk Management

TCFD Recommendation:

1. *Processes for identifying and assessing climate-related risks*
2. *Processes for managing climate-related risks*
3. *Processes for identifying, assessing and managing climate-related risks and integrating them into overall risk management*

Risks are identified at various levels of the organisation, including a bottom up review involving the identification of key risks by business units and a review of top divisional risks by each Executive in respect of their portfolio of functions.

These processes are supplemented with specialist input from functional experts, including from the Sustainability, Corporate Finance, Legal and Risk teams, to promote consistency and completeness. Key climate related risks and opportunities are also identified, assessed, and managed by each business unit in accordance with this process.

Risks identified through this process are analysed and consolidated by the Enterprise Risk team to inform the Group Risk Profile, representing the top strategic risks for the airline.

Periodic workshops are held with the Board to gain insights and input, including into risk identification, assessment, and management.

Key risks identified are entered into Risk Registers and a formal assessment process determines the materiality of the risk. Risks are assigned to a responsible manager. Key mitigations for identified risks are determined and assessed for effectiveness and action plans developed where required to reduce the risks to an acceptable level.

Significant climate related risks are brought to the attention of the Leadership Squad and/or the Audit and Risk Committee as part of the process of reporting to those bodies, and where appropriate are escalated to the Board.



Metrics and Targets

TCFD Recommendation:

1. *Metrics used by the organisation to assess climate-related risks and opportunities in-line with its strategy and risk management process*
2. *Reporting greenhouse gas emissions*
3. *Targets used by the organisation to manage climate-related risks and opportunities and performance against targets*

The airline uses a range of carbon metrics in its internal reporting, strategy formation and decision making. This includes metrics related to assessing the impact of gross carbon emissions, emissions intensity values and the value of New Zealand's carbon compliance obligations. Key metrics are reported below.

The impact of Covid 19 has had a significant impact on the airline's operations and network as well as the key metrics that the airline reports on. As a consequence, it is difficult to meaningfully compare the key metrics with prior years.

Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2022

CLIMATE-RELATED DISCLOSURES (CONTINUED)

Metrics and Targets *(continued)*

Carbon Emissions Data (Tonnes CO ₂ e) ¹	2020	2021	2022
Scope 1 International network emissions (Jet Fuel)	2,649,922	817,078	1,040,786
Scope 1 Domestic network emissions (Jet Fuel)	518,607	508,737	465,303
Scope 1 Other emissions ²	8,106	7,376	6,796
Total Scope 1 emissions	3,176,635	1,333,191	1,512,885
Scope 2 Emissions (Electricity)	2,832	2,720	2,736
Scope 3, Category 3 (Upstream emissions of purchased fuels) ³			307,335
Total Scope 1, Scope 2 and Scope 3 (category 3) emissions			1,822,956

¹ The airline discloses its emissions within its Greenhouse Gas (GHG) Inventory report. Full definitions of emission scopes can be found within that report; extracts from that report are duplicated here within. Deloitte was engaged to provide reasonable assurance over the scope 1 and scope 2 components over the GHG Inventory Report, and limited assurance over the scope 3, category 3 components. Refer to the reporting and communications page on Air New Zealand's website for the full GHG Inventory and Assurance Report. Gases included in the carbon dioxide equivalents (CO₂ e) factor are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O).

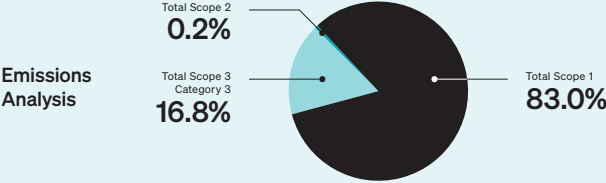
² Scope 1 other emissions include the combustion of jet fuel from ground operations, LPG, natural gas, diesel, petrol, and wood pellets.

³ Scope 3, category 3 emissions include emissions generated in the extraction, production, and transportation of fuels consumed by the airline. 2022 is the first year that Scope 3 (Category 3) emissions have been reported.

Commentary on Carbon Emissions Data

Total Scope 1 and 2 emissions increased by 13% in 2022. This increase was due to the increase in Scope 1 emissions resulting from greater network capacity as New Zealand's Covid 19 restrictions eased through 2022. These emission levels remain significantly lower than pre Covid 19 levels.

In 2022 the airline disclosed its scope 3, category 3 emissions for the first time. Category 3 emissions are the airline's predominant source of scope 3 emissions.



Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND GROUP



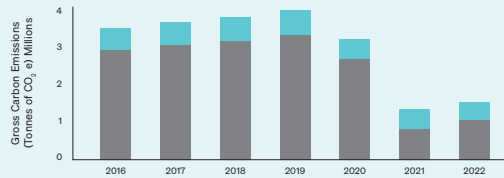
CLIMATE-RELATED DISCLOSURES (CONTINUED)



Metrics and Targets (continued)

Gross Carbon Emissions (CO₂ e)

■ International
■ Domestic



Carbon Intensity Data

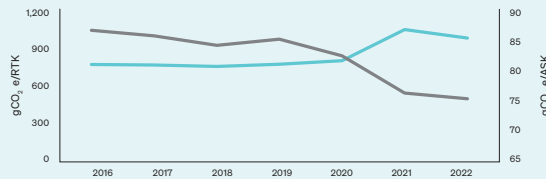
Carbon intensity data below provides a measure of emissions generated for each kilogram of payload flown and each available seat. Payload carriage is expressed as Revenue Tonne Kilometre (RTK)⁴ and seat availability is measured in Available Seat Kilometre (ASK)⁵.

These are both prominent metrics for benchmarking airline carbon intensity. The airline aims to improve carbon intensity by reducing emissions from flight operations and maximising total payload carriage.

Carbon Intensity Metrics	2020	2021	2022
Grams of CO ₂ e per Available Seat Kilometre (ASK)	82	76	75
Grams of CO ₂ e per Revenue Tonne Kilometre (RTK)	789	1,039	971
Well to Wake Grams of CO ₂ e per Revenue Tonne Kilometre (RTK) ⁶			1,165

Carbon Intensity Analysis

■ gCO₂ e/ASK
■ gCO₂ e/RTK



Commentary on Carbon Intensity Metrics

The airline's carbon intensity (measured in gCO₂ e/RTK) decreased 7% compared to 2021. This improvement was largely due to easing New Zealand border restrictions leading to higher load factors on the network. However, this metric still remains elevated when compared to pre Covid 19 levels due to the national lockdowns and border restrictions in place at varying times throughout the 2022 financial year.

While the airline's carbon intensity (measured in gCO₂ e/RTK) has trended upwards through the Covid 19 impacted period, carbon intensity (measured in gCO₂ e/ASK) has continued a downward trend, decreasing 12% between 2019 to 2022. This reduction has been a result of the improved efficiency achieved through the retirement of the Boeing 777 200ER fleet and continued efforts to improve operational efficiency.

⁴ Revenue Tonne Kilometre (RTK) is a measure of the weight that has been paid for on the aircraft (freight and passengers) multiplied by the number of kilometres transported. Freight values are from the airline's records, and passenger weights are estimated at 100kg per passenger (including checked and carry on baggage) as recommended by IATA for generating a fuel efficiency target. CO₂ e emissions are from the airline's use of aviation fuel over the same time period.


⁵ Available Seat Kilometre (ASK) is measured by the available seats for sale multiplied by the number of kilometres transported. The airline has participated in the Maintaining International Air Connectivity scheme using passenger aircraft to fly cargo only flights. The equivalent ASKs from these flights has been included in the total ASK number.

⁶ Well to Wake (WTW) emissions cover the activities and accompanying emissions across the value chain of jet fuel in the aviation sector. WTW emissions can be split into two components: Well to Tank (WTT) which encompasses emissions from feedstock sourcing, processing and transportation to fuel production and distribution (measured as scope 3, category 3 emissions); and Tank to Wake (TTW) includes emissions from the combustion of fuel (measured as scope 1 emissions).

Air New Zealand Annual Report 2022 (continued)

AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2022

CLIMATE-RELATED DISCLOSURES (CONTINUED)




Metrics and Targets *(continued)*

Targets

The airline has set a 2030 science based target (as outlined below), validated by the Science Based Targets initiative. The target includes a carbon intensity reduction component and an associated gross emissions reduction component. The target is aligned to a well below 2 C pathway⁷ and requires an absolute reduction in carbon emissions, with no provision for carbon offsets. Each component of the target should be considered side by side for a balanced view of performance against the target.

The airline’s science-based carbon reduction target




Air New Zealand commits to reduce Well to Wake GHG emissions related to jet fuel by 28.9% per Revenue Tonne Kilometre from owned operations, equivalent to a 16.3% absolute reduction, by 2030 from a 2019 base year⁸

Summary of Climate Targets

Commitment to net zero carbon emissions by 2050.
 Validated 2030 science based carbon reduction target (as outlined above).
 The airline has signed the Clean Skies for Tomorrow 2030 Ambition Statement, pledging support for SAF and committing to help accelerate the supply and use of SAF to reach 10% of global jet aviation fuel supply by 2030.
 A cap on net CO₂ emissions from international aviation from 2020. Achieved through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

⁷ The Science Based Targets initiative does not provide a 1.5°C aligned pathway for the aviation industry.
⁸ Non CO₂ e effects which may also contribute to aviation induced warming are not included in this target. The airline commits to report publicly on its collaboration with stakeholders to improve understanding of opportunities to mitigate the non CO₂ e impacts of aviation annually over its target timeframe. The target boundary includes biogenic emissions and removals from bioenergy feedstocks.



Next steps for the airline’s TCFD work plan

Use and build on transition risk scenario modelling that has been undertaken to deepen understanding of the impacts of climate change under different warming scenarios, the resilience of the airline strategy in the face of these, and potential resulting material financial implications.

Conduct physical risk scenario modeling, including analysis of a 3°C or greater climate related scenario and consideration of possible adaptation measures required.

Contribute to sector wide scenario modelling as applicable.

Progress towards full compliance with New Zealand’s Climate related risk disclosure standards.

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Appendix 1: NZSX-listed 2022 annual reports – Dedicated section

Freightways Annual Report 2022

Governance

Task Force on Climate-Related Financial Disclosures

Climate risk disclosures prepared in response to the recommendations.



Background

Climate change is one of the most significant challenges we face as a society and will raise many business risks – and opportunities – across the economy.

Governments and businesses alike are taking steps to face these challenges in several ways: enacting legislation to foster a low-carbon economy; defining decarbonisation pathways and deadlines to achieve carbon neutrality; making the disclosure of Greenhouse Gas ('GHG') emissions inventories and reduction targets mandatory; and industry-led initiatives such as the Climate Leader's Coalition, which Freightways joined in 2019.

The transport sector is responsible for 19.7 percent of New Zealand's total greenhouse gas emissions¹. The New Zealand Climate Change Commission estimates that a 50% reduction in transport emissions is required by 2035 to achieve net zero emissions by 2050².

As one of New Zealand's major transport services provider, the bulk of our GHG emissions are generated from consuming transport fuels. We have a number of businesses in New Zealand and Australia, covering express package and other complementary services in

information management, business mail and chilled transport. Freightways has grown organically and by acquisitions and has representation in every major town in New Zealand.

Our core business of collecting, consolidating, processing and delivering enables us to move thousands of items per day in a resource and emissions-efficient way. Our investments in technology to drive continuous improvement of fuel efficiency aligns with the objective of reducing our GHG emissions.

This is our second annual climate disclosure and describes our current governance and management approach to assessing and managing climate change risks and opportunities to our businesses. As part of this disclosure, we have also strengthened our emissions reporting – see page 69.

¹Ministry of Transport report: Transport Emissions: Pathways to Net Zero by 2050 May 2021.

²New Zealand Climate Change Commission Draft Advice, March 2021.

³<https://www.freightways.co.nz/content/uploads/2018/08/Audit-Risk-CommitteeCharter.pdf>
<https://www.freightways.co.nz/content/uploads/2021/12/RM-Risk-Management-Policy-Jul20.pdf>

Freightways

Annual Report 2022 (continued)

freightways.co.nz



Freightways' position on climate change:

Freightways recognises that our core business of providing transportation services for our customers is currently emissions intensive.

We have an important role to play, both in building resilience to climate change impacts and in the transition to a low-carbon economy. We intend to make direct contributions to climate adaptation and mitigation efforts within our sector and the markets we operate in.

We will also work to be a strategic partner for our customers, supporting and enabling their responses to the climate change challenge.

Board oversight

Freightways' Board of Directors are responsible for overseeing the management of risk, including those related to climate change.

The Charter of the Board's Audit & Risk Committee requires that an annual review of key risks and mitigations is performed by each of Freightways' controlled businesses and is consolidated at a corporate level.

The Audit & Risk Committee is responsible for the management, monitoring and reporting of risks, as well as the review of risk management policy. Climate risks fit within Freightways' definition of risk³. Risks are assessed according to their likelihood and potential impact. Each business is responsible for identifying events that could impact their ability to deliver on its strategy or reduce profitability.

Freightways currently engages a specialist external third party to supplement our internal expertise on climate-related issues on an annual basis to support the preparation of our TCFD report. Freightways performs annual measurement and receives third-party assurance of our GHG emissions, which allows us to understand the trajectory of our GHG emissions and carbon price exposure year on year. Exposure to climate-related risks and carbon prices has been considered when assessing potential business acquisitions.

Freightways' Board is also taking on a longer-term focus, which will be reflected in an updated risk assessment methodology and the prioritisation of climate-related risks.

The Board has approved the development of Freightways' GHG emission reduction target and strategic climate initiatives. Progress against those strategic objectives and targets are reviewed annually by the whole Board.

Management's role

Freightways' Chief Executive Officer (CEO) and Chief Financial Officer (CFO) take responsibility for assessing and managing climate-related risks and opportunities at a corporate level. As part of this role, the CEO and CFO are engaged in structuring Freightways' strategic and risk management approach to these climate-related risks and opportunities.

Freightways' business GMs and executive teams are responsible for identifying and assessing risks at an operational level, including climate-related risks, and providing those to Freightways' executive leadership team at least on an annual basis for board Audit & Risk Committee review.

Freightways

Annual Report 2022 (continued)

Risk Management

Climate-related risks are identified through multiple sources including:

Freightways' process of identifying and assessing climate-related risks takes into consideration activities occurring across its value chain. This approach sees Freightways considering risks that lie both upstream and downstream of its direct operations. For example, physical risks impacting upstream infrastructure such as ports are considered due to their impact on our ability to deliver packages to our customers. Climate-related risks are identified through multiple internal and external sources. These include:

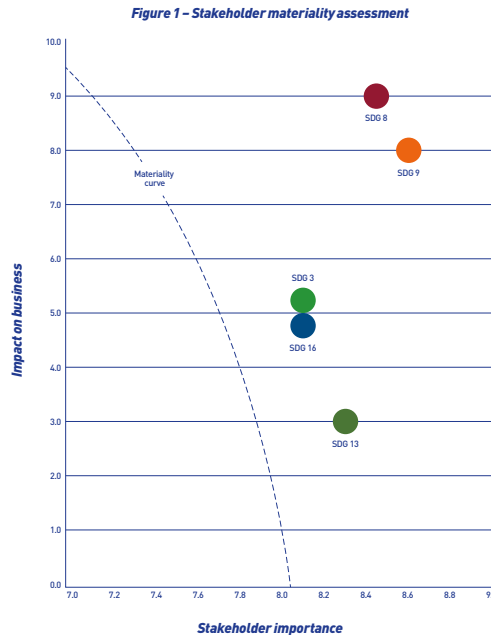
Internal sources:

- Our disaster recovery and business continuity plans assess the impacts of acute events.
- Regular reviews of the Critical risks assessments which are regularly reviewed.

External sources:

- Our involvement in the Climate Leaders Coalition⁴ and other industry groups focused on addressing climate change.
- Briefings and advice from climate change specialists.
- Reports produced by government agencies, such as the Climate Change Commission and the United Nations.

Freightways' commitment to incorporating non-financial criteria into our broader risk assessment and decision-making led us to conduct a materiality assessment in



2017. This assessment helped us to understand and incorporate into our strategy the views of key stakeholders. The results of this process, shown in Figure 1, clearly indicated the importance of Climate Action (Sustainable Development Goal 13).⁵

Collective action

Part of the process of identifying climate-related risks and opportunities is working with other industry participants on opportunities for collective action. That's why Freightways joined the Climate Leaders Coalition at its inception and has undertaken work to establish science based targets to contribute to action towards the Paris Agreement.

Physical climate impacts

Physical climate impacts arise from extreme weather events (e.g., storm, flood, drought) or from the longer-term shifts in climate patterns (e.g., increasing temperatures). These changes may result in financial risks or opportunities due the direct and indirect impacts they can have on business operations, assets, markets or to supply chains.

Transition climate impacts

Transition climate impacts refer to risks and opportunities resulting from the policy, legal, technology and market changes occurring in the transition to a low carbon economy. Depending on the nature, speed, and focus of these changes, transition impacts may pose varying levels of financial and reputational risk or opportunity.

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How policy changes align or impact our business model

Another aspect of identifying climate-related risks and opportunities is understanding how policy changes align or could impact our business model. For example, the New Zealand’s Ministry of Transport’s May 2021 Transport Emissions Pathways document sets out themes to phase out emissions across our transport system. Table 1 below shows Freightways’ actions in line with Themes 2 and 3.

Table 1: Pathways to Zero Carbon by 2050 – initiatives by theme

Transport sector emission reduction themes ⁵	Freightways initiatives
<p>Theme #2 Phasing out the importation of Internal Combustion Engine (ICE) light vehicles by 2035; banning the use of all ICE light vehicles in 2050; adoption of biofuels in light vehicles and buses and electrifying the Public Transport bus fleet by 2035.</p>	<p>Our plan for EV uptake starts in 2024 and ramps up as availability of alternatives allow. With early action our entire fleet can be made up of low emission vehicles by 2035.</p>
<p>Theme #3 Energy saving and logistic improvements (such as freight routes optimisation; freight consolidation and improved last mile efficiency); mode-shift from road freight to rail and to coastal shipping; adoption of biofuels for road freight and accelerating uptake of electric medium trucks.</p>	<p>Freightways have systems in place to enable optimisation, such as freight consolidation and last mile efficiency and driver training. As a consolidation business we understand the economic and environmental benefit of being resource efficient.</p>

A more structured approach

A more structured approach is being established and progressively implemented to maximise the benefits of acting in line with our carbon reduction target – see the Metrics and Targets’ section.

Some of the initiatives we have undertaken or have planned, in order to manage the climate-related risks and opportunities identified, include:

- Leasing/purchasing more fuel-efficient vehicles, with plans to start EV uptake in 2024.
- Collaborating on air freight movements using more fuel-efficient airplanes.
- More efficient use of our network and an increase of run density, leading to improved fuel efficiency.
- Employing a contractor model which incentivises efficient fuel use in their own vehicle through factors such as the routes taken, maintenance and minimising total kilometres travelled.
- Collaborating between our separate courier businesses to gain further efficiencies.
- Reducing use of virgin fossil-fuel based materials for packaging.
- Implementing the use of plastic courier satchels, that contain 80% recycled content, for customers.
- Investing in our circular economy recycling business aiming to reduce waste to landfill.
- Upgrading to LED lighting and solar based energy in warehouses.
- Investing in saveBOARD, a waste-to-product business capable of converting used plastics — such as courier satchels — into building materials.

⁵<https://www.climateleaderscoalition.org.nz/who/signatories/freightways>
⁶<https://www.un.org/sustainabledevelopment/climate-change/>
⁴Ministry of Transport report: Transport Emissions: Pathways to Net Zero by 2050

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Risk Management

Likelihood and impact

To determine the risk rating of climate-related risks, we use our general business risk matrix.

This approach considers two variables: likelihood and impact (Figure 2 and 3). The ratings reflect our short, medium and long-term timeframes and the financial impact on the company. The combination of the ratings results in the ratings matrix, as seen in Figure 4. As most of our risks and opportunities assessments are currently only qualitative, we currently only use the likelihood rating elements. The likelihood rating produced from the assessment of each identified climate-related risk is used to determine the relative significance of all climate-related risks. Because we also use this the likelihood rating as part of our determination of other risks Freightways faces, we are able to also determine the relative likelihood of climate-related risks to other risks.

Figure 2: Freightways' risk likelihood ratings

Likelihood	Definition	Could happen within...	Time horizon
Very unlikely	Only expected to happen in exceptional circumstances	10 years	Long-term
Unlikely	Has been known to occur, including in other organisations	3 – 5 years	Medium-term
Possible	Has happened before within the company or industry	1 – 2 years	Short-term
Likely	Regular occurrence within the company or industry	1 year	Short-term
Very likely	Happens with high frequency	1 month	Short-term

Figure 3: Freightways' risk impact ratings

	Financial Impact	Reputation	H&S	Compliance
Impact	Could \searrow EBIT by:			
Minor	<1%	Can be ignored or managed through informal communication	Minor physical injury or emotional impact or near miss; can be managed at team level	Breach of internal policy only
Moderate	<5%	Minor but credibility/integrity of FRE questioned and requires formal response	Lost time injury less than 5 days; emotional impact requiring EAP assistance; minor increase in absenteeism or turnover	Breach of external guidelines; non-notifiable breach of privacy law; breach of administrative or non-material provision of other statute or regulation
Significant	<10%	Moderate incident that could damage FRE's reputation and lead to some media coverage	Lost time injury between 5 and 10 days; professional/medical treatment required; incident attracts some media attention; Worksafe investigation with risk of improvement or prohibition notice	Breach of statutory or regulatory obligation; relevant regulator aware or must be notified (e.g. privacy breach requiring notification to privacy regulator)
Major	<33%	Credibility/integrity of FRE challenged with national/sustained media coverage; shareholder enquiries likely	Serious harm with hospitalisation/lost time injury of more than 10 days; Worksafe investigation with risk of prosecution/significant penalties	Breach of NZX Listing Rule or other material legislative breach with risk of financial penalty and/or restriction on operation
Catastrophic	33%+	Significant and sustained negative media coverage; requires communications to shareholders and/or NZX	Severe accident involving multiple hospitalisations/permanent disability or death; WorkSafe investigation with risk of prosecution/significant penalties	Breach of NZX Listing Rule or other material legislative breach with risk of trading suspension, high profile court proceeding, FMA/SFO investigation and/or criminal penalty

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Risk register

Each business unit is required to maintain a risk register which also considers mitigation and risk trends.

Freightways' executive leadership team is given the opportunity to reflect on each risk at least annually. A collective agreement on prioritisation follows, which informs the decisions on how to mitigate, transfer, accept or control each risk.

During the course of our initial climate risk assessment, we identified that climate risks will typically peak in their impact beyond the upper 10-year limit of our risk assessment framework with a reasonably high degree of certainty. Therefore, it is possible that these risks may not be rated sufficiently using our current risk framework. Given this, over the next annual risk and strategy sessions with the Board, we will:

- Review an updated brief on the material risks currently identified and any new risks identified in the preceding year.
- Review our risk rating thresholds to assess whether our enterprise risk framework could better reflect the nature of climate risks.
- Decide whether to assign a higher risk rating to our material climate risks to ensure a response proportionate to their potential impact on the business.

Figure 4 – Risk Rating Matrix

		5	4	3	2	1	
Likelihood: probability of occurrence	Very likely	Medium	Medium	High	Very high	Very high	A
	Likely	Low	Medium	High	High	Very high	B
	Possible	Low	Medium	Medium	High	High	C
	Unlikely	Low	Low	Medium	Medium	High	D
	Very unlikely	Low	Low	Low	Medium	High	E
		Minor	Moderate	Significant	Major	Catastrophic	
		Impact when occurs (EBITA reduction)					



*Ministry of Transport report: Transport Emissions: Pathways to Net Zero by 2050. May 2021.

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Strategy

Considering both a low and high emissions scenario, and their impacts

Freightways' conducted a qualitative assessment of its climate-related risks and opportunities in a low and high emissions scenario, taking into account the physical, policy, technology, markets and stakeholder impacts associated with those scenarios.

The scenario analysis process is led by Freightways' management, who engage a third-party consulting service with expertise in analysing climate-related risks and opportunities to support internal risk assessment activities. The results of any scenario analysis are provided to the board through regular updates on ESG matters throughout the year. Climate-related scenario analysis is currently a standalone process; however, Freightways will continue to look for ways to integrate scenario analysis into our strategy processes as the management of climate-related risks and opportunities matures.

Due to the qualitative nature of this assessment, the results do not speak to the impact on earnings and only assess the likelihood based on our enterprise risk management framework (see above). Understanding the full risk assessment rating, will require quantitative modelling of the financial impact of each risk in the future.

For our key transition risk – exposure to an increasing carbon cost – we conducted a quantitative assessment of the cost of fuel under the New Zealand Climate Change Commission's 'Headwinds' and 'Tailwinds' scenarios in combination with our in-house assessment of our fleet's transition to low emission vehicles (see table 2).

The tables that follow below describe the physical risks (Table 3), transition risks (Table 4) and climate-related opportunities (Table 5) that were identified, and their expected impacts on the business.

Table 2: Climate risk and opportunity scenarios relevant to the transportation sector

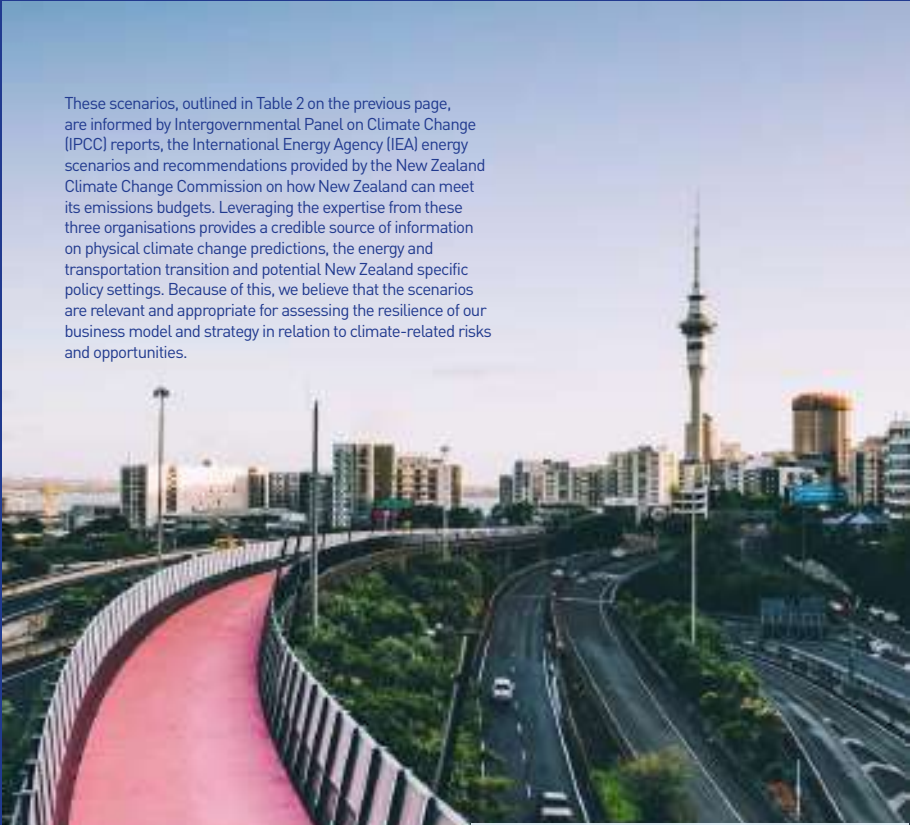
Scenario	The path to 2100 in a high emissions scenario	The path to 2100 in a low emissions scenario
Physical impact	Emissions continue to rise Average global temperature rise of 3.2°C – 5.4°C by 2100	Global emissions decline from the short-term Average global temperature rise of 0.9°C – 2.3°C by 2100
Policy	Little / ineffectual policy action on climate change The Paris Agreement fails as major economies withdraw Australia continues its current climate and energy policy, e.g. no pricing on carbon emissions	Consistent with the International EA Sustainable Development Scenario and NZ Climate Change Commission advice, which shows a carbon price of around US\$80/tCO ₂ e (NZD\$110-120) by 2030 and NZD\$160 by 2035 Strict regulatory requirements e.g. carbon budgets, fuel emission restrictions, increased monitoring and reporting obligations
Technology	Advancements in low-carbon technologies such as alternative transport fuels and energy mainly driven by market supply and demand mechanisms	The NZ Climate Change Commission's advice to the Government is for 100% of new light vehicles and 10% of heavy trucks to be electric by 2035 Globally, IEA modelling projects EVs to reach 12.25% of global vehicle fleet, and 28.8% of sales by 2030
Market	Consumer and business purchasing behaviour is driven by quality/price ratio irrespective of the carbon footprint of the product or service	High demand for low-carbon products or services to reduce emissions, this could provide a competitive advantage/disadvantage depending on whether the business can meet the market demand
Stakeholder	Little to no expectations from stakeholders to act on climate change	High stakeholder expectations concerning climate mitigation efforts and resilient investments

⁷https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter8.pdf
⁸<https://www.iea.org/reports/energy-technology-perspectives-2020>
⁹<https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/modelling/>

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These scenarios, outlined in Table 2 on the previous page, are informed by Intergovernmental Panel on Climate Change (IPCC) reports, the International Energy Agency (IEA) energy scenarios and recommendations provided by the New Zealand Climate Change Commission on how New Zealand can meet its emissions budgets. Leveraging the expertise from these three organisations provides a credible source of information on physical climate change predictions, the energy and transportation transition and potential New Zealand specific policy settings. Because of this, we believe that the scenarios are relevant and appropriate for assessing the resilience of our business model and strategy in relation to climate-related risks and opportunities.

→ We believe that scenarios are relevant and appropriate for assessing the resilience of our business and strategy model in relation to climate-related risks and opportunities...

Freightways

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Strategy

Freightways’ business model relies on a network of transportation assets and logistics infrastructure to move goods for our customers.

Physical risk description – Disrupted transport network

The impacts of climate change, including more prevalent extreme weather events, sea level rise, increased average temperatures and high wind speeds all threaten to damage and disrupt the roads, airports and shipping ports that keep our customers’ goods moving around the country and the world.

Extreme weather events such as storms combined with king tides are likely to increase temporary disruption to the transport network, especially coastal roads in New Zealand and Australia. This could lead to longer delivery times for customers and higher transport costs as freight is diverted to alternative routes. In the second half of the century, sea level rise and increased temperatures are expected to lead to long term or permanent damage to assets such as Auckland Airport or the Cook Strait ferry crossing and further amplify the impacts of extreme weather events

(e.g. storm surges, surface flooding). This could cause cost increases and impacts on the resilience of our operations. Our planning of alternate routes or alternate runways is helping to address this risk.

Freightways understands this risk is greater under a high emissions scenario where physical climate impacts are more prevalent. According to the New Zealand National Climate Change Risk Assessment, the exposure to physical climate hazards experienced by New Zealand roads, airports and ports varies¹⁰. Ports are currently considered to have limited exposure to climate hazards; however, this increases to a moderate exposure in 2050. Roads and airports, on the other hand, are already considered to have a major exposure to climate hazards through to 2050. Under a low emissions scenario, this risk is expected to be significantly lower.

Physical climate risks

Table 3: Material physical climate risks

Risk to Freightways	Climatic Drivers	TCFD Risk Type	Operational Impact
Extreme weather events and sea level rise cause prolonged/sustained disruptions to the transport network	<ul style="list-style-type: none"> Extreme weather Sea level rise Increased temperature 	Acute/chronic	<ul style="list-style-type: none"> Temporary disruption to certain transport routes Delays in service delivery Higher costs for transportation Significant alteration to network design, routes and transport methods
Higher temperatures and extreme weather impair operating assets and disrupt utility services	<ul style="list-style-type: none"> Extreme weather Sea level rise Increased temperature Heat Stress 	Acute/chronic	<ul style="list-style-type: none"> Temporary disruption to processing activities at select buildings Increased delivery times for customers Higher insurance costs for certain buildings Certain buildings are no longer usable

^{10&11}<https://environment.govt.nz/publications/national-climate-change-risk-assessment-for-new-zealand-main-report>

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We are currently in the beginning stages of understanding this risk to our business, particularly in relation to our business strategy. Previous disruptions to the transportation network, most notably the 2016 Kaikoura Earthquake, have provided us with experience in managing disruption successfully.

Physical risk description – Asset damage and utility services disruption

A core part of our business is the processing of items we deliver for our customers. To achieve this, we rely on a wide range of fixed assets and utilities services (e.g. fuel, electricity) across our network. Physical climate change impacts such as more prevalent extreme weather, sea level rise and heat stress threaten to damage and disrupt operations at our buildings or the utilities that support these buildings. This may limit our ability to process and deliver goods for our customers on time.

Due to the expansive nature of our network, our buildings are likely to experience different physical climate impacts depending on their location. For buildings in Australia and the north of New Zealand, building failure due to heat may become an issue, making it difficult for buildings’ electrical systems to operate and, in some areas, uncomfortable and unproductive for our staff during high temperature days.

For operational assets in low lying and coastal areas, damage from continued flooding caused by sea level rise and storm events may eventually render the buildings unusable or uninsurable from mid-century. These kinds of disruption could have a longer-term impact on our network while a suitable replacement building is found. At a country wide level, extreme weather events may lead to damage of electricity infrastructure that could impact several of our sites simultaneously.

Under a high emissions scenario the physical risk posed to buildings is expected to be greater than under a low emissions scenario. According to the National Climate Change Risk Assessment, the exposure of New Zealand’s buildings to climate hazards is already considered major and is expected to grow to an extreme exposure by 2050¹¹.

As with the risk of damage and disruption to the transportation network, we are currently still in the early stages of understanding this risk to our business. Going forward, we will need to assess the climate-related risks at a site level. This information will allow us to proactively manage our assets as climate change impacts materialise, as well as providing a better understanding of the overall impact of this risk on our business strategy.

Table 3, below, describes the physical risks that were identified, and their expected impacts on the business.

Type of Risk Assessment	Risk Assessment and timeframe	Initial risk treatment actions	Business model and strategy response
Qualitative	2035 Likelihood ratings Low emission scenario: Unlikely High emission scenario: Possible	Review our established processes for dealing with weather related events preparing alternate operational plans	Build flexibility and redundancies through our network
	2050 Likelihood ratings Low emission scenario: Unlikely High emission scenario: Very likely	Review the capability of our experienced team who are involved in the decision-making process to prepare for future events	Build facilities to increase resistance to weather-related events
Qualitative	2035 Likelihood ratings Low emission scenario: Unlikely High emission scenario: Possible	Further analyse our assets and associated utility services for their vulnerability to physical climate impacts	
	2050 Likelihood ratings Low emission scenario: Unlikely High emission scenario: Likely		

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Strategy

Our business model and strategy is reliant on efficient utilisation of various vehicles and assets to process and transport our customers' items at each step in our logistics network.

Transition risk description - increasing fuel costs as a result of higher cost of carbon

Fuel costs at Freightways are largely paid by our independent contractor drivers as a cost of operating their vehicles.

We believe that this model promotes efficient fuel usage, reducing the amount of transport fuel used by our businesses. However, regardless of how our fuel costs are paid, we understand that our business has significant financial exposure to changes in transport fuel prices.

With the cost of carbon expected to rise in New Zealand, increases in the carbon price will impact Freightways' fuel costs.

This, together with offering an adequate return to our contractor drivers, is helping to drive our adoption of low-emission alternatives in order to avoid the increasing costs of fossil fuel.

In 2021 we undertook quantitative modelling to better understand the approximate financial impact that higher carbon prices would have on our fuel costs by 2035.

Table 4, below, describes the transition risks that were identified, and their expected impacts on the business.

Climate transition risks

Table 4: Material transitional risk

Risk to Freightways	Transition Drivers	TCFD Risk Type	Operational Impact
Increasing cost of fuel as a result of higher carbon costs	Reduced availability of New Zealand Units (NZUs)	Technology	Higher operational costs
	Reducing carbon allowance under national carbon budgets	Policy and Legal	Increased costs for customers
Climate compliance requirements raise barriers for new drivers, hindering business growth	Higher costs of operating ICE vehicles		Loss of competitive advantages over other freight companies that have lower carbon footprints
	Restrictions on import and use of internal combustion engine vehicles	Technology	Exacerbation of the cost of inefficiencies across the delivery network
	Increasing fuel costs (due to cost of carbon)	Reputation	Inability to retain or attract drivers or higher cost to contract drivers due to their need for EVs
	High upfront cost of low emissions vehicles		Delays and a loss of reliability for our services
			Reputational damage

¹²Freightways 2020 Sustainability Report

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Type of Risk Assessment	Risk Assessment and timeframe	Risk Treatment	Business model and strategy response
Quantitative (2035 assessment)	2035 Low emission scenario: Medium High emission scenario: High	Achieve reductions in line with our science-based targets Currently planning to transition the fleet to low emissions vehicles in line with targets set using the science-based targets initiative? Continue ongoing optimisation and utilisation improvements to our routes and service offerings	Progressively replace our fleet of vans and trucks with cleaner energy models Continue to optimise our network to reduce energy consumption Support our contractors to acquire clean-energy vehicles
Qualitative (2050 assessment)	2050 Likelihood rating Low emission scenario: Unlikely High emission scenario: Possible	Frequent upgrading of linehaul units to lower emitting vehicles In the past year, we have managed to decrease our fleet by 4% while increasing the number of items sent through our networks ¹²	Ensure drivers are enabled to switch to cleaner energy vehicles
Qualitative	2035 Low emission scenario: Possible High emission scenario: Very Unlikely	Designing of contracts to incentivise efficient driving, route choices and proper vehicle maintenance Providing early signals to contractors about when replacement vehicles must be low emission	
	2050 Likelihood rating Low emission scenario: Likely High emission scenario: Possible	Reviewing and adapting contractor remuneration rates to support them into low emission vehicle	

Freightways Annual Report 2022 (continued)

Strategy



Cost of carbon exposure:
\$1.3m
 estimated based
 on 2019 emissions

Assessment methodology

We have assessed the net present value (NPV) of our financial exposure to increasing fuel costs as a result of an increasing cost of carbon under two different scenarios as of 2021. These scenarios took into consideration the estimated rates of low-emission vehicle uptake within our fleet, our science-based targets work, and the "Headwinds" and "Tailwinds" scenarios released as part of the draft advice from the New Zealand Climate Change Commission in February 2021.

These scenarios both assume that 100% of the carbon price is passed through in the cost of fuel.

NZ Climate Change Commission scenarios used for modelling the impact of carbon price changes on fuel costs.

Tailwinds

- The most optimistic emissions reductions scenario with a steady and clear reduction to net zero emissions by 2050.
- Presents a future where there are fewer barriers to the uptake of new vehicle technology and widespread behaviour change amongst the population.
- Freightways can follow its planned transition to low emissions vehicles, beginning in 2024.

Headwinds

- The least optimistic emissions reductions scenario with a much more sudden and aggressive reduction to net zero emissions by 2050.
- Presents a future where there is delayed uptake of new vehicle technology and slow behaviour change amongst the population.
- Freightways' planned transition to low emissions vehicles is delayed by five years, beginning in 2029.

Due to uncertainties surrounding the adoption of low emissions technologies for heavy vehicles and aircraft, the 2050 assessment of this risk is qualitative. Due to Australia not having a carbon price at this time, this modelling was limited to our New Zealand operations.

As a reference point, Freightways estimated exposure to the cost of carbon (embedded in fuel prices) based on 2019 fuel consumption was approximately NZD1.3m.

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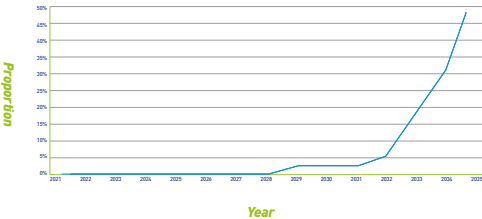
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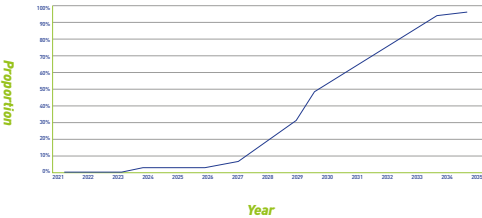
Low emission vehicle adoption rates

Freightways' adoption of low emissions vehicles varies between the Headwinds and Tailwinds scenarios. This reflects the differing rate of change between the two scenarios. Under a Tailwinds scenario, Freightways acts early to reduce emissions, while a Headwinds scenario sees us delay our emissions response. This is based on the differing costs of technology between the Headwinds and Tailwinds scenario, with low emissions vehicle technology costs decreasing more quickly under Tailwinds than Headwinds.

Low emissions vehicles as a proportion of total fleet (Headwinds)



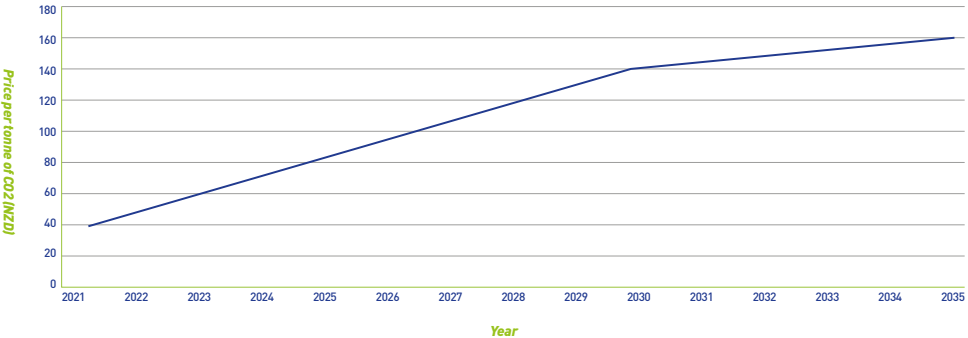
Low emissions vehicles as a proportion of total fleet (Tailwinds)



Carbon price

The annual carbon price in the Climate Change Commission's analysis was consistent across both the Headwinds and Tailwinds scenarios. They are a yearly prediction of what the price of carbon could be to create economic incentives to meet emission reduction targets, as can be seen below:

Estimated Carbon Price (2021-2035)



Freightways Limited and its subsidiaries | 63

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Strategy

Assessment findings

Under a "Tailwinds" scenario, by 2034 all vehicles in the motorbike, passenger vehicle and van fleets are expected to be fully electric. The 2021 NPV of our financial exposure to the cost of carbon in transport fuels over the 2022 and 2035 period is approximately NZD 68.3m with a peak financial exposure of approximately NZD 10.1m in 2029, then this risk subsides as the proportion of EVs in the fleet increases steadily. Despite this, continued growth in aviation fuel use means the cost of carbon to the business in 2035 is 33% higher than 2019 levels.

By 2050, it is expected that all land-based light transport fleets will be fully electric (or similar low emissions technology), which will considerably reduce Freightways' exposure to this risk. While we have not made any commitments at this time to invest in low-emission aviation fuels or propulsion types, we anticipate more of these options becoming available from 2030 onwards.

Under a "Headwinds" scenario, none of our vehicle fleets becomes fully electric by 2035. The NPV of our financial exposure to the cost of carbon in transport fuels between 2022 and 2035 is approximately NZD 82.1m, with a peak financial exposure of approximately NZD 13.4m in 2032, when the reduction in fuel use from the introduction of PHEVs in the passenger vehicle fleet (from 2029) begins to counteract the rising cost of carbon. Combined with the growth in aviation fuel use, the cost of carbon in 2035 remains at 186% of 2019 levels. By 2050, this risk is expected to have reduced from 2035 levels. However, the delay in adoption of low emission heavy vehicles and the continued use of hydrocarbons in the aircraft fleet mean that Freightways may have exposure to the risk posed by the increasing cost of carbon in transport fuels.

The overall financial impact of this increasing carbon cost exposure will depend on the extent to which this cost can be passed onto consumers. Freightways' ability to pass this cost onto consumers will itself depend on the impact that these higher carbon costs have on the demand for transportation services and also the speed at which our competitors decarbonise their fleets.

Our transition initiatives

To help reduce this risk over time, we have several initiatives underway. Firstly, we have annual measurement and third-party assurance of our GHG emissions, which allows us to understand the trajectory of our carbon exposure year on year. Secondly, Freightways has developed its emissions reduction using science-based targets. This work includes planning our transition towards low emissions vehicles. Lastly, Freightways is constantly exploring ways to improve the efficiency and utilisation of our routes and service offerings. For example, over the past year, we have managed to decrease our fleet by 4% while still increasing the number of items sent through our networks.

Figure 5, to the right, shows the projected financial exposure that Freightways has to a rising cost of carbon in transport fuels. The New Zealand dollar amount represents only the carbon cost component of the cost of fuel. The remaining components embedded in the price per litre, for example other taxes and the cost of the fuel itself, are in addition to the amount show.

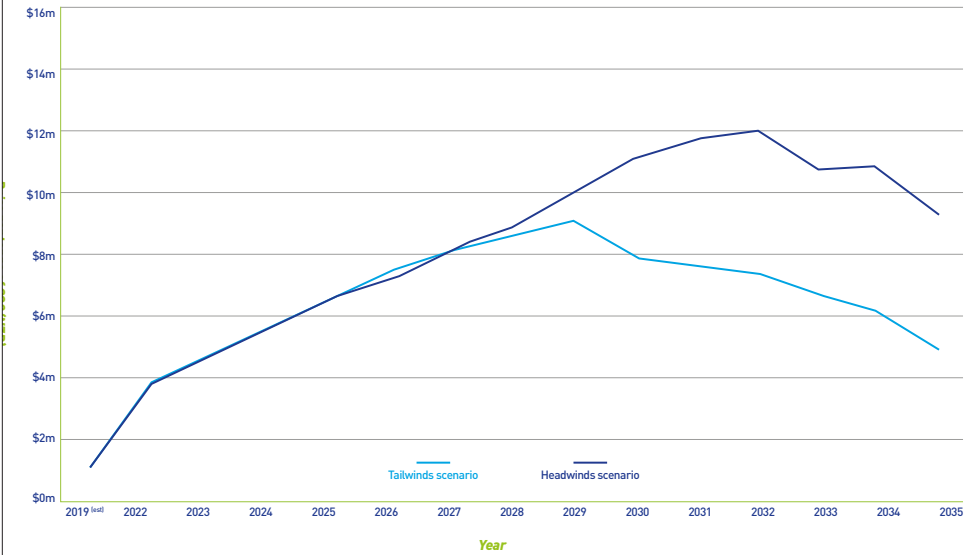


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Figure 5. Additional cost of fuel due to carbon prices 2019 – 2035 (NZ only)



'Tailwinds' scenario:
By 2035, all vehicles in the motorbike, passenger vehicle and van fleets are expected to be fully electric



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Strategy

Climate compliance requirements impact pool of contractor drivers - risk description

Freightways recognises the essential role that our contractor drivers play in the success of our business model and strategy. To ensure we attract and retain the best people in the freight and logistics sector, we work to offer a competitive package for our contractors. A transition to a low carbon economy has the potential to undermine this competitiveness if we do not factor in costs that a transition could bring. In particular, we understand that a low carbon economy will likely lead to higher upfront costs for contractors as they transition to low emissions vehicles.

Conversely, the projected carbon prices in New Zealand will increase fuel costs for those who continue to use fossil fuel vehicles, which may raise barriers to attracting new contractor drivers. This would limit many of our core business activities, causing delays in our services and causing reputational damage among our customers.

To help mitigate this risk in the future, Freightways is leveraging several initiatives. Firstly, we have designed the agreements with our contractors to incentivise fuel-efficient driving, route choice and vehicle maintenance. This helps to reduce the emission intensity of our operations and improves margins for our contractors. Having established our emissions reduction plan, we can signal to our contractors when we will require any new replacement vehicles to be low emissions in order to meet our reduction targets. This allows our current and future contractors to factor in the potential extra up-front cost of this transition early on in their financial planning. Finally, to support the upcoming changes to our fleet, we have been improving the remuneration rates for contractors to help them meet any higher upfront costs of transitioning to low emissions vehicles when the time comes.

Table 5, to the right, describes the climate-related opportunities that were identified, and their expected impacts on the business.

New markets and efficiencies

The drivers of climate change are known to extend beyond simply emissions from transport. As the world continues to invest in sustainability activities that reduce carbon emissions, we believe that there will be new markets and customers that our business can serve. For example, the rise of product stewardship and producer responsibility is increasing the need for reverse logistics. Not only will this develop new business opportunities for Freightways, but it will also support improved fleet utilisation and optimisation through a reduction in 'empty kilometres' vehicles travel. This will work to support our business strategy by strengthening our capability of striving for efficiency.

Table 6: Climate-related opportunities

Opportunity for Freightways	Opportunity Drivers
New markets and efficiencies spring up as part of the economic transition to net zero	Increased investment and expansion of renewable, low emission, zero waste and social equity activities throughout the economy
New offerings enhance customer relationships	Freightways being a partner in its customers' emission reduction Customer demand for greater emissions transparency Improved emissions measuring and reporting tools
Climate resilient transport network provides Freightways a strategic advantage	Impact of physical climate risks Customer demand for a reliable freight delivery network Investment in the resilience and adaptability of Freightways' network

→ As physical climate risks become more material, the importance of a resilient transport network will grow...

Freightways

Annual Report 2022 (continued)

freightways.co.nz

TCFD Opportunity Type	Potential Benefits	Type of Opportunity Assessment	Opportunity materialisation timeframe	Business model and strategy response
Markets Products and Services	Market growth Market share Improved fleet utilisation Greater breadth of revenue streams	Qualitative	5 to 10 years	Ensure that our contractors are sufficiently rewarded and incentivised to be able to invest in cleaner energy vehicles
Resource Efficiency Products and Services	Additional/ enhanced service offerings for customers Lower prices for freight services for customers Improved company reputation	Qualitative	5 to 10 years	Measure and reflect the environmental cost of services
Resilience	Improved reputation amongst both current and potential customers Overall business resilience against climate change	Qualitative	20 to 30 years	Invest in clean energy infrastructures and fleet

Customer growth and improved relationships

Our customers are becoming increasingly aware of not just their own direct carbon emissions but the often much larger volume of indirect emissions of their suppliers and business partners. Leveraging our technology to provide customers with accurate data on the emissions embedded in their transported goods is a transition action we are already fielding requests for. As low emissions vehicles enter the fleet over the coming decade, customers will also be able to report on the reduction in indirect transportation emissions. Additionally, transitioning our fleet to low emissions, low cost-to-run vehicles could yield cost savings to our drivers and our business. As with the new markets and efficiencies opportunity, this will work to support our business strategy by strengthening our capability of striving for efficiency.

Improved competitive advantage

As physical climate risks become more material, the importance of a resilient transport network will grow. Through investing in our network over the coming decade, including assessing and responding to our network’s vulnerabilities to physical climate change impacts, we can improve our network resilience and flexibility. This has the potential to give Freightways an advantage amongst others in our sector who do not attempt to invest in their network’s resiliency. The result would likely see new customers leverage our network as they seek our reliability in the face of increase physical climate impacts. This will work to support our business strategy by strengthening our capability of delivering reliably.

Freightways

Annual Report 2022 (continued)



→ ***We are committed to managing and reducing our carbon footprint and have been measuring Scope 1,2 and 3 GHG emissions since 2014 for our NZ operations.***

Freightways

Annual Report 2022 (continued)

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Metrics and targets

Our key transition activities are the rate of uptake of low emission vehicles within our fleet and other steps to reduce GHG emissions per tonne kilometre.

We expect these activities will be reflected in how quickly we are able to reduce our emissions.

To understand and report transparently against our emissions reduction goals, we are committed to managing and reducing our carbon footprint and have been measuring Scope 1, 2 and 3 GHG emissions since 2014 for our New Zealand operations, meeting the requirements of Toitū Carbonreduce™ certification and ISO 14064-1:2006.

Scope 1, Scope 2, and 3 emissions

Over 95% of our emissions come from the fuel we use in our fleet cars, our contracted courier vans and trucks, and the aircrafts we use.

In FY21 we set science-based emission reduction targets. We are working toward a 2030 target of 30% reduced GHG emissions and a 2035 target of 50% reduction in absolute GHG emissions, from a 2019 baseline. These targets are science-based, aligning with what society needs to achieve globally to keep global warming to within 2°C.

In FY22 we completed updates to our GHG emissions inventory to include business acquisitions and emissions from our Australian operations.

Figure 6: Freightways' FY22 Emissions

Scope	tCO2e
Scope 1	9,867.44
Scope 2	4,248.46
Scope 3 Mandatory	15,459.94
Scope 3 Additional	56,042.21
Scope 3 One Time	-
Total Gross Emissions	85,618.05



Freightways Limited and its subsidiaries | 69



Appendix 1: NZSX-listed 2022 annual reports – Dedicated section

Investore Property Annual Report 2022

Climate-related Disclosures

Ensuring the future of a sustainable business is important to Investore and the Board. The Board is focussed on adapting its portfolio for a sustainable future and meeting the challenges of climate change.

As with other aspects of the management of Investore's business, Investore works closely with its Manager, SIML, in relation to sustainability and climate risk, and aligns its approach with that taken by Stride Property Group (Stride). During FY22, work undertaken has included completion of the first formal climate risk assessment, gathering greenhouse gas emissions data and preparing to commence the Green Star performance rating process for aspects of the Investore portfolio.

Investore is committed to completing the Global Real Estate Sustainability Benchmarking (GRESB) assessment process, which benchmarks Investore's sustainability performance against a peer group in the Asia Pacific region. Investore is committed to understanding and improving its sustainability performance against its peers, and completing the GRESB assessment process annually will assist in that regard.

This section of the Annual Report provides disclosures against the overall framework of the Taskforce on Climate-related Financial Disclosures, intended to assist investors with understanding how Investore assesses and responds to climate risk in its business.

Governance

During FY22 the Board considered the appropriate structure for overseeing sustainability matters for Investore and resolved that responsibility should remain with the whole Board. This is due to the smaller size of the Board, along with the fact that sustainability considerations impact on all areas of the Investore business, particularly the strategic decisions that are the responsibility of the Board.

The Board amended the Investore Board Charter to clarify that the Board's responsibilities include setting and monitoring Investore's sustainability policy and integrating environmental and social principles into the governance of Investore. The Charter also sets out Investore's commitment to sustainability. The Charter can be found in the Corporate Governance Documents section of the Investore website, www.investoreproperty.co.nz.

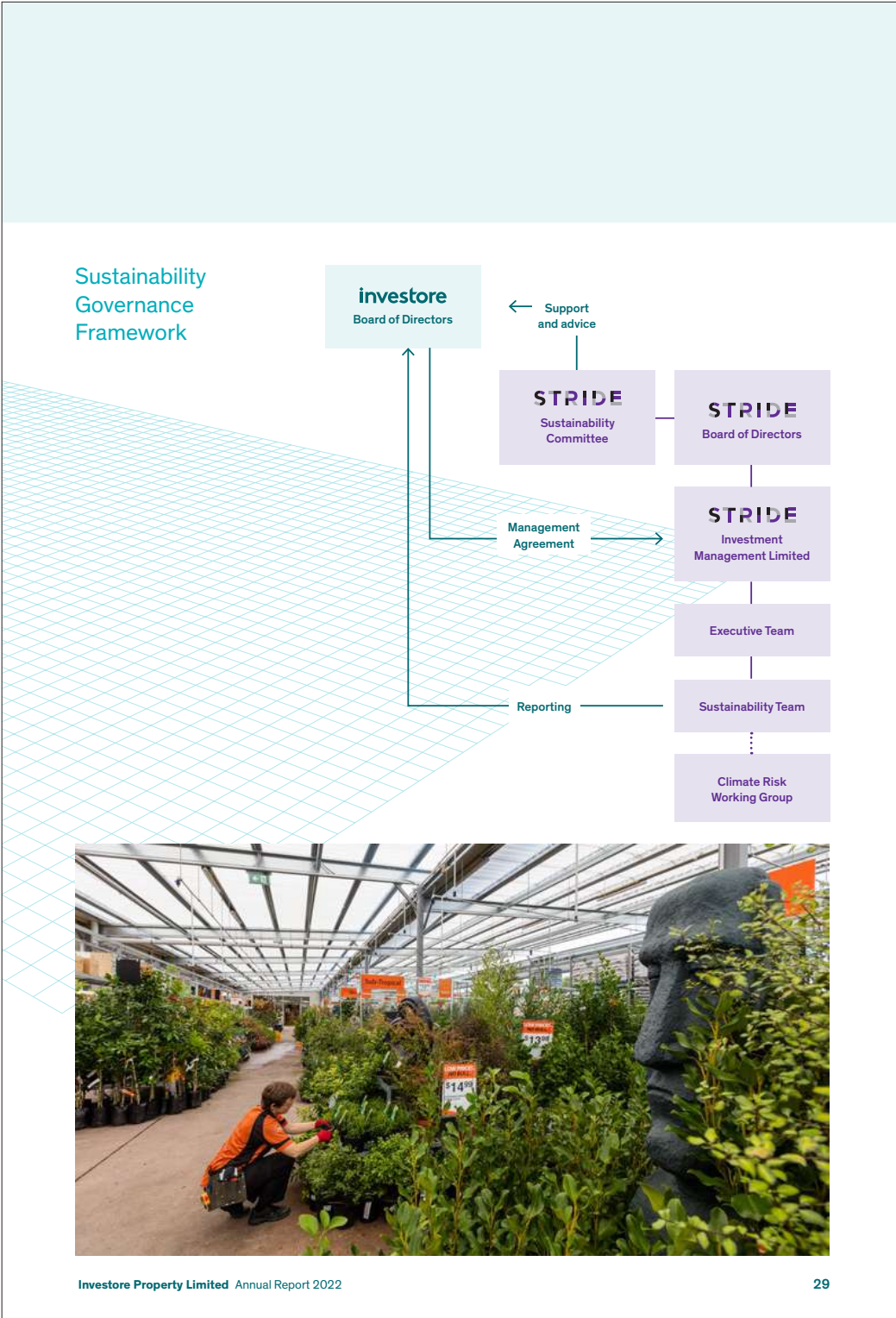
As described elsewhere in this report, Investore has appointed SIML to manage the business of Investore. Accordingly, while the Investore Board has primary responsibility for the governance of sustainability matters, Investore relies on SIML to assist with execution of Investore's strategic sustainability initiatives. The SIML Board has established a Board Sustainability Committee to oversee sustainability activities within Stride, and this Committee provides support and advice to the Investore Board.

Day to day responsibility for implementing strategic initiatives related to climate risk and sustainability sits with the SIML executive team. The SIML sustainability team reports to the General Manager Corporate Services, who is a member of the SIML executive team and reports directly to the CEO.

During the year, SIML established a climate risk working group to provide input on the climate risk assessment. This group was provided training on climate change and climate risks, along with climate risk terminology, to assist them in undertaking their role.

The governance structure for climate risk is set on the following page.

Investore Property Annual Report 2022 (continued)



Investore Property Limited Annual Report 2022

Investore Property Annual Report 2022 (continued)

Climate-related Disclosures

Climate Risk Management

During FY22 a climate risk working group was formed by SIML to assess the impact of climate risk on the business of Stride and its managed entities, including Investore. The working group considered climate risk under two scenarios – a low carbon scenario and a business as usual scenario.

Under the low carbon scenario, the world transitions to a low carbon economy and temperature rise is kept to between 0.3 and 1.7 degrees Celsius (Representative Concentration Pathway (RCP) 2.6). In the business as usual scenario, on the other hand, carbon emissions are not constrained and the temperature rise is between 2.6 and 4.8 degrees Celsius (RCP 8.5) and there is a 300% increase in hot days (>25 degrees Celsius).

In assessing the risks posed to Investore's business and strategy under each scenario, the working group held a number of workshops to assess the risks and opportunities associated with climate risk, and the outcome was then moderated by the sustainability team within SIML.

Given the longer-term nature of climate risk impacts, the climate risk assessment is currently not integrated into Investore's overall enterprise risk management process. However, during FY23 Investore intends to better integrate the two risk approaches, to ensure a comprehensive approach to risk across the organisation.

Strategy

Investore's strategy is to invest in quality, large format retail properties through New Zealand, and actively manage shareholders' capital, to maximise distributions and total returns over the medium to long term.

The Investore Board considers climate risk as part of the inputs to its overall strategic decision making. The Board has considered the impact of climate change on Investore's business and strategy, including through completion of a climate risk assessment, which is described in this section of the Annual Report, and plans to undertake further work in this area during FY23.

Climate Change Risks and Opportunities

During FY22 the first formal climate risk assessment for Investore was undertaken. The process identified that climate transition risks have more impact in the low carbon scenario, where the focus on reducing carbon is much greater in the short term, while physical risks are more likely to occur and will be more severe under the business as usual scenario, where climate change has more impact on assets and people.

Transition climate risks arise from the transition to a lower carbon economy. Transitioning to a lower carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organisations.

Physical climate risks resulting from climate change can be event driven or due to longer-term shifts in climate patterns. Physical risks may have financial implications for organisations, such as direct damage to assets and indirect impacts from supply chain disruption.

Managing the impacts of climate risk is necessarily integrated with Investore's business practices, and particularly asset life cycles, to ensure that climate risk decisions align with business requirements and the longer-term nature of the property assets which form the basis for Investore's business strategy.

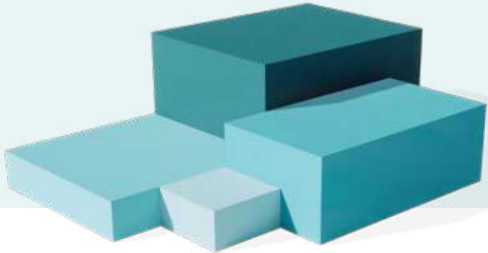
In preparing the climate risk assessment, Investore adopted the following timeframe:

Short timeframe:	To 2025
Medium timeframe:	2026-2035
Long timeframe:	2036-2050

These timeframes were chosen because they align with Investore's business cycles and the life of Investore's properties, with Investore's business planning based on a 10 year cycle.

Outlined on the following pages is the preliminary assessment of climate risks and opportunities that are most likely to materially affect Investore under the low carbon and the business as usual scenarios.

Investore Property Annual Report 2022 (continued)



Low Carbon Scenario – Less than 2°C

Climate transition issues are more material in the low carbon scenario, where the short term focus is on reducing carbon, driven by: growth of energy efficiency, renewables and low carbon technology; faster decarbonisation of transport and industry; changing methods of transportation; divestment from fossil fuels; more rapidly evolving investor mandates and financial institutional appetite for climate mitigation; increasing tenant demand for green properties, and faster evolution of climate regulation and carbon pricing.

Transition risks and opportunities

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Market and technology - Increasing expectation of stakeholders and need to remain current with technological advances, such as growth of electrification of transport, divestment from fossil fuels and growth of renewables and low carbon technology	<ul style="list-style-type: none"> Increased demands from tenants to upgrade buildings to be more energy efficient, resulting in increased capital expenditure Increasing expectation from tenants and customers that electric vehicle infrastructure is provided, requiring additional capital expenditure Potential tenant vacancies if properties do not meet tenant sustainability demands Opportunity to be an "early mover" to greener buildings and therefore attract higher rent 	Short / medium timeframe Moderate risk	Investore will develop properties to a Green Star standard, in order to ensure new properties meet the demands of tenants Investore is also preparing to obtain a Green Star Performance rating for two portfolios of properties – (1) hardware and (2) select supermarkets Investore expects to set emissions reduction targets during FY23
Policy and legal changes - Increasing standards for buildings, including embodied carbon assessments and operational emissions assessments at the time of building consents; potential reduction in number of available carparks (which has been important for Investore's business)	<ul style="list-style-type: none"> More costly to develop buildings, due to the need to ensure buildings meet the required standards. Will tenants pay more for rent? There is currently an element of uncertainty around requirements for future building consents which can create risk for new construction which requires a long timeframe 	Short / Medium timeframe Moderate risk	Continue to monitor Building Act and consent amendments, and adapt as required
Increased urbanisation with move of population to main cities	<ul style="list-style-type: none"> Opportunity for well-located "everyday needs" assets to be more in demand as population grows in urban areas, supporting Investore's focus on well-located assets in key urban regions 	Medium timeframe Opportunity	Continue to focus on investing in sustainable assets in central urban locations that are likely to benefit from increasing urbanisation

Investore Property Annual Report 2022 (continued)

Climate-related Disclosures

Business as Usual Scenario - 4°C Temperature Rise

Chronic and acute physical climate issues become most material under this scenario, as short-term efforts required to decarbonise fall short of environmental requirements. Under this scenario, greater focus and investment will be on adapting to higher temperatures and associated impacts, such as higher sea levels and more extreme weather events.

This may include more immediate investment to strengthen asset physical resilience; exiting assets that are in high-risk zones; careful due diligence on the impacts of forecast sea level rise and storms on existing assets; building properties that factor in higher resilience to storms, floods, wind, and have back up or alternative energy sources; deepening relationships with insurers and energy suppliers to monitor and maintain stable contracts and affordable access.

Investore considers the following physical risks to be the most material under the business as usual scenario.

Risks:


Increased frequency and severity of extreme weather events such as cyclones, storms, floods, and fire

Increase in sea level rise including greater sea surge events


Rising temperatures

Increased water scarcity

Physical risks

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Increase in sea level rise including greater sea surge events	<ul style="list-style-type: none"> Asset values reduce, or useful life of the asset is impacted, particularly for those assets located in coastal areas Properties in exposed areas are damaged due to sea level rise and the likelihood of larger sea surges and inundation Less tenant demand for properties at risk of sea level rise as a result of risk to inventory and potential closures due to sea surge or inundation Increased costs of maintenance and repair due to damage from sea and potentially more robust building materials required Increased costs of insurance and/or inability to insure against this risk Potential for higher rates as Councils seek increased funding to implement protection measures against sea inundation 	Medium/long timeframe  Moderate risk	Sea level rise risks are considered as part of due diligence for new assets The response to this risk will be further informed by individual property risk assessments to be undertaken during FY23

Investore Property Annual Report 2022 (continued)

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Rising temperatures	<ul style="list-style-type: none"> Increased operating costs due to cooling are borne primarily by tenants, however Investore will bear increased operating costs for properties with common areas Tenants may demand more energy efficient properties due to increased costs of cooling, or this may impact on the amount they can afford to pay in rent, thus impacting capital expenditure or income for Investore 	Medium timeframe  Moderate risk	The need to future proof for rising temperatures is considered as part of capital upgrades across the portfolio The response to this risk will also be further informed by individual property risk assessments to be undertaken during FY23
Increased water scarcity from more and/or longer drought events, less rainfall, change in seasons (longer summers, shorter winters)	<ul style="list-style-type: none"> Increased operating costs from greater water consumption due to increased heat and an increase in the price of water will primarily be borne by Investore's tenants Increased operating costs, including higher water costs, may impact the amount that tenants are prepared to pay for rent for premises, thus impacting Investore's business 	Medium timeframe  Moderate risk	Consider the need to develop water-efficient buildings as part of property development Risk impact to be further considered by individual property risk assessments to be undertaken during FY23
Increased frequency and severity of extreme weather events such as cyclones, storms, floods, and fire	<ul style="list-style-type: none"> Increased operational costs from repairing damage to properties Increased capital expenditure from improving the resilience of assets to extreme weather events Demand from tenants for properties that are resilient to extreme weather events may impact demand for Investore's properties, if Investore does not invest to make its properties resilient Insurance costs expected to rise, and while insurance costs are primarily borne by tenants, this impacts overall costs of occupancy, thus potentially impacting amount of rent tenants can bear 	Medium timeframe  High risk	Ensure new developments are constructed to be resilient to climate risks Risk impact to be further considered by individual property risk assessments to be undertaken during FY23

During FY23 Investore intends to:

- Further refine its risk assessment and take steps to quantify the impact of each risk and opportunity, as well as define metrics that will assist with monitoring each risk
- Assess the impact of climate risk on individual properties which will enable development of an adaptation plan and transition plan for Investore

Investore Property Annual Report 2022 (continued)

Climate-related Disclosures



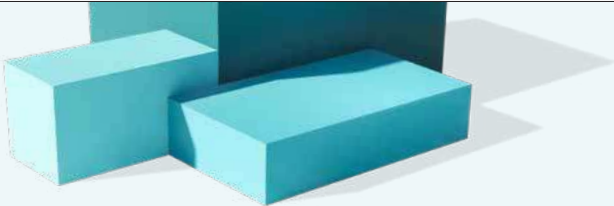
Risk Response

The Investore Board understands that climate risk must be considered as part of business strategy. Examples include:

- Investore intends to seek a Green Star Performance rating for two portfolios of Investore properties – all hardware stores and select standalone Countdown stores. Investore has consulted with the tenants of these stores in relation to its intention and has obtained their support for this approach. As Investore's properties tend to primarily be single tenant properties, with little or no common areas, Investore considers that it is essential to work collaboratively with tenants on a climate risk response.
- Investore is targeting a minimum 4 star Green Star Design & As Built rating for the new Countdown supermarket to be built on the land Investore intends to acquire at Waimak Junction. This property will assist Investore in meeting its climate risk response objectives. Investore works collaboratively with its tenants in developing designs for new properties, and will work with tenants on climate initiatives for new or refurbished properties.

Countdown, Petone

Investore Property Annual Report 2022 (continued)



Metrics and Targets

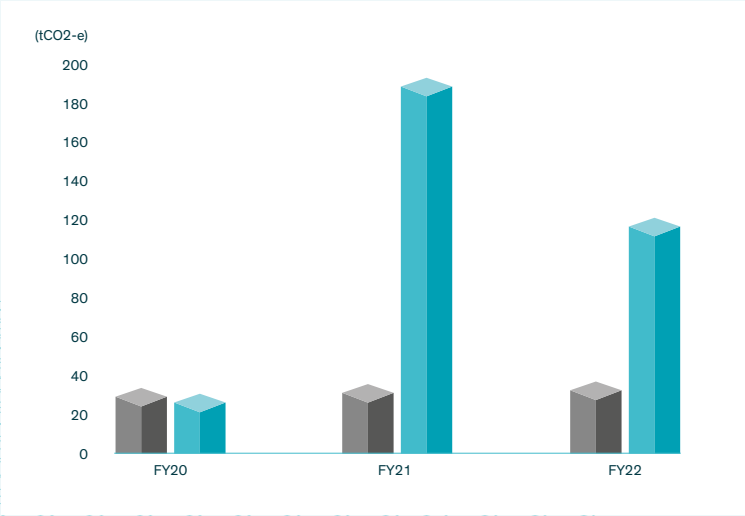
With the assistance of its manager, SIML, Investore has been collecting greenhouse gas (GHG) emissions data to enable Investore to understand its Scope 1 and 2 GHG emissions. Investore is also working with tenants to obtain information relating to their emissions, which are Scope 3 emissions for Investore.

Scope 3 emissions will be significantly greater than Scope 1 and 2 emissions and therefore to make a material reduction in emissions Investore recognises that it will need to work with tenants to achieve a reduction in Scope 3 tenant emissions. Investore has commenced that process through having initial discussions with some of its key tenants, including Countdown, Bunnings and Mitre 10.

Investore's Scope 2 emissions increased materially in 2021 due to the acquisition of two properties that have common area electricity consumption, being Mt Wellington Shopping Centre and Bay Central Shopping Centre. The reduction in emissions for FY22 is a result of the Auckland lockdowns during the latter part of the 2021 calendar year, when common area electricity consumption reduced significantly. This data provides Investore with a basis on which to better understand its emissions, which will assist with setting emissions reduction targets during FY23.

Scope 1 & 2 Emissions (tCO2-e)

- Scope 1
- Scope 2





Appendix 1: NZSX-listed 2022 annual reports – Dedicated section

KMD Brands Annual Report 2022

KMD BRANDS

OUR JOURNEY | LEADERSHIP & GOVERNANCE | WHAT MATTERS MOST | STRATEGY | BUILDING GLOBAL BRANDS

CASE
STUDY

Our Journey to Science Based Targets

The Intergovernmental Panel on Climate Change (IPCC) special report shows that even if global economies limit warming to 1.5 degrees above pre industrial levels, 1 billion people will be exposed to severe heat waves and there will be a 100% increase in flood risk.

If we fail to achieve 1.5 degrees warming but can limit temperature increase by 2 degrees, those numbers increase to 2.7 billion people suffering heat waves and 170% increase in flood risk.²

There is a lot at stake if we don't act – and that's why KMD Brands has committed to do our bit to transition to a low carbon future and reduce our emissions in line with the Paris Climate Agreement Goals. KMD Brands has submitted targets to Science Based Targets Initiative (SBTi) for our entire value chain and are awaiting approval.

SBTi is a global partnership between WWF, CDP, WRI and the UN which aims to support the best practice for emissions target setting.

For our Scope 1 and 2 emissions, which are emissions that come directly from our company's owned or controlled sources, as well as our purchased electricity, we have committed to targets that align with limiting global warming to 1.5 degrees.

We have set a target to reduce emission by at least 47% by 2030, from a 2019 base year.

For our Scope 3 emissions, which includes all the other indirect emissions in our supply chain, where we have less control, we have set targets that align with keeping global warming well below 2 degrees. This translates to a minimum reduction of 28% by 2030, from a 2019 base year.

HOW WE WILL GET THERE

Our baseline emissions show that 76.6% of Scope 1 and 2 emissions

come from electricity purchased in Australia. Our reduction plan involves improving our energy efficiency, putting solar panels on our buildings, and buying renewable electricity. A core dependency on our predictions is Australia's grid becoming more renewable.³

We acknowledge that the majority of our Scope 3 emissions are from the production of our products and this is where we will need to concentrate a significant amount of our efforts. Our Scope 3 reduction plan focuses on supporting our suppliers to improve their energy efficiency and renewable energy procurement. A core dependency on our predictions is our suppliers' electricity grid becoming more renewable.⁴ Our continuous dedication to our own brand products being responsibly sourced will also contribute towards reducing our overall emissions footprint.

2. Global Warming of 1.5 °C | (ipcc.ch)

3. https://www.industry.gov.au/sites/default/files/2020_12/australias_emissions_projections_2020.pdf

4. Roadmap to Net Zero: Delivering Science Based Targets in the Apparel Sector | World Resources Institute (wri.org)



KMD Brands

Annual Report 2022 (continued)

ELEVATING DIGITAL OPERATIONAL EXCELLENCE **LEAD IN ESG** FINANCING OUR IMPACT ADDITIONAL DISCLOSURES

Climate Risk Disclosures

PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE TASKFORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)

The following disclosure is our first TCFD report and summarises how we align with the TCFD recommendations. TCFD recommendations are structured around four areas: Governance, Risk Management, Strategy, Metrics and Targets. We will expand on the depth of disclosures in subsequent reporting periods.

GOVERNANCE

Disclose the organisation's governance around climate related risks and opportunities

TCFD recommendations:
 Describe the Board's oversight of climate related risks and opportunities
 Describe Management's role in assessing and managing climate related risks and opportunities

The Board is responsible for the overall corporate governance and oversight of risk for KMD Brands, including the company's response to the risks and opportunities presented by climate related issues. The Board approves and adopts the appropriate policies and procedures to enable directors, management and employees to fulfil their functions effectively and responsibly. The Board meets regularly, at least 8 times each year, and is updated on the management and strategic risks of climate related issues on a periodic basis during meetings.

The Board is supported in this function by the Audit and Risk Committee, which meets five times per year, and assists the Board in discharging its responsibility for strategic risk oversight. KMD Brands has a Risk Management Policy (available on our investor website at kmdbrands.com) which is reviewed and updated regularly. The Audit and

Risk Committee reviews risk reports from management and ensures risks are managed in accordance with the Risk Management policy and risk framework. The purpose of the risk policy is to define the risks relevant to KMD Brands operations, and to ensure that appropriate systems and methods are designed and implemented to minimise and control our risks.

KMD Brands Group Chief Executive Officer & Managing Director, Michael Daly, has oversight of climate related issues for the Group. The Chief Legal & ESG officer, in conjunction with the Chief Financial Officer, are responsible for overseeing KMD's risk management framework which includes climate related issues and both officers report directly to the Group CEO. Brand CEOs are ultimately responsible for driving activities within the business units comprising their brands. KMD Brands Executive team are responsible for regular assessment and monitoring of all risks, including climate related risks and opportunities. The wider management team conduct regular risk assessments using the risk management framework and implement appropriate risk mitigation strategies and controls.

KMD Brands has undertaken a Group wide materiality assessment and, informed by this assessment, has now developed a KMD Brands ESG strategy that covers the entire Group. As part of implementing this Group wide ESG strategy, governance over

climate change related issues is centrally coordinated. Our Group CEO has ultimate oversight over our Group ESG strategy, with regular reporting to the Board on strategic performance. The Chief Legal & ESG Officer is responsible for implementation of the strategic plan including climate reporting, science based target setting, supply chain engagement, and our emissions reduction strategy with support from the KMD Brands ESG team.

STRATEGY

Disclose the actual and potential impact of climate related risks and opportunities for the organisation's businesses, strategy and financial planning where such information is material

TCFD recommendations:
 Describe the climate related risks and opportunities identified over the short, medium, and long term
 Describe the actual and potential impacts of climate related risks and opportunities on the company's businesses, strategy and financial planning
 Describe the resilience of the organisation's strategy, taking into consideration different climate related scenarios, including a 2 C or lower scenario

KMD Brands

Annual Report 2022 (continued)

KMD BRANDS		
<p style="text-align: right; font-size: small;">OUR JOURNEY LEADERSHIP & GOVERNANCE WHAT MATTERS MOST STRATEGY BUILDING GLOBAL BRANDS</p>		
<p>KMD Brands has not yet modelled how climate change will impact the organisation across different climate related scenarios and over different time horizons (short medium long term). Therefore, we cannot formally evaluate whether our strategy is aligned to a 2 C scenario until the conclusion of our scenario analysis and until we receive formal feedback from SBTi on the emission reduction targets that we have submitted. We intend to collaborate with other retail industry participants, with</p>	<p>guidance from the New Zealand External Reporting Board (XRB), on any relevant sector specific scenarios that are developed with reference to the NZ Climate related Financial Disclosures framework.</p> <p>We have identified a number of climate related risks and opportunities through our existing risk management processes, as previously reported in our CDP disclosures. We have assessed these risks to have the potential</p>	<p>to materially impact our business, including on our operations, strategy, and financial planning if they are not managed appropriately. The climate related opportunities, when taken, have the potential to improve our financial performance, and also reduce our impact on the planet. We will continue to identify risks and opportunities as we develop our climate reporting in preparation for reporting requirements under the NZ Climate related Disclosures standards.</p>
RISK DESCRIPTION IMPACT OF RISK / OPPORTUNITY POTENTIAL FINANCIAL IMPACT		
TRANSITION		
<p>Reputation</p>	<p>KMD's sustainability values include a commitment to minimise our environmental footprint. Consumers and investors expect KMD to monitor and address environmental performance, including GHG emissions.</p> <p>Failure to uphold this reputation for responsible environmental management may damage the Company's reputation with consumers and investors. This risk is especially relevant to our business given our brands' connection to the natural environment as a supplier of outdoor apparel and equipment, and our customers' generally high level of awareness of environmental sustainability issues.</p>	<p>Change in sales due to loss of customer preference</p>
<p>Policy and Legal Emerging regulation</p>	<p>The recent change of federal government in Australia is likely to lead to significant change to climate policy in Australia. However, significant uncertainty remains with draft legislation recently presented to parliament yet to be debated and finalised.</p> <p>Equally, in New Zealand, there is considerable uncertainty regarding the suite of policy mechanisms that will be developed to enable the objectives of the Climate Change Response (Zero Carbon) Amendment Bill.</p> <p>Although we do not anticipate any direct liability under relevant policy mechanisms the extent to which our electricity suppliers will be impacted, and the potential for cost pass through is an area of uncertainty which creates risk for our business.</p> <p>The potential for the introduction of a carbon border tariff for the import of goods into European markets could also impact the margin on our goods.</p>	<p>Increased indirect (operating) costs and impact on margin</p>

KMD Brands

Annual Report 2022 (continued)

ELEVATING DIGITAL OPERATIONAL EXCELLENCE **LEAD IN ESG** FINANCING OUR IMPACT ADDITIONAL DISCLOSURES

RISK DESCRIPTION	IMPACT OF RISK / OPPORTUNITY	POTENTIAL FINANCIAL IMPACT
TRANSITION		
Carbon pricing	The cost to off set carbon emission is increasing with greater demand for carbon credits as the number of businesses committing to net zero targets grows. While the purchase of carbon offsets for our unavoidable emissions remains a component of our emission strategy, we are focussed on investing in reduction policies as the priority.	Impact on cost to meet/ maintain carbon zero/carbon reduce certifications Higher supply chain costs as businesses increase prices to reflect a higher carbon price
PHYSICAL		
Rising temperatures	Increases in heatwaves may lead to increased energy consumption through operation of air conditioning across our premises during peak electricity demand periods. This could increase KMDs operational costs. Higher temperatures could reduce seasonal need for insulation products.	Increased capital and operational expenditure Impact on market demand for insulation products
Flooding	Increase in flood risk and severity, increasing risk of damage to owned and operated office, store and warehouse network.	Damage to capital assets, investment needed in natural hazard defences or asset relocation
Sea level rise	Sea level rise impacting access to shipping lines. Impact to coastal areas for access for water based recreation activities such as swimming and surfing.	Increased operational costs or delayed delivery of goods Impact on market demand for water related products
Resource scarcity	Declining access to raw materials needed to manufacture goods at affordable prices due to scarcity of resources.	Higher cost to produce goods
OPPORTUNITY		
Investor and customer expectations	Opportunity to meet growing investor and customer expectations to demonstrate leadership in climate action, driving long term growth for KMD Brands and an improvement in market value.	Increase share price performance Growth in customer base
Financing	Better access to debt capital through financing linked to achievement of sustainability goals with reduced interest rate for meeting targets.	Lower cost of debt
Technology Emerging business models	Climate change is acting as a catalyst for disruption and is driving development of new technologies providing opportunities for improving the energy efficiency of our direct operations, improving the resilience of our supply chain and maximising customer engagement through responsible sourcing of materials and sustainable innovation in our product range.	Savings in operational costs
New product development	Development of new products and business models in response to changing climate conditions. Opportunity to gain competitive advantage over other businesses.	Increase in profitability and value of the KMD Brands Group

KMD Brands

Annual Report 2022 (continued)

KMD BRANDS

OUR JOURNEY | LEADERSHIP & GOVERNANCE | WHAT MATTERS MOST | STRATEGY | BUILDING GLOBAL BRANDS

RISK MANAGEMENT

Disclose how the organisation identifies, assesses and manages climate related risks

TCFD recommendations:

Describe the organisations processes for identifying and assessing climate related risks

Describe the organisations processes for managing climate related risks

Describe how processes for identifying, assessing and managing climate related risks are integrated into overall risk management

Risk management is carried out based on policies approved by the Board of Directors. The Group risk policy provides written principles for overall risk management, as well as policies covering specific areas, such as climate related risks.

Specifically, KMD Brands has risk documentation and an assessment process in place for the identification, classification, review and control of business risks and opportunities, including climate change related physical and transition risks and opportunities.

At the company level, KMD Brands maintains a Group Risk register covering all three brands. KMD Brands assesses the potential impact of each identified business risk and the likelihood of occurrence, in line with accepted risk tolerances. This process involves an assessment

of the inherent risk, considers the controls currently in place, the residual risk as a result of those controls, and also establishes targets to reduce the severity of risks further to a lower level. Risks are classified by strategic themes in order to assign responsibility for key actions to specific functional managers of the business.

Risk management encompasses all areas of the Company's activities. Once a business risk is identified, the risk management processes and systems implemented by the Company are aimed at providing the necessary framework to enable the business risk to be managed. In the application of the controls processes, opportunities for the business are often also identified through pro active risk management.

Climate change affects various aspects of our business and as such identification of climate change related risks and opportunities is fully integrated into our Group risk management approach. Kathmandu, Rip Curl and Oboz maintain a number of risk themes within the Group risk register relating to product safety, service quality, supply chain and technology that directly influence our approach to supply chain operation, retail store management and product development, all of which impact the climate change related impacts to our businesses. The physical and transitional risks of climate change, as well as the identification of opportunities, are assessed at an asset level including our physical resources and products, which informs not only our asset management strategy, but also our broader business strategy.



KMD Brands

Annual Report 2022 (continued)

ELEVATING DIGITAL OPERATIONAL EXCELLENCE **LEAD IN ESG** FINANCING OUR IMPACT ADDITIONAL DISCLOSURES



METRICS AND TARGETS

Disclose the metrics and targets used to assess climate related risks and opportunities where such information is material

TCFD recommendations:

Disclose the metrics used by the organisation to assess climate related risks and opportunities in line with its strategy and risk management process

Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks

Describe the targets used by the organisation to manage climate related risks and opportunities and performance against targets

As we carry out climate scenario analysis we will gain a deeper understanding of the risks and opportunities for our business. This understanding will drive further consideration of the metrics we will use to both measure and monitor climate related risks across our businesses.

We have recently submitted our proposed carbon reduction targets to Science Based Targets initiative (SBTi) and are awaiting formal approval. Our climate emissions targets are:

Reduced absolute Scope 1 and 2 emissions by a minimum of 47% by 2030, from a FY19 base year (4.2% per annum emissions reduction)

Reduced absolute Scope 3 emissions by a minimum of 28% by 2030 from a FY19 base year (2.5% reduction per annum)

Our progress on these targets will be closely monitored and we will report on our successes and challenges along our carbon reduction journey.

Our Group emissions inventory is audited annually by Toitū Envirocare and is aligned with the Greenhouse Gas Protocol for Corporate Accounting and Reporting.

Our FY22 gross direct Scope 1 & 2, and gross direct (mandatory) Scope 3, emissions are reported on pages 154 to 155.



Appendix 1:
NZSX-listed 2022 annual reports –
Dedicated section

Mercury
Annual Report 2022



MERCURY AND CLIMATE CHANGE.

Climate change, actions to reduce emissions and the transition to a low carbon economy are shaping the world around us. Our strategy anticipates that our business will encounter both climate-related opportunities and risks. We want to play a leading role in New Zealand's successful transition. Many of the actions we are taking to play this leading role are featured throughout this report, such as:

- ▣ our ongoing investment in development of renewable generation at Turitea and our broader wind pipeline, as part of the material contribution our sector will make to support decarbonisation across the economy; and
- ▣ supporting our vulnerable customers, helping to ensure that the transition is equitable for all consumers, including those experiencing hardship.

This specific disclosure statement provides further information on the climate-related opportunities and risks for Mercury. It is titled a TCFD report and we have used that framework to guide our disclosure. For future reports, we anticipate using the Aotearoa New Zealand Climate Standards as our framework for disclosure.

TCFD REPORT.

PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE TASK FORCE ON CLIMATE RELATED FINANCIAL DISCLOSURES (TCFD).

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INTRODUCTION.

Over the past five years we have improved our capability to identify, assess and manage climate-related risks and opportunities. Our governance approach and disclosure of these risks and opportunities has evolved over this period. Our integrated strategy considers climate-related risks and opportunities, and we have made changes to our governance frameworks and remuneration models to ensure that the Executive Management Team (EMT) have appropriate oversight of, and are actively assessing and managing, these climate-related risks and opportunities. A summary of the key findings in this report are:

- Material climate-related risks and opportunities have been the subject of regular discussion by our Board and EMT since 2018.
- Scenario analysis completed in FY21 was revised in FY22, with two scenarios created based on: (1) a 1.5°C degree future; and (2) a 3°C degree (back of meaningful intervention) future. We plan to participate in development of energy sector scenarios to support future scenario analysis.

Based on these scenarios, we have updated our view of climate-related opportunities and risks that could affect our business.

- Climate-related opportunities in our 2023-25 include the increase in electricity demand and consumer / investor desire for renewable generation.
- Climate-related risks in our 2023-25 include regulation that does not balance the energy trilemma, extreme weather events and increased temperature.
- We have broadened our disclosure on how our strategy remains resilient to these risks and supportive of capturing these opportunities.
- We are currently considering the further actions we can take to reduce our own emissions to ensure we are doing our part to mitigate climate change. Further details of these actions, and the related investment required, are likely to form the basis of our transition plan in future years.



This section of the report contains several forward-looking statements. We have prepared the information in this section, including statements as to the financial impacts of climate change, with due care and attention. This information is based on Mercury's present and future strategies and the environment in which Mercury will operate in the future. The risks and opportunities described in this section of the report may not be the only risks and opportunities that could cause Mercury's actual results, performance to differ materially from that described. No representation is made as to the accuracy, completeness or reliability of this information. Given the nature of this information, Mercury may choose to update or revise any forward-looking statement. Nothing in this section of the report should be interpreted as capital growth, earnings or any other advice or guidance.



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GOVERNANCE.

TCFD recommendation: Disclose the organisation's governance around climate-related risks and opportunities.

The risk management framework at Mercury supports a comprehensive approach to risk. It encompasses financial, strategic, environmental, operational, regulatory, reputational, social and governance risks. This includes identifying, assessing, and managing climate-related risks and opportunities.

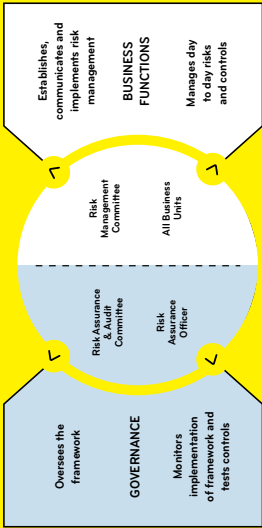
The governance structure for risk management at Mercury is captured in the diagram below. The responsibilities of the key elements of this structure are summarised in the following paragraphs, and more detail is available in the Corporate Governance Statement. Our GM Sustainability plays a key role in providing advice and coordinating Mercury's cross-functional approach to identifying climate-related risks and opportunities.

a) Describe the Board's oversight of climate-related risks and opportunities.

Our Board has responsibility for the strategic direction and operation of Mercury. Responsibilities are set out in the Board Charter, and in relation to climate change include:

- establishing clear strategic goals with appropriate supporting business plans and resources
- monitoring strategy implementation, financial performance and the integrity of reporting
- ensuring that effective audit, risk management and compliance systems are in place and monitored

Climate change risks and opportunities are currently managed, at a governance level, through the Risk Assurance and Audit Committee (RAAC) of the Board.



The RAAC is responsible for overseeing, reviewing and advising the Board on our risk management policy and processes, including climate-related risks and opportunities. It is made up of five independent directors and meets at least four times per year. Our risk management framework meets New Zealand standard AS/NZS ISO 31000 Risk Management (RP) principles and guidelines. Our risk management framework helps us to identify different categories of risk, including compliance risks, operational risks, reputational risks, financial risks and people risks. Climate-related risks show up across many of these categories and are treated in the same way as other risks across these categories. More information on our risk management framework can be found in the Governance Statement.

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In FY20, the Board updated its skills matrix to specifically include climate change. The Board also reviewed whether our risk management framework supported our integrated business planning process and whether climate-related risks were adequately captured within this risk management framework. Given the potential impact of climate change across Mercury, the Board amplified climate-related risks within our consolidated risk register.

In FY21, the Board held an externally facilitated deep dive into regulatory, economic and legal aspects of climate-related risks and opportunities. In May 2021, management presented its first climate change scenario analysis report and the outcome of its review of climate-related risks and opportunities to the RAAC.

In FY22, a cross-functional team from across the business conducted more in-depth scenario analysis to highlight emerging risks and opportunities.

The Board seeks internal and external expertise and advice relating to climate change as required to ensure that it has up to date information and can provide appropriate oversight of climate-related issues. As this area continues to evolve, the Board and management will seek access to the necessary expertise.

b) Describe management's role in assessing and managing climate-related risks and opportunities.

One of the responsibilities of the Chief Executive and the EMT is to develop, and recommend to the Board, strategies to identify, assess and manage climate-related risks and opportunities, and to foster improved reporting and disclosure of these risks and opportunities. This is done at least annually.

Climate risks and opportunities are also considered in the development and review of our strategy. They form a key element of the market context when setting goals on a three-yearly basis, and reviewing these each quarter by management and the Board.

The remuneration of the Chief Executive and the EMT is linked to Mercury's strategic pillars. In FY22, 15% of their short-term performance incentive is tied to the three-year objective to play a leading role in New Zealand's successful transition to a low carbon economy, which climate change is a key focus.

More information on the responsibilities and remuneration of the Chief Executive and the Executive Management Team can be found in our [Governance Statement and Remuneration Report](#).

In FY22, the EMT delivered a revised and more detailed climate change scenario analysis, including the annual review of climate-related risks and opportunities. Our management operates a Risk Management Committee (RMC) whose mandate is (1) to promote risk awareness and appropriate risk management to all Mercury people, and (2) to monitor and review risk activities as required. Membership of the RMC is made up of representatives from the EMT and is chaired by the Chief Executive. The RMC meets at least quarterly and reviews Mercury's risks, including its approach to climate-related risks and opportunities, at least annually.

The day-to-day management of climate-related risks and opportunities occurs across multiple business functions, namely Sustainability, Regulatory Affairs, Environmental Resources, Finance, Legal, Communications, Risk Assurance, Generation, Portfolio and Customer.

We sought external expertise to assist with our scenario analysis and development. We also sought external expertise to review our existing TCPD reporting processes and inform future improvements, as well as legal expertise to assist us with our submission on the development of the XRB climate-related disclosure standards.

Mercury

Annual Report 2022 (continued)

<p>STRATEGY.</p> <p>TCFD recommendation: Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.</p> <p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.</p> <p>b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.</p> <p>To help improve our understanding of climate-related risks and opportunities over the short, medium and long term and to test the resilience of our strategy, we undertake scenario analysis on a regular basis, and will continue to refine and adapt our process as things continue to change. Our first scenario analysis was completed in FY21, and in FY22 a cross-functional team from across the business conducted scenario analysis with the resulting scenarios described on the next pages.</p>	<p>METHODOLOGY & ASSUMPTIONS.</p> <p>TCFD recommends considering a scenario based on an optimistic view of the future, where global greenhouse gas emissions are reduced, and temperature increases are limited to below 2°C. In FY22, we undertook detailed scenario analysis around the focal question: What climate-related issues could plausibly affect Mercury by 2050? The boundary for this analysis was the whole of the organisation, including our subsidiaries. We also considered the impacts on the upstream and downstream phases of our value chain, that is, on our key suppliers and partners, as well as our customers. At this stage we have used two scenarios, anchored as a 1.5 degree future and a 3 degree future where there is a lack of meaningful intervention. These act just as bookend scenarios across physical and regulatory risks. We are cognisant that a four scenario approach is good practice for scenario development and will work towards this as we refine our approach. As part of this refinement, we will participate in the development of a set of sector scenarios that can be used consistently across the energy sector.</p>
<p>SCENARIO 1: 1.5°C IN 2050</p> <p>Global response to climate change has been coordinated and effective at limiting warming to 1.5°C in 2050.</p> <p>Significant energy sector reform has enabled reduction in emissions and a prohibition of thermal fuels.</p> <p>There has been a significant increase in the adoption of distributed energy resources (DERs), household solar, batteries, electric vehicles and smart charging infrastructure. This, along with increased conversion of process heat, is driving strong electricity demand growth.</p> <p>The changing climate has led to slightly warmer winters and hotter drier summers, but this has had minimal impact on annual demand.</p> <p>North Island inflows remain relatively unchanged, while South Island inflows rise in the winter. Drought and water scarcity issues have been addressed. However, higher temperatures have increased the likelihood of fire risks leading to increased outages.</p> <p>Storm events increase in intensity.</p> <p>The policy focus on reducing emissions has resulted in increased challenges relating to energy affordability.</p>	<p>SCENARIO 2: 3°C IN 2050</p> <p>Global response to climate change has lacked coordination resulting in warming being limited to 3°C in 2050.</p> <p>Limited energy sector reform has resulted in ineffective decarbonisation activity. Dry year security of supply is still dependent on gas.</p> <p>The uptake of solar, batteries, and smart charging infrastructure is lagging and lacks a consistent approach. There has been limited demand growth with limited incentives to adopt electric vehicles or convert more challenging process heat to much of which remains dependent on thermal fuels.</p> <p>The changing climate has led to warmer winters and hotter drier summers. This has resulted in higher summer demand with a potential shift to a summer peak. However, this has only had a slight impact on annual demand.</p> <p>Higher temperatures have increased the likelihood of fire risks leading to increased outages. There is also a greater risk of longer, intense periods of both drought and increased rainfall.</p> <p>Higher day point temperature further intensifies storm intensity.</p> <p>Policy has prioritised addressing energy affordability over emissions reduction.</p>

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+ TIMEFRAMES

The focus of the scenario analysis was on the next 30 years, to 2050. A 30-year time horizon reflects the long life of our assets, and while this is by no means the lifetime of our assets, it is an important timeframe in terms of asset refurbishment cycles. This timeframe also aligns with New Zealand's regulatory aspirations for NetZero by 2050.

Risk and opportunities have been discussed across the short (10+ years), medium (500 years) and long term (10+ years). The aligns with Mercury's business planning timeframes and those required in ESG (Environmental, Social and Governance) reporting and disclosures.


+ DATA SETS & MODELS USED

Modelling has been undertaken by the National Institute of Water and Atmospheric Research (NIWA) for many of the physical risks associated with a changing climate. This modelling, and other specific studies, related to the electricity sector, have informed this report.

The physical impacts of a changing climate on geothermal generation have been modelled using NIWA's climate data and robust, observed temperature data and robust modelling software.

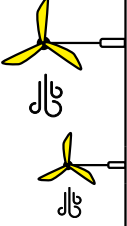
We have drawn on the Climate Change Commission's modelling, the Government's Emissions Reduction Plan to better understand how the economy, the broader energy system and the electricity sector will likely evolve towards net zero carbon. In particular, the Commission's modelling of its demonstration pathway has influenced our expectations of future electricity demand.





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RISKS & OPPORTUNITIES.		THE TOP FIVE CLIMATE-RELATED RISKS & OPPORTUNITIES FOR MERCURY	
<p>A comprehensive list of risks and opportunities were identified through the scenario analysis process. In the following table, these have been broken into the top five risks and opportunities for Mercury. A second table (on the next pages) provides details of the other risks also identified against the TCFD categories. This is not a complete list of the climate-related risks and opportunities, however, it captures the key risks and opportunities identified through our scenario analysis process. As things change, these risks and opportunities will also continue to evolve.</p>			
			
OPPORTUNITIES			
REGULATION THAT DOES NOT BALANCE THE ENERGY TRILEMMA			
RISK RATING	Scenario 1: 1.5°C IN 2050 H	Scenario 2: 3°C IN 2050 L	Scenario 2: 3°C IN 2050 M
DESCRIPTION	Regulation that does not consider the management of New Zealand's energy trilemma, with significant reforms focusing narrowly on decarbonisation, negatively impacting security and affordability.		
LIKELIHOOD	Highly Likely	Possible	Possible
IMPACTS	Increased costs and/or decreased revenue. Reduced ongoing investment. Reduced ability to attract investment.		
TIME PERIOD	S M L	M L	S M L
FINANCIAL IMPLICATIONS	High	Low	Medium to High
METHODOLOGY	Current high levels of regulatory reform present a broad range of outcomes. We have assumed the worst-case scenario of regulation that stops or slows ongoing investment in renewables in determining the potential financial impact.		
MANAGEMENT RESPONSE	Maintain engagement with government, regulators and other key stakeholders. Contribute to the narrative on the positive contributions of renewable electricity to New Zealand. Continue to make submissions on legislation, regulation and planning instruments.		
EXTREME WEATHER EVENTS			
RISK RATING	Scenario 1: 1.5°C IN 2050 H	Scenario 2: 3°C IN 2050 H	Scenario 2: 3°C IN 2050 M
DESCRIPTION	Physical damage to generation assets caused by flood or other extreme weather events.		
LIKELIHOOD	Possible	Likely	Possible
IMPACTS	Decreased revenue and/or increased SIB capex.		
TIME PERIOD	S M L	S M L	S M L
FINANCIAL IMPLICATIONS	High	High	Medium to High
METHODOLOGY	We continue to increase the granularity of information we have on extreme weather events. This will help inform refinement of this estimate of the investment required to mitigate physical asset risk.		
MANAGEMENT RESPONSE	Continue to conduct scenario modelling and review outcomes to inform operating plans and any changes required to resource consent conditions and high flow management plans. Complete hydrology review to clarify the return periods impacting dams and incorporate climate change impacts in our dam safety work programme to ensure safe flow management. We are working with other global hydro operators to commission further advice on how climate impacts can be considered for managing hydro assets. Continue maintenance work on geothermal sites, with a focus on operational changes related to heat. Consider the potential impacts on wind generation at times of re-powering.		
INCREASE IN ELECTRICITY DEMAND			
RISK RATING	Scenario 1: 1.5°C IN 2050 H	Scenario 2: 3°C IN 2050 M	Scenario 2: 3°C IN 2050 M
DESCRIPTION	Increase in electricity demand from significant electrification of transport, industrial process heat conversions to electricity and green hydrogen production.		
LIKELIHOOD	Likely	Possible	Possible
IMPACTS	Increased revenues.		
TIME PERIOD	S M L	S M L	S M L
FINANCIAL IMPLICATIONS	Medium to High	Medium to High	Medium to High
METHODOLOGY	Using Climate Change Commission current policy path modelling and our current 15% generation market share.		
MANAGEMENT RESPONSE	Support government initiatives to encourage electrification, including by continuing to deploy new renewable generation through our existing prospects in wind, geothermal and batteries. Continue to provide propositions for our customers as they adopt new technologies or are otherwise impacted by the transition.		

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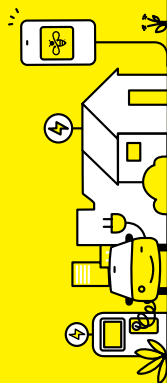
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RISKS & OPPORTUNITIES.		OPPORTUNITIES	
CHANGES IN TEMPERATURE		CONSUMER / INVESTOR DESIRE FOR RENEWABLE GENERATION	
RISK RATING	Scenario 1: 1.5°C IN 2050 M	Scenario 2: 3°C IN 2050 M	Scenario 2: 3°C IN 2050 M
DESCRIPTION	Periods of drought reduce catchment inflows, increasing average temperatures and the incidence of hot days may reduce geothermal plant output and/or the reliability of airboiled plant and equipment increasing output variability, and potentially reducing geothermal generation capacity.		
LIKELIHOOD	Likely	Likely	Possible
IMPACTS	Reduction in inflows and increased ambient temperature leading to decreased generation and revenue.		
TIME PERIOD	S M L		
FINANCIAL IMPLICATIONS	Medium		
METHODOLOGY	Drought impact calculated through increasing prior worst observed drought with price impacts assumed based on market prices observed during drought periods. Impacts on geothermal stations assessed through existing observed temperature impacts on generation.		
MANAGEMENT RESPONSE	Continue overarching portfolio management to manage drought as it impacts the catchment over time (including through using contracts or length of the portfolio). Geothermal station impacts will be managed through considering station modification options and cooling.		
TIME PERIOD:	S Short term 100 years M Mid term 500 years L Long term 10+ years	LIKELIHOOD: Likely: Will probably, or is expected, to occur within a 30 year time frame Possible: Has the potential to occur Unlikely: Unlikely to occur	RISK RATING: H High M Medium L Low <small>The combination of impact and likelihood to determine risk ratings is shown in the table to the more detailed internal risk matrix, used by Mercury to classify risk.</small>
		FINANCIAL IMPACT: High: Greater than \$15m Medium: Greater than \$10k Low: Less than \$15k	IMPACT Low Medium High Likely M M H Possible L M H Unlikely L M M

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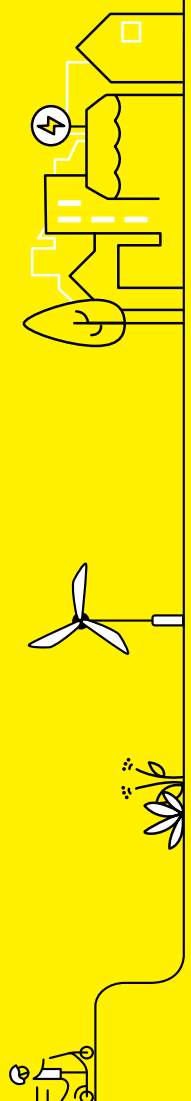
	SHORT TERM 1-5 YEARS	MID TERM 5-30 YEARS	LONG TERM 30-50 YEARS
<p>RISKS & OPPORTUNITIES.</p> <p>MARKETS (ELECTRICITY & CARBON) & TECHNOLOGY</p> <p>Physical and transitional climate-related risks could have significant impacts on our markets. Decarbonisation is likely to impact the relationship between supply and demand in the electrification of transport and the conversion of industrial process heat from thermal fuel sources to electricity will increase demand and present financial risks and opportunities. Technological disruption may create several risks and opportunities.</p> <p>OTHER CLIMATE-RELATED RISKS ALSO IDENTIFIED AGAINST THE TCFD CATEGORIES</p> <p>The TCFD framework suggests dividing climate change risks into the categories of Market and Technology Shifts; Reputation; Policy and Legal; and Physical Risks.</p> <p>For this analysis, additional granularity has been introduced in the market and technology shift categories. The market and technology shift categories are further divided into both the electricity and carbon markets. Technological shifts also have the potential to provide both risks and opportunities for Mercury.</p>	<p>In scenario 1, the increasing development of renewable generation has the potential to reduce electricity prices in the spot market.</p> <p>However, price volatility may increase as thermal generation is incrementally shut down, and wind increasingly relied on to firm generation.</p> <p>Our existing carbon forest credit surplus could deliver Emissions Trading Scheme (ETS) compliance at below market prices, reducing compliance costs.</p> <p>Similar risks and opportunities are present in scenario 2, however the gradual increase in renewable generation is supported where necessary by thermal generation, and there remains a long-term role for the gas industry resulting in lower wholesale market volatility.</p>	<p>In scenario 1, increasing renewable wind and solar generation pose challenges due to their inherent intermittency. The resultant market volatility increases the premium of dispatchable demand. However, this volatility is somewhat mitigated by the development of grid storage projects and new technology, as well as increased industrial and consumer demand flexibility.</p> <p>Our existing carbon forest credit surplus could deliver ETS compliance at below market prices, reducing compliance costs.</p> <p>Similar risks and opportunities are present in scenario 2, however, the development of alternative technology and industrial and consumer demand flexibility are partially crowded out by thermal generation.</p> <p>There is a reduced opportunity to develop new renewable generation as the most economical projects have been assessed, and renewable generation development is complemented by fast-start thermal generation and gas storage development.</p>	<p>In scenario 1, the increase in distributed and embedded generation, particularly rooftop and large-scale solar, could reduce demand for other renewable generation development.</p> <p>However, by year 30, short-term security is delivered through a portfolio of renewable generation, renewables build-out (and North and South Island pumped hydro options). Increased rooftop solar generation could provide both a risk (reduced demand) and an opportunity (development).</p> <p>As a portion of our customers remain financially vulnerable, there remains a risk that some of our customers are unable to pay their energy bills.</p> <p>Similar risks and opportunities are present in scenario 2, however, there is a reduced opportunity to develop new renewable generation, as the market continues to be supported by thermal generation and other technologies.</p>




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RISKS & OPPORTUNITIES.

	SHORT TERM 10-20 YEARS	MID TERM 50-100 YEARS	LONG TERM 100-200 YEARS
<p>REPUTATION Reputational risks and opportunities arise at an organisational and sectoral level.</p>	<p>In scenario 1 and 2, recognition that renewable electricity is the key to a just transition to Net Zero for New Zealand could benefit the reputation of the electricity generation sector and Mercury.</p> <p>Our reputation could be enhanced through recognition as a thought leader on renewable energy and the electrification of transport through partnerships for action in climate change in the Volcanic Environment as well as through successful carbon capture pilots.</p> <p>On the flip side, the reputation of the energy sector could be negatively impacted if consumers increasingly struggle to pay their energy bills.</p>	<p>In scenario 1, our reputation could be further enhanced as low carbon projects are developed and outcomes from geothermal emissions capture/Use pilot projects prove positive.</p> <p>There is a potential countervailing factor arising from an increasing focus on geothermal power station emissions, as higher carbon/damining activities are reduced or ended.</p> <p>This is similar in scenario 2, however, the opportunity to increase market share through a 100% renewable brand could be higher.</p>	<p>In scenario 1, as emissions from thermal generation are removed and replaced by renewables there could be an increased focus on geothermal emissions. However, growing activism towards carbon intensive sectors still brings capital inflow to Mercury.</p> <p>This is similar in scenario 2, however, the risk of reputational harm from operating geothermal power stations in carbon intensive sectors. This may create more of an opportunity for capital inflow to Mercury.</p>





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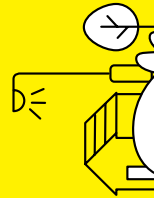
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	SHORT TERM 15 YEARS	MID TERM 50 YEARS	LONG TERM 100 YEARS
POLICY & LEGAL	<p>In scenario 1, the transition between the Resource Management Act (RMA) and the Natural and Built Environments Act could create investment uncertainty for generation development and heavy industry in New Zealand, with consent pathways remaining unclear. These risks are moderated in scenario 2 as less decarbonisation is sought.</p> <p>Class actions against organisations and directors of organisations failing to act on climate change may start to emerge.</p>	<p>In scenarios 1 and 2, class actions against organisations failing to act on climate change increase.</p>	<p>In scenarios 1 and 2, class actions against organisations and directors of organisations failing to act on climate change are very likely to increase.</p>
PHYSICAL	<p>Physical risks may take the form of acute, generally short-term events, such as fire or flood, or long-term chronic impacts, for example the less efficient operation of geothermal power stations arising from sustained high temperatures. These risks may lead to financial risks and opportunities as a result of the impact on our assets, on how our business operates, or more broadly as a result of the impacts on the markets in which we operate. Insurance may also become more difficult or costly to procure. We continue to refine our view on physical risks, in particular how they might impact the wider electricity system.</p>	<p>In both scenarios 1 and 2, stressors such as storms, fire weather and lightning pose a risk to:</p> <ul style="list-style-type: none"> major hazard facilities generation assets connected network infrastructure carbon forest investments national and international supply chains impacting generation repairs and maintenance and development. <p>These risks are greater in scenario 2.</p>	<p>In both scenarios 1 and 2, stressors pose a risk to national and international supply chains and could intensify increasing the risk to major hazard facilities, generation assets and connected network infrastructure. Stressors pose a risk to national and international supply chains and could impact generation and development.</p> <p>These risks are greater in scenario 2.</p>



RISKS & OPPORTUNITIES.

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RESILIENCE OF STRATEGY.

c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

We test the resilience of our strategy through the lens of these risks and opportunities. This leads to better planning and management of these risks and opportunities. In turn, our current and future climate change disclosures become more meaningful.

TRANSITION TO A LOW CARBON ECONOMY

As the Climate Change Commission recognised in its final advice to the government, Aotearoa has one of the lowest emissions electricity sectors in the world. This electricity can be used to reduce emissions economy-wide through electrifying transport, process and space heating. The Commission recommended setting a target so that 50% of all energy consumed comes from renewable sources by 2035, and this has now been adopted by the government in its Emissions Reduction Plan. For context, in 2020, Aotearoa's renewable share of final energy consumption was 28%.

As a fundamental element of our strategy, we consider the role that we can play in supporting this decarbonisation of New Zealand. In addition to significant investments made in renewable generation development (to help reduce emissions from the electricity sector itself and other sectors), we also consider the role we can play in supporting the decarbonisation of other sectors.

DEMAND

Electricity demand is a fundamental element of our business model. Ensuring ongoing resilience requires an approach to strategy that takes into account an increasingly uncertain future. Our two scenarios capture different outcomes: (1) The transition to decarbonisation is rapid, with a significant uptick in

demand and (2) the transition to decarbonisation is slow and piecemeal. In relation to scenario 1 we anticipate growth from the adoption of electric vehicles, development of energy-intensive industries, as well as efforts to decarbonise process heat. In relation to scenario 2 demand growth is limited as the regulatory settings do not incentivise electric vehicle adoption and decarbonisation of process heat. We improve the resilience of our strategy by ensuring that we are positioned for a range of different outcomes related to demand and taking action to attract new sources of demand to New Zealand.

ENERGY AFFORDABILITY

Access to energy is an essential service for consumers. However, the broader economic environment and rising inflation is impacting the cost of living in New Zealand, making it more challenging for an increasing number of customers to afford their energy bills. The way Aotearoa manages the transition to a low carbon energy sector will have impacts on energy affordability. We will continue our work to support vulnerable customers, which is of strategic importance to Mercury. We are partnering with industry to further understand energy hardship, and will continue to engage with, and support, government initiatives to meaningfully address this issue.

SECURITY OF SUPPLY

Maintaining security of electricity supply will continue to be an issue for New Zealand as we increase our proportion of supply from renewable sources. Fossil fuel-backed thermal generation currently plays a significant role in responding to periods of reduced renewable supply such as dry years when inflows in hydro catchments are low for long periods of time. This is likely to continue through the transition, particularly through to 2030. During this transition period, as the share of renewable generation increases, it is also likely that this will lead to higher levels of electricity spot price volatility. There are several conversations occurring related to security of supply. The Government's New Zealand Battery Project is underway and set to advise on

potential solutions to the challenge of achieving energy security in dry years without relying on carbon emitting thermal generation. The Commission has noted that, while finding a solution to this challenge could enable a 100% renewable electricity sector, a greater priority should be the wider use of renewable electricity economy-wide, as per its recommendation for 50% of all energy consumption to be renewable by 2035. The Commission further suggests that the government's aspirational goal of 100% renewable electricity by 2030 could be replaced with a 95%+ target. The government Emissions Reduction Plan has in turn committed to reviewing the 100% renewable electricity target in 2024, as part of the next Plan. The Emissions Reduction Plan also includes work to develop a Gas Transition Plan by mid-2023 to drive emission reductions from natural gas in line with Aotearoa's emissions budgets to 2035. Developing this plan should provide greater certainty for the role of thermal generation as a by-year reserve in the electricity sector over the coming decade.

We consider resilience to our strategy by considering implications of increasing electricity spot price volatility, managing our generation portfolio, and participating in these ongoing conversations and processes related to security of supply.

PHYSICAL ASSETS

Underpinning our strategy is a long-term approach to the management of our physical assets. One element of this is that our management of dam safety risks assume a value for Probable Maximum Flood (PMF). This is a measure of the possible volume and flow rate of the Waikato River in the event of an extreme flood. Our PMF values are prudently conservative. We are mindful that it is possible that in a changing climate PMF values may need to be increased over time. Based on currently available data and analysis, our risk management practices and mitigations are appropriate. Through our ongoing dam safety work programme and hydrological studies, we continue to seek our additional information to ensure resilience of our strategy.

Mercury

Annual Report 2022 (continued)



RISK MANAGEMENT.

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TCFD REPORT

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These risks and opportunities are classified using a common methodology (the risk matrix) and recorded in the risk register systems. The RMC reviews climate-related risks every year under this management framework. For the purposes of this TCFD Report, we have provided simplified risk ratings as outlined in the table of risks and opportunities.

The climate-related risks and opportunities included in this year's TCFD report have been identified by considering our two climate change scenarios over a 30-year time horizon. In doing so, we considered both the upstream and downstream phases of our value chain. However, we currently consider upstream phases of our value chain at a macro level, so will continue to develop our maturity in this area.

Day-to-day risk management is done by the relevant business function, with cascading responsibilities up to the RMC and the RAAC. The RAAC provides an assessment of whether the business is managing our climate change risks and responsibilities appropriately and ensures that there are effective policies and procedures in place.

As an example, when the dam safety team considers the risks faced by their business function, the potential impacts from climate change is one of the factors that they take into

TCFD recommendation: Disclose how the organisation identifies, assesses, and manages climate-related risks.

a) Describe the organisation's processes for identifying and assessing climate-related risks.

Risk management is an integral part of Mercury's business. We have an overarching Risk Management Policy supported by a suite of risk management policies appropriate for our business. The purpose of the Risk Management Policy is to embed a comprehensive capability in risk management which provides a consistent method for identification, assessment, control, monitoring and reporting of existing and potential risks to our business and to the achievement of its plans.

Our risk management framework meets New Zealand standard AS/NZS ISO 31000 Risk Management Principles and guidelines and applies to all risks at Mercury and is used across the organisation. This framework provides for the integration of risk across our material value drivers (strategic pillars) (including financial, non-financial, social, environmental and climate-related risks).

Climate-related risks are identified by a cross-functional group consisting of representatives from the relevant business functions. This group seeks our information and data to understand whether potential risks are real, and to inform our view of the likelihood and impact of these risks.

account. The dam safety team work with the GM Generation to build an approach to manage these risks and develop their forward plans. Where material issues are updated to the RMC, the RAAC and the Board.

The responsibilities of business functions, the RMC, and the RAAC are described in more detail in the governance section on page 68.

APPENDIX 1

WORKING PAPER 2023/04 | MCGUINNESS INSTITUTE

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Mercury

Annual Report 2022 (continued)

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TCD REPORT
MENU



RISK MANAGEMENT.

b) Describe the organisation's processes for managing climate-related risks.

The day-to-day management of climate-related risks and opportunities occurs across Sustainability, Regulatory Affairs, Environmental Resources, Finance, Legal, Communications, Risk Assurance, Generation, Portfolio and Customer. In relation to markets, our Portfolio and Finance teams manage risks and opportunities presented by:

- The electricity market □ we continually model scenarios of resource availability, electricity market supply and demand and adjust our approach accordingly
- The carbon market □ we are involved in forest carbon investments and have long-term contracts in place

Regulatory risks and opportunities are managed by our Government and Industry Relations team in conjunction with external communications. Submissions have been made recently on the Climate Change Commission's final advice, the development of the Emissions Reduction Plan, and ongoing changes to the New Zealand Emissions Trading Scheme. We continue to engage with the New Zealand Battery Project to encourage consideration of diverse approaches to securing supply of electricity through both renewable and non-renewable sources. We have also worked with the Electricity Authority on its investigation into how the electricity market would operate under very high renewable electricity supply.

In relation to technology, we continue to develop our customer offering in relation to a transport. Physical risks and opportunities from climate change fall into acute (already impacting the business, e.g. extended periods of drought and likely to increase in the medium term) and chronic (not currently impacting the business but likely to impact in the medium to long term). We have conducted a risk assessment for the business for climate change risk assessment and adaptation planning both nationally and internationally.

We continue to advocate for improved access to climate science research conducted by government owned research organisations (e.g. NIWA) to enable higher quality climate change risk assessments and have made a submission to the government's Ministry for the Environment draft National Adaptation Plan which considers how Aotearoa New Zealand will adapt to the unavoidable impacts of climate change.

We have models of storm events experienced within the Waikato catchment and have worked in partnership with Waikato and Bay of Plenty Regional Councils in training exercises to educate and inform council staff on the management of storms and flood risks.

We continue to investigate scenario modelling for climate change adaptation which has revealed currently available regional level datasets are potentially too high level to provide the robust and detailed outputs required for long-term investment decisions for hydro assets. We are seeking to participate in the development of sector-based scenarios sometime in the near future, which may produce more granular relevant information.

METRICS & TARGETS.

TCPD recommendation. Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

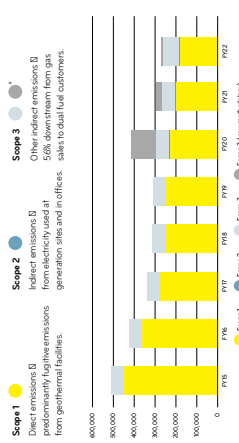
a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

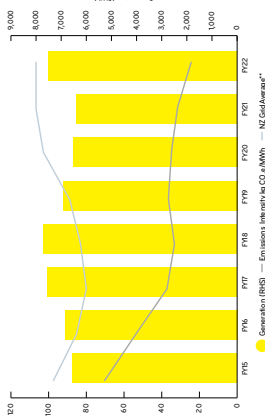
“OUR SCOPE 1 EMISSIONS HAVE REDUCED BY ~60% SINCE 2015.”

CARBON FOOTPRINT FY15 TO FY22



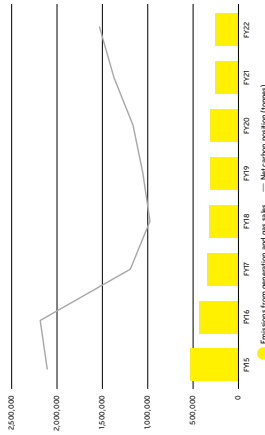
*From FY20, we have amended our methodology for calculating Scope 3 emissions. The grey area represents Scope 3 emissions such as SB capex and general maintenance which were not previously calculated.

EMISSIONS INTENSITY OF GENERATION FY15 TO FY22



*NZ Grid Average as per MFE data.

NET CARBON POSITION FY15 TO FY22



We produce an annual emissions inventory report following international standards and methodologies. As can be seen from the table and graphics that follow, our emissions profile is dominated by Scope 1 emissions, namely fugitive emissions from geothermal electricity generation, which account for 66% of the entire profile. The total emissions from the operation of a gas-fired power station reduced to zero in FY16 as the facility was decommissioned.

Given the predominance of fugitive Scope 1 emissions, emissions from other scopes are considered immaterial except for downstream Scope 3 emissions from the sale of gas to our domestic dual fuel customers and emissions from the purchase of capital goods measured through stay/direct business (SDB) capex spend. Our Scope 3 emissions from the sale of gas to our domestic dual fuel customers have increased by ~75% (on an annual basis) due to the acquisition of TruPower® customer base.

Our emissions intensity for an eight-year period is shown in the graph below. The intensity calculation uses Scope 1 emissions only, no adjustments have been made in relation to carbon credits and trading conducted under the New Zealand Emissions Trading Scheme.

Our Scope 1 emissions have reduced over this period by ~60% due to decommissioning Southdown (gas-fired power plant), a reduction in geothermal emissions over time and investment in geothermal emissions re-jection. Further, our wind generation base has grown due to new build and acquisition.

We are also developing our draft transition plan to identify all of the actions that we need to take to ensure that we are acting consistently with a 1.5 degree future.





Appendix 1:
NZSX-listed 2022 annual reports –
Dedicated section

Property for Industry Annual Report 2022

SUSTAINABILITY

CLIMATE-RELATED DISCLOSURES

TCFD REPORT

PFI recognises that we need to proactively manage the risks and opportunities that arise from climate change, just as we manage all other risks and opportunities facing our business. We are pleased with the progress that we have made during the last three years to strengthen our understanding of, and response to, our climate-related risks and opportunities. During that time, PFI has built a solid understanding of the climate-related risks and opportunities faced by the business and updated its processes, business plans and sustainability strategy to reflect these.

This report provides information about the actions that we are taking to identify and manage climate-related risks and opportunities. The following disclosures have been prepared in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) which provides a framework for climate-related financial disclosures across four core elements: governance, strategy, risk management and metrics and targets. This is PFI's third report in line with the TCFD recommended disclosures. We note that PFI will be required to provide mandatory climate-related disclosures aligning with the Aotearoa New Zealand Climate Standards from 2023. These voluntary disclosures position us well to comply with that mandate once it is in place.

Climate change is an evolving challenge, with high levels of uncertainty. This report sets out PFI's current understanding of, and response to, climate-related issues. However, we acknowledge that this will evolve over time. We remain committed to continue progressing our response to climate change over time, and to report our progress to our stakeholders each year.

Property for Industry Annual Report 2022 (continued)

GOVERNANCE

Describe the Board's oversight of climate-related risks and opportunities.

PFI's Board Charter specifies that the Board is responsible for oversight of PFI's sustainability framework and performance, including climate-related issues. PFI's Board receives quarterly reporting from Management on strategy, sustainability, operations and risk management, which includes PFI's response to climate-related risks and opportunities. This reporting includes progress against agreed climate-related initiatives within PFI's sustainability strategy (which are set with oversight from the Board). The Board also receives information on climate-related matters from Management as part of PFI's due diligence process for new acquisitions. The PFI Board's Audit and Risk Committee assists the Board in discharging its responsibilities with respect to risk management. Management's assessment of PFI's climate-related risks is presented to the Board's Audit and Risk Committee annually.

Describe management's role in assessing and managing climate-related risks and opportunities.

Under PFI's Risk Management Framework, the Chief Executive Officer and Chief Finance and Operating Officer are responsible for management of climate-related risk, along with all other risks. These roles are also responsible for the execution of PFI's strategy, including any climate-related opportunities. PFI has a dedicated Head of Sustainability and Operations who leads the assessment of climate-related risks and opportunities, and ensures that the Company's sustainability strategy is designed to respond to these risks and opportunities.

During 2022, a monthly ESG management meeting was held that monitored sustainability market trends and regulatory change, and made decisions on PFI's responses to climate-related risks and opportunities. This meeting was attended by the Chief Executive Officer and Chief Finance and Operating Officer. The Chief Executive Officer and Chief Finance and Operating Officer approved PFI's latest climate-related risk and opportunity assessment through this forum.

STRATEGY

Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

PFI's climate-related risk and opportunity assessments are undertaken with reference to PFI's Risk Management Framework and the time horizons below:

HORIZON	PERIOD	DESCRIPTION
Short term	1-5 years	Within our weighted average lease term
Medium term	6-20 years	The period within which most buildings will require major capital works
Long term	Greater than 20 years	The life of a building

PFI has identified 18 possible risks and opportunities across all of the TCFD categories. Most of the risks are expected to materialise in the medium to long term. However, as our real estate assets are long term investments we are taking steps now to ensure that our organisation is resilient to these future challenges.

Property for Industry Annual Report 2022 (continued)

SUSTAINABILITY

A summary of the top five risks that PFI has identified is provided below, along with a summary of how PFI is responding to them, and the related opportunities:

RISKS	EXPECTED TIME HORIZON	RISK RESPONSE	RELATED OPPORTUNITIES
<p>Transition – Policy (regulatory) risk:</p> <p>The introduction of new regulations, for example on building materials and design, disclosure and governance, land use, and electricity or water use could lead to increased compliance risk, and a potential reduction in profitability.</p>	<input checked="" type="checkbox"/> Short term <input checked="" type="checkbox"/> Medium term <input type="checkbox"/> Long term	<p>PFI is closely monitoring climate-related regulatory change and is working with industry bodies to provide feedback on proposed regulations where appropriate.</p> <p>We are also working to ensure that we are ready to respond to incoming legislative changes when they arise. For example, from 2023 PFI will start working with tenants to implement utility monitoring in anticipation of future regulation relating to the energy use of buildings.</p> <p>Our Board receives quarterly reporting on how we are responding to upcoming regulatory change.</p>	<p>The sustainability knowledge and capability that PFI has built over the past several years positions us well to drive value for PFI (for example, through creation of best-in-class sustainable assets) and our tenants (for example, through energy savings).</p> <p>During 2022, PFI continued to explore opportunities to create value by working with tenants on renewable energy and water efficiency initiatives.</p> <p>This included reaching an agreement for our first solar installation at 3-5 Niall Burgess Road.</p>
<p>Transition – Market risk:</p> <p>With increasing scrutiny of organisations' impact on the climate, we expect increased tenant or purchaser demand for sustainable buildings. In the long term, this could result in difficulty re-letting buildings, devaluation of properties, or increased expenditure to bring properties up to higher sustainability standards.</p>	<input type="checkbox"/> Short term <input checked="" type="checkbox"/> Medium term <input checked="" type="checkbox"/> Long term	<p>PFI has been developing its internal capabilities to develop and manage sustainable buildings. This includes:</p> <ul style="list-style-type: none"> ■ targeting 5 Green Star certification for significant future developments; ■ creating and implementing a sustainable refurbishment framework; and ■ planning to create an in-house facilities management function to drive stronger operational sustainability performance of existing buildings. 	<p>While this is a longer-term risk, shifting tenant demand has presented us with near term opportunities to:</p> <ul style="list-style-type: none"> ■ work with our tenants to help them meet their climate or environmental commitments; ■ create value by developing Green Star certified buildings; and ■ consider opportunities to improve building performance (for example, by installing LED lighting) when undertaking planned capital expenditure projects.

Property for Industry

Annual Report 2022 (continued)

RISKS	EXPECTED TIME HORIZON	RISK RESPONSE	RELATED OPPORTUNITIES
<p>Transition - Reputation risk:</p> <p>Failure to meet stakeholder expectations regarding ESG performance could in turn lead to difficulty in obtaining capital from:</p> <ul style="list-style-type: none"> ■ shareholders due to increasing preference to invest in demonstrably sustainable companies; or ■ funders due to increased scrutiny over climate risks and their management. 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Short term <input checked="" type="checkbox"/> Medium term <input checked="" type="checkbox"/> Long term 	<p>PFI sees successful execution of its sustainability strategy as being critical to managing this risk. PFI has refreshed its strategy during 2022 to include initiatives such as a Green Star certification target for significant new buildings, and initiatives to improve the performance of existing buildings in our portfolio. See pages 28-29. for further information on our refreshed strategy.</p> <p>PFI has also completed the replacement of HVAC systems using R22 refrigerant gas within its operational control, reducing our Scope 1 greenhouse gas emissions.</p> <p>Transparency is also important, so our progress will continue to be disclosed annually.</p>	<p>Strong ESG performance could present an opportunity for PFI to increase our capital availability (for example, through green financing) and promote our reputation.</p>
<p>Physical – Acute (damage) risk:</p> <p>We may experience damage or loss of access to PFI properties from climate-related events, such as storms or flooding.</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Short term <input checked="" type="checkbox"/> Medium term <input checked="" type="checkbox"/> Long term 	<p>In response to this risk, PFI has completed an exercise to investigate which of PFI's properties may be most vulnerable to physical impacts from climate change. This has helped us to better understand what actions we can take to mitigate these risks through our asset and portfolio planning activities. We will repeat this exercise periodically as climate science and the global response evolve.</p> <p>PFI completes physical climate risk assessments as part of our due diligence checks for all new property purchases, and to inform the design of new buildings.</p> <p>To ensure that we are well-placed to respond to a major climate event, we continue to retain a strong balance sheet.</p> <p>We also closely manage our insurance programme which provides cover in the event of damage from weather events.</p>	<p>The work that we have done to understand and plan for the physical impacts of climate change is not only a risk mitigation approach; it gives us the opportunity to deliver longer-term efficiencies by enabling us to appropriately plan and deliver changes at the most effective times.</p> <p>We also have an opportunity to embed resilience to climate impacts (rain, wind, heat) into the design of new buildings.</p>

Property for Industry Annual Report 2022 (continued)

SUSTAINABILITY

RISKS	EXPECTED TIME HORIZON	RISK RESPONSE	RELATED OPPORTUNITIES
<p>Physical – Acute (insurance) risk:</p> <p>Due to increasing climate-related claims, insurance for climate events may become more difficult to obtain or increasingly expensive.</p>	<input type="checkbox"/> Short term <input checked="" type="checkbox"/> Medium term <input checked="" type="checkbox"/> Long term	<p>As PFI relies on insurance to remediate damage to its properties, changes in insurer preferences are being carefully monitored. PFI reviews its insurance strategy annually and is working to increase its sophistication in insurance management to ensure that we are best placed to address this risk should it arise.</p>	<p>Due to PFI's scale, PFI is in a position to be able to put in place tailored insurance structures.</p>

Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

Our understanding of PFI's climate-related risks and opportunities has influenced the following aspects of our business, strategy and financial planning:

- PFI has refreshed its sustainability strategy with consideration for how PFI's portfolio will transform over the coming decades as the global community transitions to net zero. You can read more about this refresh on pages 28-29.
- PFI has commenced work to internalise its facilities management function. This will allow us to play a more active role in the operational performance of our buildings. At present, PFI has an outsourced facilities management model. This means that our team is removed from some of the day-to-day operation of our buildings. This change will position us to play a more active role in the energy and water efficiency of buildings, work with tenants that want to improve the sustainability of the properties that they occupy, and ensure that sustainable practices are embedded in our facilities management services.
- PFI has undertaken analysis of climate-related exposures for individual assets within our portfolio. This has in turn fed into our asset planning and portfolio management decisions. One affected property was divested during 2022.
- PFI has enhanced its due diligence processes to consider climate-related risks for new acquisitions. This includes the physical risks that a property may be exposed to. Depending on the materiality and nature of the tenant we may also seek to understand the impact of climate change on their business.
- PFI has spent \$2.5m to reduce the greenhouse gas emissions from refrigerants within PFI's operational control. This project was completed during 2022.

Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

PFI has undertaken both qualitative and quantitative assessments of the impact of different climate-related scenarios on PFI's strategy, including a 2°C or lower scenario. The analysis has considered three Representative Concentration Pathways (RCPs): RCP2.6 (low climate change scenario), RCP4.5 (moderate scenario) and RCP8.5 (high scenario).

We have determined that PFI's high level strategy of investing in quality industrial property remains robust in either a warming scenario of lower than 2°C, or a more extreme warming scenario. PFI has a diversified portfolio, with a good spread of geographical locations and tenants in various industries. This reduces the impact of a single event, and the concentration risk from exposure to a particularly impacted industry.

Property for Industry Annual Report 2022 (continued)

In 2021, PFI engaged a third party to undertake a review of the vulnerability of PFI's properties to a range of climate-related hazards across differing time horizons and climate-related scenarios, which determined that PFI's portfolio has a low to moderate risk overall (on a relative basis). Four properties were assessed as having a heightened exposure to a particular climate-related hazard. One of these properties was divested during 2022, leaving three properties in the portfolio with a combined value of \$43.8m or less than 2% of the total portfolio value. This knowledge puts PFI in a good position to consider these hazards as part of asset management decisions such as future capital expenditure.

Critically, climate-related physical risks are one of a number of strategic factors that PFI takes into account when considering acquisitions and divestments.

PFI also considered the transition risks associated with its existing stock of buildings when completing its sustainability strategy refresh during 2022. This influenced the following key strategic choices which will position PFI to manage impacts of climate change on its strategy over time:

- standing up an in-house facilities management function, bringing the management team closer to the operational performance of the buildings;
- a commitment to targeting Green Star certification for significant new buildings;
- a commitment to completing refurbishments of existing buildings with consideration for sustainability; and
- a target to implement energy monitoring at existing properties.

With our proactive plan to invest in the sustainability and climate resilience of our assets over time, we consider the risk of stranded assets in our portfolio to be relatively low based on our current understanding.

Finally, we undertake annual reviews of our climate change strategies to ensure we remain responsive to climate risks as they evolve.

Property for Industry Annual Report 2022 (continued)

SUSTAINABILITY

RISK MANAGEMENT

Describe the organisation's processes for identifying and assessing climate-related risks.

Identification and assessment of PFI's climate-related risks is led by PFI's Head of Sustainability and Operations, with contribution from senior management. This assessment is completed annually.

Key risks are assessed and prioritised against a risk matrix of consequence and likelihood in line with PFI's Risk Management Framework. The time horizons considered are set out in the strategy section of this report. The assessment considers PFI's direct operations, as well as upstream and downstream impacts.

This assessment is also informed by the external analysis on the physical climate risk exposure of each PFI property that was completed during 2021.

In line with TCFD guidance, PFI considers both the risks associated with the transition to a lower carbon economy (such as changes in regulation) and the risks associated with the physical impacts of climate change (such as damage to buildings).

Describe the organisation's processes for managing climate-related risks.

As described in the Governance section, PFI holds a monthly ESG management meeting attended by the Chief Executive Officer and Chief Finance and Operating Officer. This management meeting oversees PFI's climate-related risk and opportunity assessments. The Chief Executive Officer and Chief Finance and Operating Officer are responsible for making decisions on whether to mitigate, transfer, accept, or control climate-related risks.

This structure gives us flexibility to review and adapt our response to climate-related risks and opportunities over time as the external environment evolves.

PFI's most material risks have been identified based on the likely consequences of those risks materialising, and are set out in the Strategy section above. Actions being taken to respond to PFI's most material climate-related risks include:

- incorporating climate change considerations into our due diligence process for new acquisitions;
- committing to a Green Star certification target for significant new buildings;
- growing our capabilities in sustainable refurbishment;
- disclosing to stakeholders on our ESG progress;
- building a long-term insurance strategy;
- periodically assessing the vulnerability of individual PFI properties to physical climate impacts;
- designing our new developments with consideration for future physical climate impacts;
- bringing facilities management in-house and starting to measure the operational performance of our buildings; and
- maintaining a strong balance sheet.

Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

PFI's climate-related risks are incorporated into PFI's company-wide risk register to provide a single view of risk for PFI. In most cases, climate risks are an extension of our existing risks (for example, physical damage to buildings or strategic risk). Our controls for those risks (such as acquisition due diligence and our insurance programme monitoring) have been enhanced to include consideration for climate change impacts. We also introduced a new control in 2021 whereby we will periodically review the PFI portfolio's physical climate risk.

Assessment and management of climate risk is managed in the same way as our other risks, with oversight by senior management and the Board.

Property for Industry Annual Report 2022 (continued)

METRICS AND TARGETS

Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

During 2022, PFI used the following metrics to assess climate-related risks and opportunities in line with its strategy and risk management process:

METRIC	PURPOSE	2021 RESULT	2022 RESULT
Scope 1 emissions	To measure PFI's impact on the climate.	77.0 tCO ₂ e	65.8 tCO ₂ e
Scope 2 emissions	To measure PFI's impact on the climate.	14.2 tCO ₂ e	19.6 tCO ₂ e
Scope 3 emissions	To measure PFI's indirect impact on the climate.	2,760.1 tCO ₂ e	2,439.9 tCO ₂ e
CDP score	To understand how our climate performance compares to other corporations globally.	B-	B
Capital investment deployed toward removal of R22 gas	To measure progress on our commitment to phasing out R22 within PFI's operational control.	\$688k	\$1.78m
2050 composite physical risk score (based on a moderate climate change scenario)*	To measure the physical climate risk associated with PFI's property portfolio.	33 (Low to Moderate risk)	

* This score was provided in 2021 by S&P Global, following analysis of PFI's portfolio. We note that we do not intend to update this score annually.

Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

Please refer to the table above for details of PFI's 2022 GHG emissions. We recognise the importance of reducing greenhouse gas emissions and understand that there are reputational and market risks if we do not take meaningful steps to decrease them. PFI's approach to managing greenhouse gas emissions is set out on pages 30-33 of our sustainability report.

Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

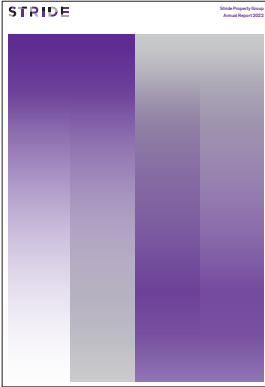
The following targets that had previously been set by PFI to manage climate-related risks and opportunities were met during 2022:

- Replacement of all HVAC systems currently in our portfolio and within our operational control that use R22 refrigerant gas by 2023.
- Improvement in our CDP score from C (in 2020) to B by 2023.

New targets have been set by PFI to manage climate-related risks and opportunities through our sustainability strategy refresh, including:

- Significant new buildings to target minimum 5 Green Star certification.
- Implement power metering and monitoring for 50% of properties by the end of 2025.
- Install solar systems at five buildings by the end of 2025.
- Minimise and offset residual Scope 1 + 2 emissions.

Further information on PFI's sustainability strategy is set out on pages 28-29 of our sustainability report.



Appendix 1:
NZSX-listed 2022 annual reports –
Dedicated section

**Stride Property & Stride Investment
Annual Report 2022**

Climate-Related Disclosures

The risks of climate change are increasingly well-known and understood. Stride recognises that tackling the issues caused by climate change requires all individuals, organisations and governments to reduce greenhouse gas emissions and prepare for a low carbon future.

A key focus for Stride during FY22 has been sustainability and establishing the groundwork for Stride’s approach to the management of climate risk. This work has included undertaking a preliminary climate risk assessment, gathering greenhouse gas (GHG) emissions data across Scopes 1, 2 and 3, and continuing to progress green ratings for Stride’s properties.

Stride is in the process of establishing its workplan for FY23, which will include setting emissions reduction targets, further refining the climate risk assessment and strategic response, preparing adaptation and transition plans, developing a responsible investment policy which will guide sustainable investments, and continuing to progress green building certifications across Stride and the Stride Products.

Stride also completes the Global Real Estate Sustainability Benchmarking (GRESB) assessment, which benchmarks Stride’s sustainability performance against a peer group in the Asia Pacific region. Stride has been focussed during FY22 on undertaking a number of activities and initiatives to improve its sustainability practices, which we expect will improve Stride’s GRESB score. Stride’s target is to be in the upper quartile of its peer group for the GRESB assessment over time.

Net anthropogenic GHG emissions have increased since 2010 across all major sectors globally. An increasing share of emissions can be attributed to urban areas. Emissions reductions in CO2 from fossil fuels and industrial processes, due to improvements in energy intensity of GDP and carbon intensity of energy, have been less than emissions increases from rising global activity levels in industry, energy supply, transport, agriculture and buildings. Average annual GHG emissions during 2010-2019 were higher than in any previous decade (IPCC Report April 2022).



Stride Property & Stride Investment

Annual Report 2022 (continued)

FY22 Highlights

Climate risk assessment undertaken with preliminary climate risk ratings established

Board-mandated minimum green ratings for acquisitions and developments established, with sustainability factors considered for every acquisition and development

GHG emissions data collected, and limited assurance review completed on FY20, FY21 and FY22 Scope 1 and Scope 2 emissions. This will provide us with a base to begin to establish emissions reduction targets

Higher quality office portfolio:

- Refurbishment of 22 The Terrace, Wellington, completed - 5 star Green Star Design rating confirmed, and expected to achieve a 5 star Green Star As Built rating on completion
- Stride has an unconditional agreement to acquire the property at 110 Carlton Gore Road, Auckland¹ – this property is expected to achieve a 6 star Green Star Design & As Built (v3.2) rating, and a 5 star NABERSNZ rating
- Stride has agreed to sell four office properties² which it considers do not currently meet Stride's target green benchmarks

1. This agreement became unconditional on 5 April 2022.
 2. The divestment of the Auckland office properties at 80 Greys Avenue, 25 Teed Street and 35 Teed Street became unconditional on 5 April 2022. The divestment of the property at 7-9 Fanshawe Street became unconditional on 2 May 2022.



Stride Property & Stride Investment Annual Report 2022 (continued)

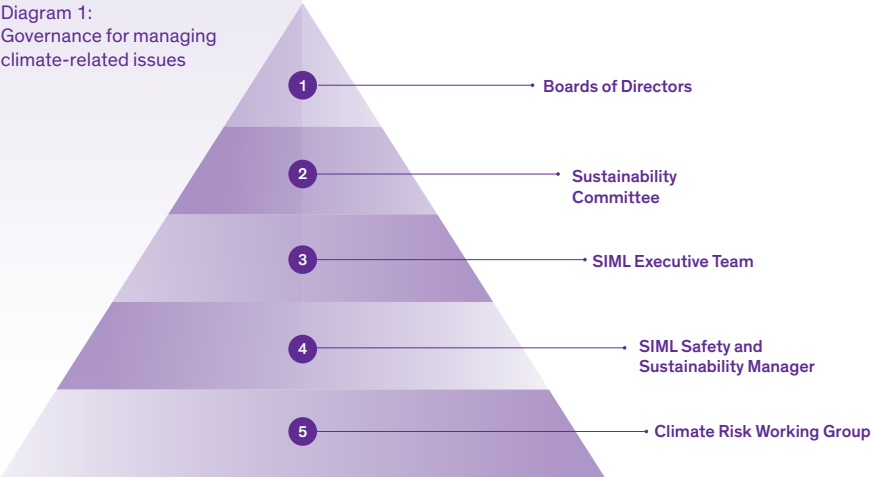
Climate-Related Disclosures

Governance

This section describes the role of the Stride Boards and the SIML team in overseeing, assessing and managing climate-related risks and opportunities.

Stride recognises the importance of understanding and strategically responding to climate-related risks and opportunities to protect and enhance company value. Accordingly, during FY21 Stride established the Board Sustainability Committee, which is responsible for, among other things, considering climate-related risks and initiatives and assessing how they may impact on Stride's business. The Sustainability Committee has a formal charter that governs its operations and sets out its purpose, and responsibilities.

Diagram 1:
Governance for managing
climate-related issues



Stride Property & Stride Investment Annual Report 2022 (continued)

Role	Description
1 Boards of Directors	The SPL and SIML Boards have ultimate responsibility for overseeing the assessment of, and strategic response to, climate-related risks and opportunities for Stride. Climate-related risks are considered in the performance of the Boards' duties, primarily in relation to major investments such as acquisitions and developments. By way of example, the Boards have determined to divest four B grade office assets and commit to the acquisition of 110 Carlton Gore Road, Auckland, which is expected to achieve a 6 star Green Star Design & As Built (v3.2) rating, and a 5 star NABERSNZ rating on completion.
2 Sustainability Committee	<p>The Sustainability Committee, chaired by Director Jacqueline Cheyne and including Director Tim Storey, Stride Board Chair, and Director Philip Ling, plays a critical role in relation to Stride's response to climate change and its approach to sustainability. The Committee oversees Stride's sustainability activities, including environmental and social sustainability activities and climate risk response; monitors progress in achieving Stride's sustainability strategic objectives; and reviews and recommends to the Boards Stride's sustainability reporting.</p> <p>The Committee meets quarterly and receives reports from the SIML Executive Team for each meeting relating to progress against Stride's sustainability strategic objectives and key projects, including Stride's climate risk assessment.</p> <p>All Sustainability Committee papers and minutes are made available to the full Stride Boards, and the Stride Boards receive a briefing on key activities of the Committee.</p>
3 SIML Executive Team	<p>SIML's Chief Executive Officer is accountable for ensuring that Stride is identifying, assessing and managing material risks, including climate change and other sustainability risks. The SIML Executive Team has been involved in the development of the climate risk assessment. Each member of the Executive Team is responsible for monitoring and assessing climate risk in their area of responsibility, in conjunction with Stride's sustainability team.</p> <p>The SIML Executive Team reports to the Sustainability Committee on sustainability topics and progress in addressing Stride's sustainability strategic actions, as well as climate-related risks and opportunities.</p>
4 SIML Safety and Sustainability Manager	<p>SIML's Safety and Sustainability Manager is responsible for formulating and driving implementation of Stride's environmental sustainability initiatives across Stride and the Stride Products. The Safety and Sustainability Manager works closely with the asset managers and facilities managers, as well as the fund managers, to implement sustainability initiatives to meet the objectives of Stride, the Stride Products and their investors and tenants.</p> <p>SIML's Safety and Sustainability Manager reports directly to the General Manager Corporate Services, who is a member of the Executive Team, and responsible for risk management across Stride, providing a link between climate risk management and business risk processes.</p>
5 Climate Risk Working Group	<p>During FY22 Stride formed a sustainability working group to provide input on Stride's climate risk assessment. This group was provided training on climate change and climate risks, along with climate risk terminology, to assist them in undertaking their role. The working group comprised all members of the SIML Executive Team, as well as participants from all areas of the organisation to ensure a wide perspective was brought to consider climate risks for Stride and the Stride Products.</p> <p>Other working groups may be established for specific sustainability related projects as required.</p>

Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Climate Risk Management

Stride recognises that effective risk management is essential to achieve its strategic objectives

During FY22 Stride formed a climate risk working group to assess the impact of climate risk on the business of Stride and the Stride Products, under two scenarios:

- The low carbon scenario, where the world transitions to a low carbon economy and temperature rise is kept to between 0.3 and 1.7 degrees Celsius (Representative Concentration Pathway (RCP) 2.6)
- The business as usual scenario, where carbon emissions are not constrained and the temperature rise is between 2.6 and 4.8 degrees Celsius (RCP 8.5) and there is a 300% increase in hot days (>25 degrees Celsius)

The working group held a number of workshops to assess the risks and opportunities associated with climate risk, and the outcome was then moderated by the sustainability team within Stride. The draft risk assessment was presented to the Board Sustainability Committee, who also provided feedback and input on the assessment of the nature and level of risks.

Given the longer-term nature of climate risk impacts, the climate risk assessment is currently not integrated into Stride's overall enterprise risk management process. However, during FY23 Stride intends to better integrate the two risk approaches, to ensure a comprehensive approach to risk across Stride and the Stride Products.



Stride Property & Stride Investment Annual Report 2022 (continued)



Stride's Sustainability Strategy

Stride's sustainability strategic plan has three pillars, which align with certain UN Sustainability Development Goals. We have set a number of actions against each strategic pillar, and set out our progress against those actions during FY22 below. Progress against these actions is reported to every Sustainability Committee meeting for review, with the exception of the health and safety action items, which remains the responsibility of the full Boards.

Objective	Action	Progress
<p>Contribute to a resilient community – We want to provide leading health and safety performance and support a connected and inclusive society</p> 	<p>Be vigilant to ensure all operations are conducted safely, with a particular focus on key health and safety risks, including contractor management</p>	<p>Key health and safety metrics are outlined in this report, and include an average of 95% external audit safety scores across all major development projects during the year</p>
<p>Develop shared prosperity – we want to foster long term prosperity by investing in and managing outstanding places that reward everyone connected with them</p> 	<p>Develop Community Engagement Programme Framework</p> <hr/> <p>Develop Supplier Code of Practice</p> <hr/> <p>Develop a Green Financing Framework</p>	<p>This framework has been developed, and guides the approach of Stride to its community involvement. For more information on Stride's community involvement, see pages 40 and 41 of this report</p> <hr/> <p>The Supplier Code of Practice has been developed, and is supported by Stride's Modern Slavery Policy which was recently adopted by the Stride Boards. This will be implemented during FY23 to ensure that Stride's suppliers support achievement of its sustainability strategy</p> <hr/> <p>Fabric Green Finance Framework developed and implemented</p>
<p>Protect the planet – We want to create efficient, climate-resilient places that deliver long term value and support a low carbon future</p> 	<p>Establish green ratings for our office properties – a minimum of a 4 star rating is being targeted</p> <hr/> <p>Develop climate risk disclosure, including starting the development of reporting in line with the principles of the Taskforce on Climate-related Financial Disclosures (TCFD)</p> <hr/> <p>Set emissions reduction targets</p>	<p>4 office properties currently have green ratings (Green Star or NABERSNZ). It has been identified that additional metering is required on the remaining portfolio to enable a NABERSNZ rating to be achieved, and we are nearing completion on installing that additional metering. A minimum of 12 months' data will then be required to enable a rating to be obtained</p> <hr/> <p>Preliminary climate risk assessment and strategy developed and reported as part of this report</p> <hr/> <p>A limited assurance review has recently been completed over Scopes 1 and 2 GHG emissions for FY20, FY21 and FY22. The next step is to develop emissions reduction targets during FY23</p>

Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Strategy

The Strategy section provides information on the strategic implications of climate change for Stride

Stride's business strategy is to own and manage a diversified, high quality portfolio of property assets located in New Zealand. Stride takes a long term approach to its business and asset ownership. This long term investment approach aligns with Stride's sustainability goals, as Stride considers the long term impact of changes in regulation and climate change on its business and the assets it owns and manages.

Stride has begun the process of assessing the impact of climate change on its business and its strategy, beginning with a climate risk assessment, which is described on the following pages. The Stride Sustainability Committee and Stride Boards consider climate risk as part of the inputs in their overall strategic decision making, with further work on the impact of climate risk on the Stride strategy to be undertaken during FY23.

Stride is working to ensure our team is sufficiently skilled to identify the key risks and opportunities from climate change. We use external expertise where we consider this will support the SIML team to address and manage risks. Accountability for Stride's sustainability and climate-related targets and outcomes will be reinforced through key performance indicators for the Chief Executive Officer, the Executive Team and SIML's Safety and Sustainability Manager. These KPIs will be linked to short term incentive remuneration, with performance against KPIs reported regularly to the Sustainability Committee.

Climate Change Risks and Opportunities

During FY22, Stride formed a climate risk working group to undertake preliminary work to identify climate risks, related opportunities and the impact of climate risk on its business strategies using two scenarios - a low carbon scenario where temperature rise is kept to between 0.3 and 1.7 degrees Celsius (RCP 2.6), and a "business as usual" scenario where carbon emissions are not constrained and the temperature rise is between 2.6 and 4.8 degrees Celsius (RCP 8.5).

Outlined on the following pages is Stride's preliminary assessment of climate risks and opportunities that are most likely to materially affect Stride under the low carbon and the business as usual scenarios.

Transition climate risks arise from the transition to a lower carbon economy. Transitioning to a lower carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks may pose varying levels of financial and reputational risk to organisations.

Physical climate risks resulting from climate change can be event driven or due to longer-term shifts in climate patterns. Physical risks may have financial implications for organisations, such as direct damage to assets and indirect impacts from supply chain disruption.

Stride Property & Stride Investment Annual Report 2022 (continued)

Stride's plan to manage the impacts of climate risk is linked to its business and asset life cycles to ensure that decisions are made in alignment with business imperatives, and with a longer-term decision-making process given the life of property assets. Sustainability and climate risk implications are considered as part of Stride's overall decision-making approach, particularly in relation to material financial investments.

In preparing the climate risk assessment, Stride adopted the following timeframes, which have been set taking into consideration business planning cycles and asset lifespans.

Short timeframe: To end of 2025


Medium timeframe: 2026 – 2035

Long timeframe: 2036 – 2050

Low Carbon Scenario – Less than 2°C Temperature Rise

Climate transition issues are more material in the low carbon scenario, where the focus on reducing carbon is much greater in the short term, driven by: growth of energy efficiency, renewables and low carbon technology; faster decarbonisation of transport and industry; changing methods of transportation; divestment from fossil fuels; more rapidly evolving investor mandates and financial institutional appetite for climate mitigation; increasing tenant demand for green properties, and faster evolution of climate regulation and carbon pricing.

Transition risks and opportunities

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Increasing expectation of tenants and occupiers for low carbon, energy efficient buildings that support changing modes of transport and electrification. Need to remain current with technological advances, such as growth of electrification of transport, divestment from fossil fuels and growth of renewables and low carbon technology	<ul style="list-style-type: none"> Potential tenant vacancies if properties do not meet tenant sustainability demands Opportunity to be an "early mover" to greener buildings and therefore attract higher rent Increased capital expenditure required to upgrade buildings to be more energy efficient Increasing expectation from tenants and customers that electric vehicle infrastructure is provided, requiring additional capital expenditure Need to consider alternative electricity generation options such as solar energy to meet tenant demands for energy efficient solutions 	Short / medium timeframe  Moderate risk	Stride has established a policy of targeted minimum green ratings for properties that it acquires or develops, which will assist with ensuring its properties meet the demands of tenants Stride's repositioning of its office portfolio away from older, less efficient and non-core buildings to a greener portfolio demonstrates its commitment to addressing this risk Stride plans to set emissions reduction targets during FY23

Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Policy and legal changes - Increasing standards for buildings, including embodied carbon assessments and operational emissions assessments at the time of building consent	<ul style="list-style-type: none"> More costly to develop buildings, due to the need to ensure buildings meet the required standards. Rents may need to increase in order to make development of new buildings feasible, but this will be market dependent There is currently an element of uncertainty around requirements for future building consents, which could impact commitment for new buildings given the long timeframe for the build process 	Short / medium timeframe ■ Moderate risk	Stride currently assesses embodied carbon as part of its process for new construction projects Continue to monitor Building Act and consents amendments, and adapt as required
Increased urbanisation with move of population to main cities	<ul style="list-style-type: none"> Opportunity for assets located in urban areas with increasing demand for properties – Stride's office assets are well-located in urban areas and town centre assets are located in growing areas. As cities become more highly populated, this could lead to higher demand for well-located assets, driving higher asset values 	Medium timeframe ■ Opportunity	Continue to focus on investing in sustainable assets in central urban locations that are likely to benefit from increasing urbanisation



Stride Property & Stride Investment Annual Report 2022 (continued)

Business as Usual Scenario - 4°C Temperature Rise

Chronic and acute physical climate issues become most material under this scenario, as short-term efforts required to decarbonise fall short of environmental requirements. Under this scenario, greater focus and investment will be on adapting to higher temperatures and associated impacts, such as higher sea levels and more extreme weather events.


This may include more immediate investment to strengthen asset physical resilience; exiting assets that are in high-risk zones; careful due diligence on the impacts of forecast sea level rise and storms on existing assets; building properties that factor in higher resilience to storms, floods and wind, and have back up or alternative energy sources; deepening relationships with insurers and energy suppliers to monitor and maintain stable contracts and affordable access.





Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Physical risks

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Increase in sea level rise including greater sea surge events	<ul style="list-style-type: none"> Asset values reduce, or useful life of asset is impacted, particularly for those assets located in coastal areas Properties in exposed areas are damaged due to sea level rise and the likelihood of larger sea surges and inundation Less tenant demand for properties at risk of sea level rise due to potential impacts on operation resulting from sea surge or inundation Increased costs of maintenance and repair due to likely damage from sea and possibly more robust building materials required Increased costs of insurance and/or inability to insure against this risk Potential for higher rates as Councils seek increased funding to implement protection measures against sea inundation 	<p>Medium/long timeframe</p> <p> Moderate risk</p>	<p>Sea level rise risks are considered as part of due diligence for new assets</p> <p>Sea level rise risk has been assessed across the office portfolio. All office properties are at very low risk of inundation over the next 20 years, assuming present day water levels. All office properties have very low or low risk of inundation over the period of 20 to 50 years (assuming a 0.5m sea level rise over this period), with no likely risk of internal flooding of the buildings</p> <p>The response to this risk will be further informed by the individual property risk assessments to be undertaken in FY23</p>
Rising temperatures	<ul style="list-style-type: none"> Increased operating costs due to cooling are borne primarily by tenants, however Stride will bear increased operating costs for building common areas Tenants may demand more energy efficient properties due to increased operating costs of cooling, or this may impact on the amount they can afford to pay in rent, thus impacting capital expenditure or income Developments become more expensive as construction workers are able to spend less time outdoors due to high temperatures, prolonging timeframes for development and increasing costs 	<p>Medium timeframe</p> <p> Moderate risk</p>	<p>The need to future proof for rising temperatures is considered as part of capital upgrades across the portfolio, such as the recent improvements to 22 The Terrace, Wellington</p> <p>The response to this risk will also be further informed by individual property risk assessments to be undertaken during FY23</p>

Stride Property & Stride Investment Annual Report 2022 (continued)

Risk	Impact	Timeframe and preliminary risk rating	Response / Next Steps
Increased water scarcity from more and/or longer drought events, less rainfall, change in seasons (longer summers, shorter winters)	<ul style="list-style-type: none"> Increased operating costs from greater water consumption due to increased heat and an increase in the price of water will impact tenants, but Stride will also bear the costs of increased water consumption for common areas Increased operating costs, including higher water costs, may impact the amount that tenants are prepared to pay for rent for premises 	<p>Medium timeframe</p> <p> Moderate risk</p>	<p>Consider the need to develop water-efficient buildings as part of property development</p> <p>Risk impact to be further considered by individual property risk assessments to be undertaken during FY23</p>
Increased frequency and severity of extreme weather events such as cyclones, storms, floods, fire	<ul style="list-style-type: none"> Increased operational costs from repairing damage to properties Increased capital expenditure from improving the resilience of assets to extreme weather events Demand from tenants for properties that are resilient to extreme weather events may impact demand for Stride's properties, if Stride does not invest to make its properties resilient Insurance costs expected to rise, and while insurance costs are primarily borne by tenants, this impacts overall costs of occupancy, thus potentially impacting amount of rent tenants can bear 	<p>Medium timeframe</p> <p> High risk</p>	<p>Ensure new developments are constructed to be resilient to climate risks</p> <p>Risk impact to be further considered by individual property risk assessments to be undertaken during FY23</p>

Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Response to climate risk

Stride considers climate risk on its business, particularly when considering major investment decisions such as acquisitions and developments.



Climate risks and opportunities are considered as part of due diligence investigations for acquiring assets, to ensure that our investments are consistent with our long term risk appetite. The Stride Boards have implemented a policy that it will only acquire properties that have or can achieve a minimum 4 star Green Star rating or 4 star NABERSNZ rating or equivalent, and target acquisitions that have or can achieve a 5 star Green Star rating or 5 star NABERSNZ rating or equivalent. Where the property is not currently certified and Stride has obtained advice that the property is currently not of a standard that will achieve the required minimum rating, Stride will factor the capital expenditure required to improve the building into its considerations for the acquisition.

As an example, Stride recently decided to recycle capital through agreeing to sell four non-core office buildings that it assessed required major upgrades to reach a minimum 4 star Green Star or NABERSNZ rating, to support Stride committing to acquire an office building that is currently under development at 110 Carlton Gore Road, Auckland, which is expected to achieve a 6 star Green Star Design & As Built (v3.2) rating, and a 5 star NABERSNZ rating.

Development planning takes into consideration climate risk and tenant demand to ensure an asset's resilience to foreseeable climate impacts while also retaining strong tenant demand. The Stride Boards have a policy related to developments or major refurbishments of a whole building, which requires Stride to incorporate sustainability initiatives in that development or refurbishment, targeting a 5 star Green Star rating (or equivalent), and a minimum 4 star Green Star rating (or equivalent).

Examples of this include the major redevelopment of 22 The Terrace, Wellington, where sustainability initiatives were incorporated in the building upgrade, which was initially undertaken to seismically strengthen the building. A 5 star Green Star Design rating has been confirmed for this building, and it is expected to achieve a 5 star Green Star As Built rating on completion of the works.

Stride has put in place a Green Finance Framework for Fabric, which owns office assets. This Framework requires that the value of Fabric's green assets (which are defined as properties rated at least 4 star NABERSNZ or 5 star Green Star) exceeds the value of Fabric's green loans. The Framework complies with the Green Loan Principles published by the Asia Pacific Loan Market Association, the Loan Market Association and the Loan Syndication and Trading Association dated February 2021.

Fabric prepares a use of proceeds report to confirm its compliance with the Framework on an annual basis, and this is subject to an external assurance review.

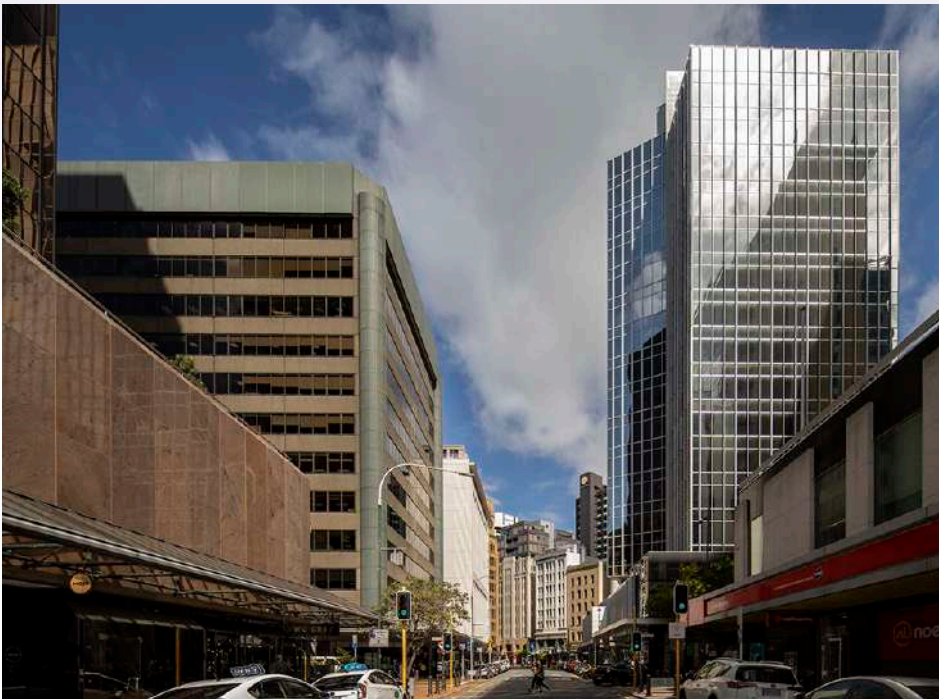
Stride Property & Stride Investment Annual Report 2022 (continued)

FY23 – Next Steps

For FY23 Stride plans to:

- further refine its climate risk assessment, including taking steps to quantify the impact of each risk and opportunity, as well as define metrics that will assist us to monitor each risk
- assess the impact of climate risk on individual properties through a property-specific risk assessment. This will assist with the development of an adaptation plan for Stride

Stride understands that a sectoral climate risk scenario for the buildings and materials industry is to be developed, which is part of the recommendations of the New Zealand External Reporting Board in their work on developing climate disclosure standards for New Zealand. Stride has indicated an intention to be part of the development of this sectoral scenario, which we understand is to be led by the New Zealand Green Building Council during FY23. We will then assess any impact from those scenarios on our strategy and business and adapt our climate risk assessment and strategic response as appropriate.



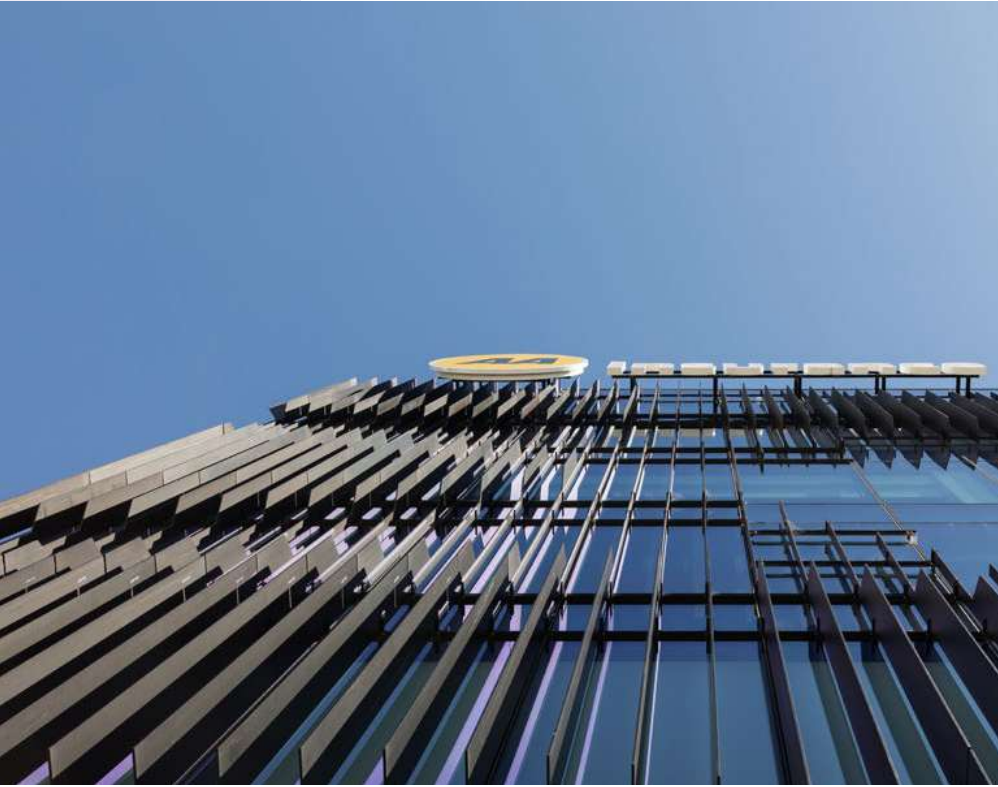
Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

Metrics and Targets

Tracking key indicators and progress against targets is important to enable Stride to measure and manage climate-related risks and opportunities

Stride recognises that it needs to contribute to the transition to a low carbon economy. As part of this commitment, Stride is collecting GHG emissions data which will enable Stride to put in place an emissions reduction plan. Stride is pleased to present its first Greenhouse Gas Inventory Report, which accompanies this Annual Report. Stride understands its Scope 1 and Scope 2 emissions, and is working with tenants to gather their emissions data, which is Scope 3 emissions for Stride and the Stride Products. Scope 3 tenant emissions are materially larger than Scope 1 and Scope 2 for Stride, and accordingly represent opportunities to achieve reductions, if we are able to work collaboratively with tenants to achieve reductions.



Stride Property & Stride Investment Annual Report 2022 (continued)

Approach to Measuring Greenhouse Gas Emissions



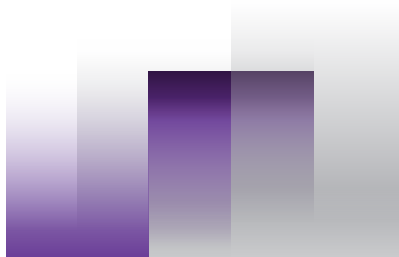
Stride prepares its GHG emissions inventory in accordance with the GHG Protocol Corporate Accounting and Reporting Standard.

Stride has adopted the "operational control" approach for accounting purposes to report GHG emissions for each Stride Product. This approach means that:

- Stride and each Stride Product account for base build emissions (such as refrigeration, natural gas and electricity associated with heating, cooling and lighting in common areas)
- Tenant GHG emissions are Scope 3 emissions for Stride and Stride Products
- SIML will report 100% of the emissions for Stride and each Stride Product on the basis that SIML is the property and fund manager and therefore has "operational control" of the Stride Products. Each Stride Product will still report emissions generated by its activities, including its owned properties, and the reports will make clear that these emissions have also been reported by Stride to explain any double accounting

Accounting for GHG emissions using the operational control approach is, we consider, the most appropriate method and will enable us to "manage what we measure". The contributors to Stride's GHG emissions and their categorisation are set out below.

Scope 1	Scope 2	Scope 3
GHG emissions which are a direct result of sources that are owned or controlled by an organisation, such as emissions associated with fuel combustion in boilers, furnaces, vehicles, etc	GHG emissions from the indirect consumption of an energy commodity (the most common is the emissions from the use of electricity produced by burning coal or gas in another facility)	Indirect emissions, other than Scope 2 emissions, that are generated in the wider economy, and include emissions from the goods we buy and activities we facilitate
Refrigerants (such as air conditioning) Natural gas, for example used for heating / boilers Diesel used in generators	Electricity used in common areas, for example lifts and lighting of common areas, and embedded electricity network emissions	Waste Water Flights, accommodation and fuel used in non-fleet vehicles Construction (embodied carbon) Tenant electricity/gas



Stride Property & Stride Investment Annual Report 2022 (continued)

Climate-Related Disclosures

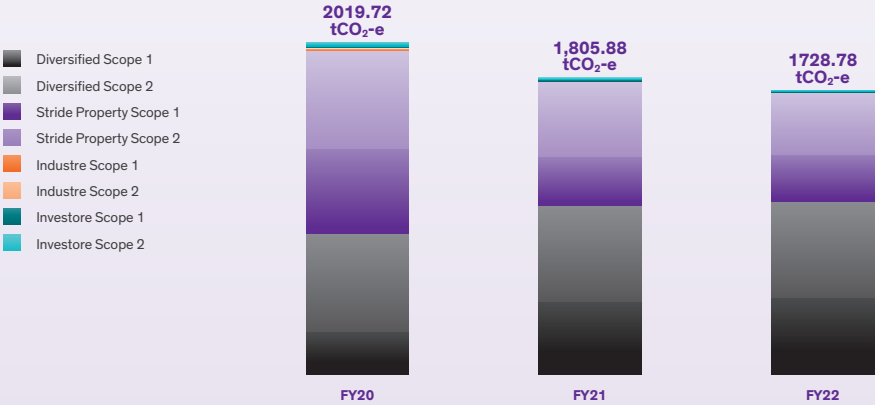
Greenhouse Gas Emissions

Stride is currently tracking Scope 1, 2 and 3 GHG emissions, although Scope 3 emissions are the most challenging for collection of data, as they are primarily tenant emissions, such as gas, water and electricity consumed by tenants and therefore rely on tenants sharing this data with Stride or providing authority for Stride to access this data directly from suppliers.

Stride's FY20, FY21 and FY22 Scope 1 and 2 GHG emissions were recently subject to a limited assurance review undertaken by Deloitte, and have been published as part of Stride's Greenhouse Gas Inventory Report for the year to 31 March 2022. This will provide us with a base to begin to establish emissions reduction targets, which we expect to undertake during FY23.

Set out below is a summary of the Scope 1 and 2 GHG emissions reported by Stride, which includes all of the emissions for SPL, Investore, Industrie and Diversified. As can be seen, emissions have increased for most entities between FY20 and FY22, with the exception of Diversified. The primary reasons for these changes are:

- Stride – SPL acquired the office properties at 20 Customhouse Quay, 215 Lambton Quay and 34 Shortland Street part way during the year in FY21, which means FY21 only has a part period impact on Scope 1 and 2 emissions for these properties, where FY22 will have the full year impact of Scope 1 and 2 emissions for these properties. In addition, FY22 reflects emissions from 46 Sale Street, which was acquired in July 2021. One of SPL's office buildings also experienced a mechanical issue which saw a refrigerant gas release during FY22, impacting FY22 emissions. This issue has been addressed.
- Diversified – Diversified has been working to replace old refrigeration units with newer units which has improved Scope 1 emissions for Diversified during FY22. In addition, FY22 was impacted by a longer period of closures for Chartwell Shopping Centre, located in Hamilton.
- Investore – Investore's emissions have increased due to the acquisition of centres with common areas, such as Mt Wellington Shopping Centre and Bay Central Shopping Centre, acquired in April 2020.



Stride Property & Stride Investment Annual Report 2022 (continued)

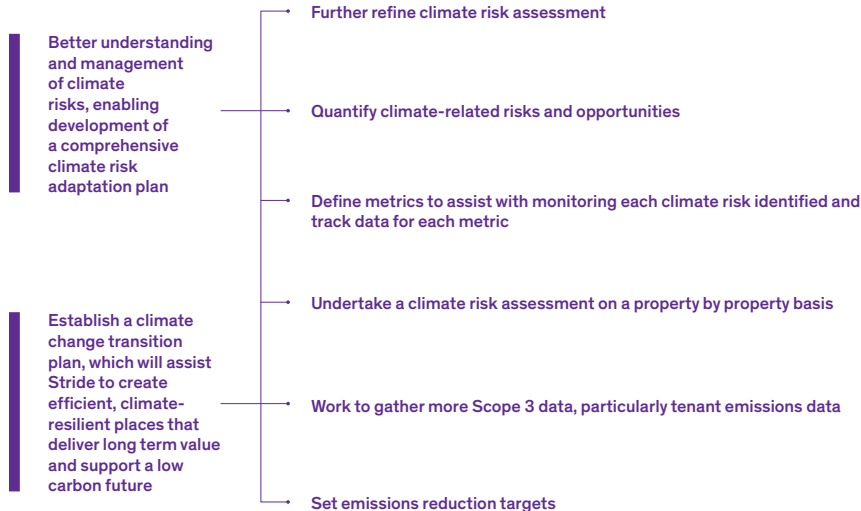
Green ratings

Another important metric for Stride in relation to climate risk is the number of its properties that have a green rating. Stride has focused on obtaining more green ratings for its offices during FY22. 57% of Stride's office properties are green rated as at 31 March 2022, although this increases to 74% on a pro forma 31 March 2022 basis, assuming the acquisition of 110 Carlton Gore Road, Auckland (expected to achieve a 6 star Green Star Design & As Built (v3.2) rating, and a 5 star NABERSNZ rating) and the divestment of four Auckland office properties, being 25 Teed Street, 35 Teed Street, 80 Greys Avenue and 7-9 Fanshawe Street, none of which are green rated. Assessments are also underway in relation to the remaining office properties to seek ratings for these properties, with a target of obtaining 100% green ratings for Stride's office properties. Stride is also working with JPMAM on green ratings for select industrial properties which form part of the Industrie portfolio.

Next Steps

The Boards consider that Stride has taken important steps in identifying and responding to climate risks, but it appreciates that there is still a lot of work to do.

Set out below are the key climate change response activities planned for FY23 and how these actions contributes to Stride better meeting its sustainability objectives.



Our Climate & Carbon Strategy

CLIMATE & CARBON STRATEGY

- Operational GHGS
- Product GHGS

FUTURE FLEET PROGRAMME

- Product harm
- Product GHGS
- Product repair/used

Climate change continues to wreak havoc around the world. Extreme weather events such as floods, wildfires and heatwaves leave us in no doubt of the challenge we face.

At **thl** we have a Climate & Carbon Strategy which is part of our overarching sustainability strategy. Our aim is to reduce our carbon emissions in line with a 1.5°C global heating scenario. At 2°C - a Hot House World - it is predicted that globally we will lose our coral reefs and there will be catastrophic acceleration of biodiversity and species loss, sea level rise and extreme heat, affecting billions of people, destinations, and our business.

We have spent the last 12 months building our understanding of the risks – and the opportunities – of climate change on our business, as well as understanding the full extent of our impact on the climate, by extending our baseline FY20 carbon footprint to include our indirect upstream and downstream emissions and setting a science-aligned carbon reduction target. This will allow us to develop robust carbon emissions reduction pathways in FY23.

Through our Climate & Carbon Strategy, including our new science-aligned target and our Future Fleet Programme, we are working to manage, minimise and ultimately eliminate our greenhouse gas emissions (GHG).

As a responsible tourism business, we take a holistic, systems- and science-based approach to how we create and maintain value for all our stakeholders. Our values of *Be Curious, Do The Right Thing and Be The Best*, will be key to our response to the climate challenge, and to delivering our purpose of creating unforgettable journeys, not just for our customers now, but also for future generations.



Our Climate Risks & Opportunities: **thl's** first TCFD Report

We take our climate risks and opportunities (CR&O) seriously and are on the journey to understand their interaction across the various aspects of our business. We recognise that our current vehicle fleet creates significant GHG emissions which contribute to climate change.

In this section we share **thl's** first public climate-related disclosures using the Task Force on Climate-related Financial Disclosures (TCFD) framework, delivered in advance of NZX requirements. Elements of this TCFD reporting are woven throughout our FY22 Integrated Annual Report because for us, climate strategy is part of our business strategy. We recognise that we are early on the TCFD reporting journey, and aim to improve our reporting over time. It is a summary of our work to-date on how we have identified and are managing our CR&O and has been prepared in accordance with TCFD requirements (see table) but prior to the publication of XRB standards.

The management of our CR&O needs to be fully integrated into our corporate strategy, operations and processes. Our sustainability strategy to become a future-fit business will play a key role in managing our CR&O. Our priority CR&O are described below. The table on the following page provides an executive summary of the key findings in this report, organised under each of the 11 TCFD recommended disclosure areas.



Appendix 1: NZSX-listed 2022 annual reports – Dedicated section **Tourism Holdings Annual Report 2022**

Tourism Holdings Annual Report 2022 (continued)

TCFD disclosure area	Summary	TCFD disclosure area	Summary
Governance: The organisation's governance of climate-related risks and opportunities	<p>The Tourism Holdings Limited (TH) Board Audit & Risk Committee (ARC) oversees the organisation's climate-related risks and opportunities. The Board Health, Safety & Sustainability Committee (HSSC) also has oversight of climate-related risks and opportunities.</p> <p>Risks and opportunities to TH are identified and managed at all levels of our business. Our Executive-level Risk & Improvement Committee (PIC) and operational-level Risk Champions Network (RCN) are responsible for identifying and managing climate-related risks and opportunities across our business and escalating key risks up to ARC as required. Climate-related risks are standing strategic and operational key risks reported to PIC and ARC.</p>		
Risk Management: How the organisation identifies, assesses, and manages climate-related risks and opportunities	<p>In October 2021, PIC members and other internal stakeholders attended climate scenario analysis workshops run by consultancy Beca to identify, assess and prioritise TH's priority climate-related risks and opportunities. Scenarios will be reviewed annually.</p> <p>Our climate-related risks are managed through the EDM framework with regular risks reviews, quarterly PIC and RCN meetings and bi-monthly ARC meetings. In FY23 we will build on our work to put a sustainability and climate lens over our major strategic decisions as well as capital expenditure and operating costs.</p> <p>How processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.</p>		
Strategy: The actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material	<p>After scenario analysis workshops, the priority climate risks for TH were identified as:</p> <ul style="list-style-type: none"> Lack of cost-effective, long-range RV product options that can materially reduce greenhouse gases Changes in customer demand and experience due to increased frequency and severity of both acute and chronic weather events Regulatory and legal compliance, given potential speed of policy changes and lack of available technology Supply chain impacts from market response to climate change, such as an increase in the price of carbon. <p>The priority climate opportunity for TH was identified as:</p> <ul style="list-style-type: none"> Opportunity for TH leadership on climate response in RV sales and rentals industry, if science-aligned carbon reduction targets and future fit sustainability goals are met. 		
7. Describe the impact of climate-related risks and opportunities on the organisation's business, strategy, and financial planning	<p>Our climate-related risks and opportunities (CR&O) relate to our business and strategy. Future fit sustainability programme in a number of key ways, including:</p> <ul style="list-style-type: none"> Our values - be curious, do the right thing and be the best Our business strategy, including how quickly we can feasibly decarbonise our vehicles through our Future Fleet programme Our Climate & Carbon strategy and how we can engage our crew, customers, communities and suppliers in our shared Carbon Challenge Plans and our social licence to operate. <p>In our next TCFD report, TH will further disclose the financial impacts of climate-related risks and opportunities on our business model and strategy over short, medium, and long-term time horizons.</p>		
8. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	<p>We used three climate scenarios, developed by the Network for Greening the Financial Sector (NGFS), to test the resilience of TH's strategy to climate change: Imminent Transition; Delayed Transition; and Hot-House World. We are at an early stage of maturity in our climate-related disclosures and by definition, the degree of resilience of our strategy is subjective. Given this, here is our summary of key findings under the three scenarios:</p> <p>IMMINENT TRANSITION</p> <ul style="list-style-type: none"> Electric RVs and other technology will be characterised by low supply and high demand as these industries scramble to meet the needs of a transitioning mid-market. TH will need to maintain access to key and strategic suppliers. The resilience of TH's strategy under this scenario will depend on being able to quickly pivot its business model and services offering to meet strict compliance requirements. Opportunity to develop local customer base as international travel decreases due to more stringent decarbonisation policies. <p>DELAYED TRANSITION</p> <ul style="list-style-type: none"> Supply chain disruptions are likely due to high demand for new components and technology after 2030, combined with an increase in extreme weather events. TH will have time and opportunity to position itself as a market leader in decarbonisation before it is mandatory. <p>HOT-HOUSE WORLD</p> <ul style="list-style-type: none"> Extreme physical risks could close certain attractions or eliminate tourism in whole regions seasonally. RVs could be used as emergency housing for people displaced by extreme weather events. An extreme and volatile climate will have massive impacts on supply chains. 		
Metrics and Targets: The metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material	<p>Now we have set our Scope 1 and 2 science-aligned target, we will be identifying appropriate metrics to assess our CR&O in FY23.</p>		
10. The three Scopes of greenhouse gas (GHG) emissions (if appropriate), and the related risks	<p>TH publicly discloses (via annual integrated reporting) its Scope 1, 2, and partial 3 emissions.</p>		
11. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets	<p>TH's science-aligned carbon reduction target for Scope 1 and 2 is a reduction in greenhouse gas emissions of 50.4% by FY32 from a restated FY20 baseline. We aim to publish our Scope 3 target in the FY23 Annual Integrated Report after meaningful engagement with our crew and suppliers.</p>		

ARC, previously the Audit Committee, was renamed with a broader remit to oversee enterprise risk.

Tourism Holdings Annual Report 2022 (continued)

thi INTEGRATED ANNUAL REPORT 2022

Governance

Board oversight of climate-related risks and opportunities

Governance of climate-related risks at thi involves the thi Board, senior management and broader organisation.

The thi Board has ultimate responsibility for reviewing thi's risk management framework, however ongoing oversight is delegated to the Audit & Risk Committee (ARC) in respect of financial and strategic risk management, and to the Health, Safety & Sustainability Committee (HSSC) in respect of sustainability risk management, sustainability opportunities and strategy.

Climate risks at strategic and operational levels are standing items reported to ARC on a bi-monthly basis. ARC and HSSC consider climate-related issues when guiding strategy and action. In addition, all papers submitted to the Board are expected to provide a Six Capitals Assessment including thi's impact on natural capital such as climate.

The TCFD process has highlighted the need for us to further develop a formal sustainability and climate lens for reviewing and guiding Board and thi activities including strategies, major plans of action, risk management policies, performance objectives, major capital expenditures etc. These activities will be reviewed and addressed by thi in FY23.

Management's role in assessing and managing climate-related risks and opportunities

The thi CEO and Executives all play a role in identifying and managing our CR&O; monitoring climate-related megatrends; reflecting climate issues in business strategy and ensuring these are managed through our operations and our Enterprise Risk Management (ERM) framework. Climate-related issues are shared with the wider business by the CEO at internal Teams Talks and disclosed externally in thi's integrated Annual Reports.

Climate-Related Risk & Opportunity (CR&O) Management

thi expects our transition risks – particularly the lack of availability of low-emissions RV technology, and the risks to thi's reputation if we don't decarbonise – to impact thi sooner than physical risks. The most significant risks to economies transitioning to low-carbon models are likely to be experienced over the next 10-30 years, while physical risks, such as from acute and chronic weather events, are expected to continue to increase and will have an even greater impact later this century. thi has identified CR&O over the short, medium, and long-term. We consider short-term to be up to 24 months, medium-term to be 2-10 years and long-term to be over 10 years.



thi's key assets are the RVs we rent and sell. The typical life of a RV is 15-20 years. Therefore, production decisions that thi makes today lock us into a specific carbon trajectory – and related impact on climate change – for potentially the next two decades.

Please see the diagram showing our priority CR&O which could have a material financial impact on thi in the short, medium and long-term.



The Chief Responsibility Officer and Responsible Management (RM) team undertake climate and carbon reporting associated with the risks and opportunities identified by the Executive. The RM team works with stakeholders to undertake the measurement and verification of thi's greenhouse gas emissions and, through the ERM framework, sees that the CR&O identified are captured and mitigated.

Strategic and operational climate risks are managed by thi's Executive-level Risk & Improvement Committee (RIC – previously the Enterprise Risk Steering Committee) and our operational Risk Champions Network (RCN). See section 'Protecting the value we create' for more information.

The Future Fleet programme was developed by thi to proactively manage the climate risks to and by our fleet, particularly one of our priority risks – the lack of cost-effective, long-range product options that can materially reduce greenhouse gases. With new eRV (electric Recreational Vehicle) products in the market, Future Fleet is now restarting plans to pilot eRVs in our different countries of operation. For more information, see the 'Future Fleet programme progress' section in this report.

Led by the CEO of Action Manufacturing, a fully-owned subsidiary of thi, Future Fleet involves key stakeholders such as the thi Executive team and internal and external technical experts. Progress is reported at the Strategic Product Development Group (SPDG) and to ARC and HSSC.

The 'Our responsibility journey' section has further information on thi's other programmes to manage our carbon emissions including Ignition – sustainability Branch Action Plans and Accelerate – strategic partnerships.

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OUR PRIORITY CLIMATE RISKS AND OPPORTUNITIES



Out of the risks **thl** prioritised from a long list (see diagram), there is one current and short-term risk which we are seeking to manage through our Future Fleet programme: the lack of reliable RV technology to decarbonise **thl's** fleet. We understand that this risk will affect us over all timeframes we have considered. However, given the average lifespan of our vehicles (15-20 years), the impact of decisions we make about our vehicles today will likely be felt in the medium-term. As a result, we need to consider this risk in decisions we make today – for example, on the rate of depreciation/expected obsolescence of these vehicles. Hence we have listed this risk as having potential financial impacts over a short-to-medium time horizon.

The other priority risks listed are not material in the short-term to the six capitals we regularly report on in our Integrated Annual Reports: financial, manufactured, intellectual, human, social and relationship and natural.

The key opportunity identified for **thl** is also material in the short through long-term: the reputational opportunity to position **thl** as leaders in RV sales and rentals in responding to climate change, if science-aligned targets and sustainability goals are met to ensure we become future-fit.

How our CR&O were determined and prioritised

The priority climate risks and opportunity to **thl** were identified as material using a specific methodology which had a focus on climate change, detailed below. To properly manage these risks, they have been integrated into our broader ERM framework with governance and oversight provided by our Risk Champions Network, our Executive-level Risk & Improvement Committee, and the Audit & Risk Committee and Health, Safety & Sustainability Committee.

Note on velocity/speed of impact: We expect our prioritised risks to become increasingly material in the medium to long-term.

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Climate scenario workshops

Consultancy/Beca facilitated a series of three climate scenario analysis workshops with **thi**'s leadership team and key internal stakeholders. Workshop 1 involved a risk prioritisation to identify, via voting, the five highest priority risks and opportunities from a preliminary long list.

See below table for a description of our priority risks and opportunities.

Risk	Description
Lack of reliable RV technology to decarbonise thi's fleet	Lack of cost-effective, long-range RV product options that can materially reduce greenhouse gases (e.g., E, G).
Changes in customer demand and behaviour due to physical climate impacts	Increased frequency and severity of both acute and chronic weather events may affect customer demand and experience.
Regulatory and legal compliance	Speed of policy changes pose significant risks, particularly if technology availability cannot keep up with policy requirements.
Supply chain impacts from market response to climate change	E.g., increase in the carbon price. Impacts may lead to more expensive procurement and operations.

Opportunity

Reputation

Opportunity to position company as industry leaders in responding to climate change if science-based targets and future-fit goals are met.

Workshops 2 and 3 involved a **climate scenario analysis** exercise to take the five priority risks and opportunities identified during the risk prioritisation exercise and test them under each of the three climate scenarios, developed by the Network for Greening the Financial System (NGFS). The NGFS is comprised of central banks – including in NZ, AU and the US – who contribute to developing climate and environmental risk management best practices. Beca selected three scenarios that would test the outer bounds of **thi**'s resilience, including extremes of physical and transition risks.

Scenario	Climate Policy	Transition Risk Severity	Physical Risk Severity	Description
Imminent Transition	Immediate and smooth	Initially high, then gradual and ordered	Low-Medium	Ambitious and stringent climate policies are introduced immediately and enacted to limit global warming to 1.5°C. Net Zero is reached by 2050. Significant innovation is spurred and there is fast change in technology.
Delayed Transition	Delayed	Initially low, Severe after 2030	Medium-High	Policy is not enacted immediately, causing emissions to increase until 2030. When policies are enacted, they are stringent and abrupt. Emissions exceed the Paris Agreement's carbon budget temporarily and then decline rapidly after 2030.
Hot House World	None	Low	Extreme	A world in which only current policies are preserved, and there is no significant action on climate change. This results in a "hot house world", where emissions lead to about 3°C of warming by 2060.

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OUR RESPONSIBILITY JOURNEY

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Risk	Description	Materiality Rating as described on left			Time horizon over which risk arises
		Imminent transition	Delayed transition	Hot House World	
Lack of reliable RV technology to decarbonise th/s fleet	Lack of cost-effective, long range RV product options that can materially reduce greenhouse gases (e.g., EVs).	HIGH	HIGH	HIGH	Short-medium term
Changes in customer demand and experience due to physical climate impacts	Increased frequency and severity of both weather events may affect customer demand and experience.	LOW	MODERATE	HIGH	Medium-long term
Regulatory and legal compliance	Speed of policy changes pose significant risks, particularly if technology keeps up with policy requirements.	HIGH	MODERATE	HIGH	Medium-term
Supply chain impacts from market response to climate change	E.g., increases in the carbon price, impacts may lead to more expensive procurement and operations.	HIGH	HIGH	HIGH	Medium-term

Opportunity	Description	Materiality Rating as described on left			Time horizon over which opportunity arises
		Imminent transition	Delayed transition	Hot House World	
Reputation	Opportunity to position company as industry leaders in responding to climate change if we exceed targets and future goals are met.	HIGH	HIGH	HIGH	Short-medium term

Following a discussion, a materiality rating of low, moderate, or high was assigned to each of the five risks./opportunities under each scenario.

Materiality ratings that were applied to risks and opportunities during scenario analysis:

- Are aligned on the concept of 'double materiality'.¹
- Refer to the level of risk severity under each scenario. Transition and physical risks will exist under all three climate scenarios. Therefore the low, moderate, or high ratings refer to the level of risk severity under each scenario.
- Provide, to some extent, a framework for prioritising action as follows:

Rating	Action
HIGH	Highest priority risks and opportunities. th should focus its risk management efforts on these.
MODERATE	Should be closely monitored but are not of highest priority.
LOW	Are lower priority compared to 'moderate' risks and opportunities but should still be monitored.

Priority risks and opportunities were assessed according to their materiality under each scenario.

Materiality ratings were assigned for each country in which **th** operates, focussing on New Zealand, Australia and the United States. The tables to the right show the average of these ratings.

¹ Double materiality recognises that climate financial risks are influenced by long-term environmental and social factors. A reasonable person might consider information material for reasons other than direct financial repercussions; for example, the company's impact on climate change (as well as climate change's material financial risk and additional qualitative factors, such as reputational, operational and health and safety risks).

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<p>thl INTEGRATED ANNUAL REPORT 2022</p>	<div> <h3>The impact of climate-related risks and opportunities on thl</h3> </div> <div> <p>thl is keenly aware of the risks and opportunities posed by climate change on our business, strategy and financial planning, such as potential changes in customer demand and tourism experiences due to the physical impacts of climate change.</p> </div> <div> <p>In addition, we have a significant impact on the climate. Our core business, RVs, generate greenhouse gases through the use of fossil fuels. It's clear that we must seek opportunities to decarbonise our fleet as quickly as is feasible.</p> </div> <div> <p>However, there are hurdles that we need to overcome to enable practical, customer-friendly and cost-effective solutions for our RVs. Our vehicles are on the larger end of light commercial/ smaller end of freight in terms of weight, and need at least a 200km range to give our customers the capability they need on their journey. We do not see this as a priority for vehicle manufacturers (Original Equipment Manufacturer/OEMs) whose focus is on cars, commercial light vehicles e.g. for last mile delivery, and heavy fleet.</p> </div> <div> <p>In addition, the answer for us may not simply be electrification. We operate in countries such as Australia and the US where the grid mix, while starting to change, is not as clean as NZ, and energy is generated from coal and other fossil fuels. This means that when Electric Vehicles (EVs) charge, although they are not generating tailpipe emissions, they are still potentially drawing electricity from a dirty grid. We are also aware that our current products will continue their useful life for many years beyond them being in our fleet, and that alternative low-emission fuel sources will be required to reduce ongoing emissions from these vehicles.</p> </div> <div> <p>thl has invested in our Future Fleet programme to help us proactively manage the carbon risks and opportunities relating to our RVs, such as piloting new, low-emission products. Future Fleet will help us navigate the complex RV value chain, availability of technologies; new stakeholders; and rapidly changing regulations which include the end of importation of Internal Combustion Engine (ICE) vehicles. We know that it will require a collaborative, partnership approach for us to make any significant inroads in the timeframe required.</p> </div> <div> <p>Our Future Fleet programme is also investigating different technologies in the transition to a low-carbon world, including</p> </div> <div> <p>hydrogen and biofuel. For all these technologies – EV, hydrogen and biofuel, the lack of infrastructure and consistent supply is a key issue. In addition, biofuel sourcing carries significant supply chain risks.</p> </div> <div> <p>We believe we need to decarbonise before changing customer demand forces us to. Customers in the future are also expected to experience more extreme weather events due to climate change. We are part of bigger sector and national discussions regarding climate adaptation and mitigation, and whether national infrastructure is up to the challenge of wildfires, rising sea levels, more severe storms and droughts etc.</p> </div> <div> <p>Climate change also gives us an unfortunate opportunity: more people will likely be displaced and will need mobile housing; and more extreme weather events will increase demand for temporary housing for e.g. firefighters and emergency services. If we continue our progress to become a future-fit business and meet the science-based, systems goals that comprise the Future-Fit Business Benchmark, we have a chance to build on our reputation as a business committed to regenerative tourism.</p> </div> <div> <p>In short, our strategies to meet these risks and opportunities need to be regularly reviewed to respond to changing requirements.</p> </div> <div>  </div> <div> <h3>How resilient is our strategy under different climate scenarios?</h3> </div> <div> <p>So that we are planning for a range of possible futures, below we summarise and describe different aspects of our corporate strategy, taking into account the three different scenarios of Imminent Transition, Delayed Transition and a Hot House World described below.</p> </div> <div> <table border="1"> <tr> <td> <p>Summary of key findings under three scenarios</p> <p>IMMINENT TRANSITION</p> <ul style="list-style-type: none"> Electric RVs and other technology will be characterised by low supply and high demand as these industries scramble to meet the needs of a transitioning world. thl will need to maintain access to new and existing technology through partnerships and relationships. The resilience of thl's strategy under this scenario will depend on being able to quickly pivot its business model and service offerings to meet strict compliance requirements. Opportunity to develop local customer base as international travel decreases due to more stringent decarbonisation policies. </td> <td> <p>DELAYED TRANSITION</p> <ul style="list-style-type: none"> Supply chain disruptions are likely due to high demand for new components and technology after 2030, combined with an increase in extreme weather events. thl will have time and opportunity to position itself as a market leader in decarbonisation before it is mandatory. </td> <td> <p>HOT HOUSE WORLD</p> <ul style="list-style-type: none"> Extreme physical risks could close certain attractions or eliminate tourism in whole regions seasonally. RVs could be used as emergency housing for people displaced by extreme weather events. An extreme and volatile climate will have massive impacts on supply chains. </td> </tr> </table> </div>	<p>Summary of key findings under three scenarios</p> <p>IMMINENT TRANSITION</p> <ul style="list-style-type: none"> Electric RVs and other technology will be characterised by low supply and high demand as these industries scramble to meet the needs of a transitioning world. thl will need to maintain access to new and existing technology through partnerships and relationships. The resilience of thl's strategy under this scenario will depend on being able to quickly pivot its business model and service offerings to meet strict compliance requirements. 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Fleet decarbonisation

Decarbonising our fleet will be an essential component to meeting potential emissions requirements as well as mitigating the impacts of climate change. There are various risks and opportunities associated with the decarbonisation of our fleet, as described in this report.

Technology development & a circular economy

Decarbonising our RV fleet will depend on technology that is not yet readily available. While EV technology has been around for many years, the development of electric RVs (eRVs) is currently in its infancy, and challenges are associated with accessing this technology. NZ's tight hand side driver requirement makes these vehicles lower priority for the international market. EVs also require charging stations, which are expected to be more common in the US before NZ or AU. Currently, eRVs do not have the capacity to cover long distances. This is particularly material in AU, with longer hauls and a smaller likelihood of big investments in EV infrastructure.

Other technologies could play a role in decarbonising **thl's** fleet. Hydrogen technology will require significant advancement before it can be used in RVs, but several hydrogen initiatives are already underway (e.g., Renault in France, and Japan and Korea investing in hydrogen). Biofuel blends are another option that would run on existing diesel and petrol engines. We believe hydrogen and biofuels are more likely to be utilised in AU and NZ, with biofuels a potential transition technology while hydrogen and EV infrastructure is developed.

The process of decarbonising our fleet is likely to result in higher investment required up-front for research and development, but lower long-term maintenance costs. Under scenarios that transition to a zero-carbon economy later, or not at all, there is a risk associated with being an early adopter of EVs and other low-emission vehicles and losing business viability in the short-term due to increased costs and outpacing the market.

Through Action Manufacturing, we have an opportunity to both retrofit our existing fleet and play a role in the development and supply of clean RV technology. There is infrastructure **thl** is reviewing now which could help to facilitate this shift. For example, RVs with front wheel drive are easier to retrofit to a hydrogen or electric system than those with rear wheel drive.

The transition to alternative technologies will require a significant investment in upskilling technicians to servicing and repairing EVs and other alternate vehicles. A circular economy approach will be an important shift in **thl's** strategy, including reviewing our business models and considering the entire lifespan of a vehicle and its component parts and materials. **thl** has the opportunity to capitalise on these opportunities having undertaken an initial Life Cycle Assessment study of our RVs and with our extensive logistical operation and manufacturing capability.

Supply chain disruptions & a shift to 'local'

Disruptions in our supply chain were identified as a key risk in all three scenarios. Under scenarios with higher transition risks, demand far outpaces supply for new and renewable technology and its components. NZ, and to a lesser degree AU, is particularly vulnerable to supply chain issues due to their remoteness. Neither country is large enough to develop its own auto manufacturing industry, so each will continue to depend on an international supply chain.

The supply of materials for manufacturing RVs could be disrupted by sea level rise, resource shortages and acute weather events. Some materials identified as vulnerable to supply chain disruption include fiberglass, biofuel, plywood and aluminium. At **thl** we could look to invest in shifting to locally made, circular and bio-based materials where available which could increase our supply chain resilience as well as reduce freight costs.

There is an opportunity to better communicate sustainable sourcing and practices to our customer base, particularly given the work of our Global Sustainable Procurement working group and our upcoming Supplier Code of Conduct. However, we will need to find ways to convey complex information about vehicle

manufacturing into simple metrics such as 'percent of components parts that are sustainably sourced / part of a circular system'. In transitioning scenarios, authentic and transparent communication of sustainability performance and potential use of digital transparency technologies such as blockchain will become important to continuing to attract customers to this mode of travel.

Resilience through partnerships

Partnership is a key theme of our resilience strategy under various climate scenarios. Because **thl's** primary location in NZ is remote, and our buying power isn't as large as other automotive markets, effective partnership with suppliers and using our influence to access products in a timely manner will be essential.

Fuel supply / charging infrastructure is another systems challenge, and in all the countries in which we operate – NZ, AU, the US and the UK – we are seeking to partner with organisations that want to demonstrate climate leadership through pilot programmes and R&D.

Effective partnership has been key already in our ability to weather the COVID-19 global pandemic, particularly in the US, and in our original trials with electric chassis. Through Action Manufacturing, we were the first in NZ to bring in LDV electric chassis; we repowered light commercial vehicles for AU-based SEA Electric and assisted in creating New Zealand's first intercity heavy EV truck for Alasco.

Moving forward, given **thl's** unique offering of rental RVs travelling significant distances, we are well placed to pilot and test new low-emissions and circular economy technologies for OEMs.

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Physical impacts on customer experience, health, and safety

Extreme weather events and increasing temperatures may create a seasonal shift in tourist markets, such as increases in overseas tourists visiting NZ and Australia during winter months to escape Northern Hemisphere summers. In Australia, more temperate areas (e.g. Tasmania) may become more popular. NZ may have significant reductions in snow cover and the length of the winter sports season. As temperatures rise, our NZ fleet may need to be fitted with air conditioning (AC) units. In the US, it is possible that some areas will be restricted for large parts of the year (e.g. due to wildfires). Tourist attractions may become more distinctly seasonal, requiring corresponding relocations of the fleet.

Particularly in Australia and the US, extreme heat in the summer is likely to cause significant disruptions to the tourist market. Even if new AC technology can be fitted into vehicles, people are less likely to travel in >40°C heat. These disruptions may require us to explore new operational models, such as fleet dispersal and remote vehicle hubs, or consider venturing into new markets (i.e. more temperate regions, such as Europe).

Both the Delayed Transition and Hot House World scenarios carry significant physical risks from an increasingly extreme and volatile environment. The innate mobility of RVs means that our products are relatively resilient to these physical risks (i.e., wildfires can be driven away from). Even if tourist destinations are closed, RVs provide customers with the freedom to travel to alternative locations. Communicating health and safety risks to staff and customers will be critical, especially in a Hot House World scenario.

Reputational opportunities

Under transition scenarios, reputational opportunities will depend on our ability to deliver on climate change goals. Communicating our decarbonisation efforts through effective storytelling will be an important component of our value proposition to employees under all scenarios. Equally, given that we are reliant on others for a significant technology step change we will need to be transparent on the challenges and hurdles we face to take material steps forward.

The pace of change under an Imminent Transition scenario will pose more of a challenge. We will have to respond quickly to market changes by diversifying our product offerings; for example, by offering circular economy subscription-style vehicle ownership as private vehicle ownership decreases in response to policy changes.

Decarbonising under a Delayed Transition scenario could provide more of a reputational opportunity, as we work in collaboration with others to position ourselves as market leaders before regulation is put in place. If, as is our aim, we can successfully decarbonise our fleet, **thl** may have an opportunity to share intellectual property about this process with peer organisations. Monitoring the competitor market will be important, as there are likely to be many fast followers who catch up by 2030 onwards. Smaller companies may be able to pivot and decarbonise more quickly, while we may be constrained by our large fleet size or conversely size may be an advantage in terms of influencing our suppliers for low/zero-emissions products.

Under a Hot House scenario, we will still need to maintain our social licence to operate by publicly pursuing our future-fit sustainability goals. As disaster events dramatically increase under this scenario, becoming industry leaders in non-tourism temporary accommodation is a reputational opportunity. Providing emergency service vehicles for disaster relief and support services (such as for firefighters) may continue to provide additional revenue and an opportunity to enhance our brand. However, this may be more applicable to our reputation in the investor market, rather than the customer market.



CASE STUDY Climate risks for a **thl** business: Discover Waitomo

The Waitomo Caves

The Waitomo Caves and Kiwi Experience operation is already undergoing major shifts as a result of pandemic. Climate change and the rising cost of carbon could have a similar effect. In addition, climate change could impact the sensitive glowworm ecosystem. To appeal to a local customer base, offerings could continue to shift, more towards education, science and immersive Te Reo (Māori language) tours, which are already proving popular. Under scenarios with high physical risk severity, the Waitomo Caves could be impacted by road closures due to acute weather events or glowworm senescence due to higher temperatures and flooding. Waitomo is currently moving towards a more resilient, New Zealand-made supply chain, including growing food on-site.

Tourism Holdings Annual Report 2022 (continued)

Unforgettable Journeys
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Metrics and Targets

Our Science-Aligned Carbon Reduction Target

thl is at an early stage in setting formal and external goals, targets and metrics for climate-related issues. Our Board has emphasized the need to set a science-aligned target for carbon reduction and **thl** is taking a phased approach to this, starting with a Scope 1 and 2 target, followed by a Scope 3 target which will be shared in our next Integrated Annual Report.

We have worked with independent sustainability firm thinkstep-anz to restate our FY20 carbon footprint to include a full inventory of our FY20 Scope 3 emissions and become our new baseline year. Our emissions in the last quarter of FY20 were impacted by COVID-19 lockdowns and therefore were appropriately adjusted with an uplift factor to represent our pre-COVID-19 level of activity. This new baseline now encompasses our business in its entirety, from the supply of raw materials to our commercial operations through to the end of life of our vehicles, even once we have sold them. As a result, our restated baseline footprint has increased by over four times to approximately 219,000 tCO₂e.

Restating our FY20 baseline has meant we have been able to set a science-aligned carbon reduction target for our Scope 1 and 2 emissions of 50-4% by 2032, essentially halving our pre-COVID-19 levels of carbon emissions in the next decade. Our emissions reduction target takes an 'absolute emissions reduction' approach. It includes those Scope 1 and 2 emissions over which we have direct control, but unusually for a business, our Scope 1 emissions include activity over which we have limited control – but may be able to influence – customer journeys.

Our priority at **thl** is to ensure our customers have an exemplary experience, with the freedom to travel and create unforgettable journeys. Our challenge as a business is to find a way to decouple carbon emissions from customer journeys without compromising customer experience. The lack of available technology and solutions is still a considerable barrier to achieving this goal.

Our science-aligned target follows the Science-Based Targets Institute (SBTI) methodology and aims to support the delivery of the substantial reductions needed to limit future global heating to 1.5°C.

Our science-aligned target: **thl commits to absolute reduction of Scope 1 and 2 greenhouse gas emissions of 50.4% by FY32 from a restated FY20 baseline, consistent with the aim of limiting global heating to 1.5°C.**

A note on our Scope 3 target

As with many businesses, our Scope 3 emissions dominate our restated baseline footprint, comprising 70% of the total footprint. While we may be able to influence our upstream supplier emissions, we do not control the emissions of our vehicles once they are sold. Key to addressing this challenge is having more influence on emissions from sold products in the future, is our Future Fleet programme which aims to transition our fleet to low and no-emissions vehicles as quickly as feasibly possible.

In order to adopt a meaningful science-aligned carbon target for our Scope 3 emissions, we will continue to update our view and approach to Scope 3 GHG targets as we work with partners in the supply chain to collectively ensure a systemic approach to addressing the issues and identifying solutions. We need to work together to establish realistic decarbonisation pathways linked to genuine, scalable technological innovation.

We will be spending the next 12 months starting to engage key stakeholders in our shared Carbon Challenge including our crew, peers, customers and suppliers, including vehicle manufacturers (OEMs).

Our Scope 1 and 2 target and development of a Scope 3 target have been approved by the **thl** Executive team and the **thl** Board.

Tourism Holdings Annual Report 2022 (continued)



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Our FY22 Carbon Footprint

Our FY22 carbon footprint continues to be based on our previous approach (Scope 1 and 2 and limited Scope 3) and baseline year of FY19, with customer journeys included in our Scope 1 emissions.

As noted, we currently have limited control over our Scope 1 customer journey emissions. We will be extending our FY23 footprint to include our full Scope 3 emissions, see section above.

Guidance on which emissions fall under which Scope is rapidly evolving, and our allocation of our customer journey emissions under Scope 1 may change in the future. In the following graphs we have therefore included customer journey emissions in Scope 1, but have also reported them separately for consistency with previous years. COVID-19 has continued to have a profound impact on our emissions in FY22, particularly on customer journey emissions in New Zealand.

In this COVID-19 context, in FY22 group-wide operational emissions across all business units fell a further 6% from FY21, with a total decrease of 50% against our baseline year of FY19. We have also seen a 31% reduction in customer journey emissions on FY21, a total decrease of 51% against our baseline year of FY19.

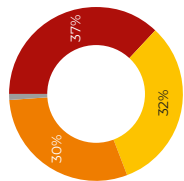
FY23 Carbon Footprint: Extending Our Inventory

As discussed, in order to set a science-aligned carbon reduction target, we have extended our FY20 carbon footprint to reflect a full year of pre-COVID-19 activity and to include all our Scope 3 indirect upstream and downstream GHG emissions. In FY23, we will update our digital GHG platform with this restated FY20 baseline year and extend our GHG inventory for our FY23 footprint to include our full Scope 3 emissions, which we will share in our next Integrated Annual Report.

Group-wide Operational GHG Emissions / Carbon Footprint FY22*

(tonnes CO₂e)

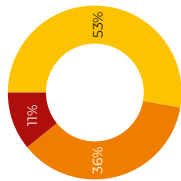
*excluding customer journey



New Zealand	1,629
USA	1,422
Australia	1,298
Joint ventures	45
Total GHG emissions (tonnes CO₂e)	4,394
	6% decrease on FY21

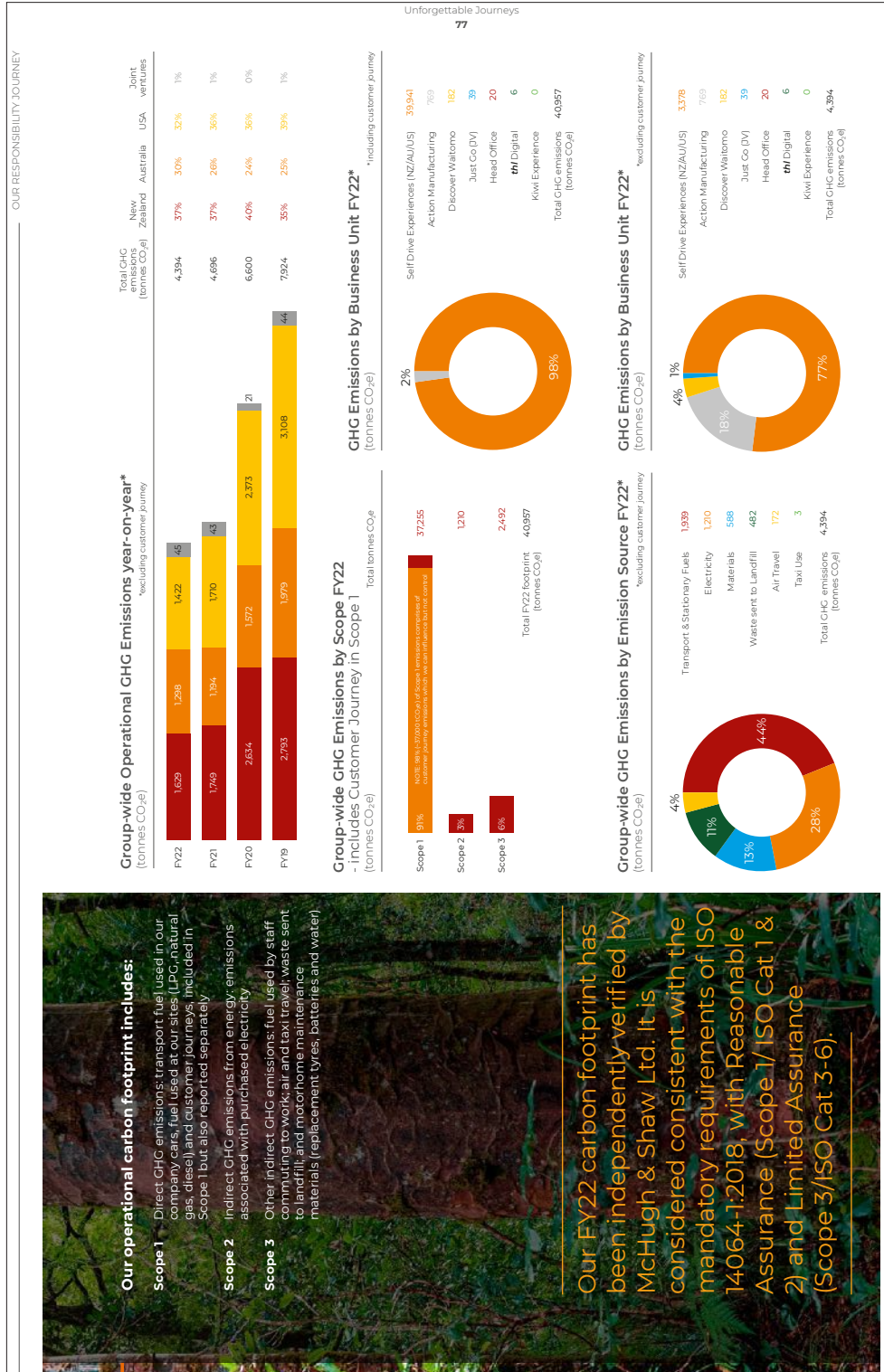
Group-wide Customer Journey GHG Emissions FY22

(tonnes CO₂e)

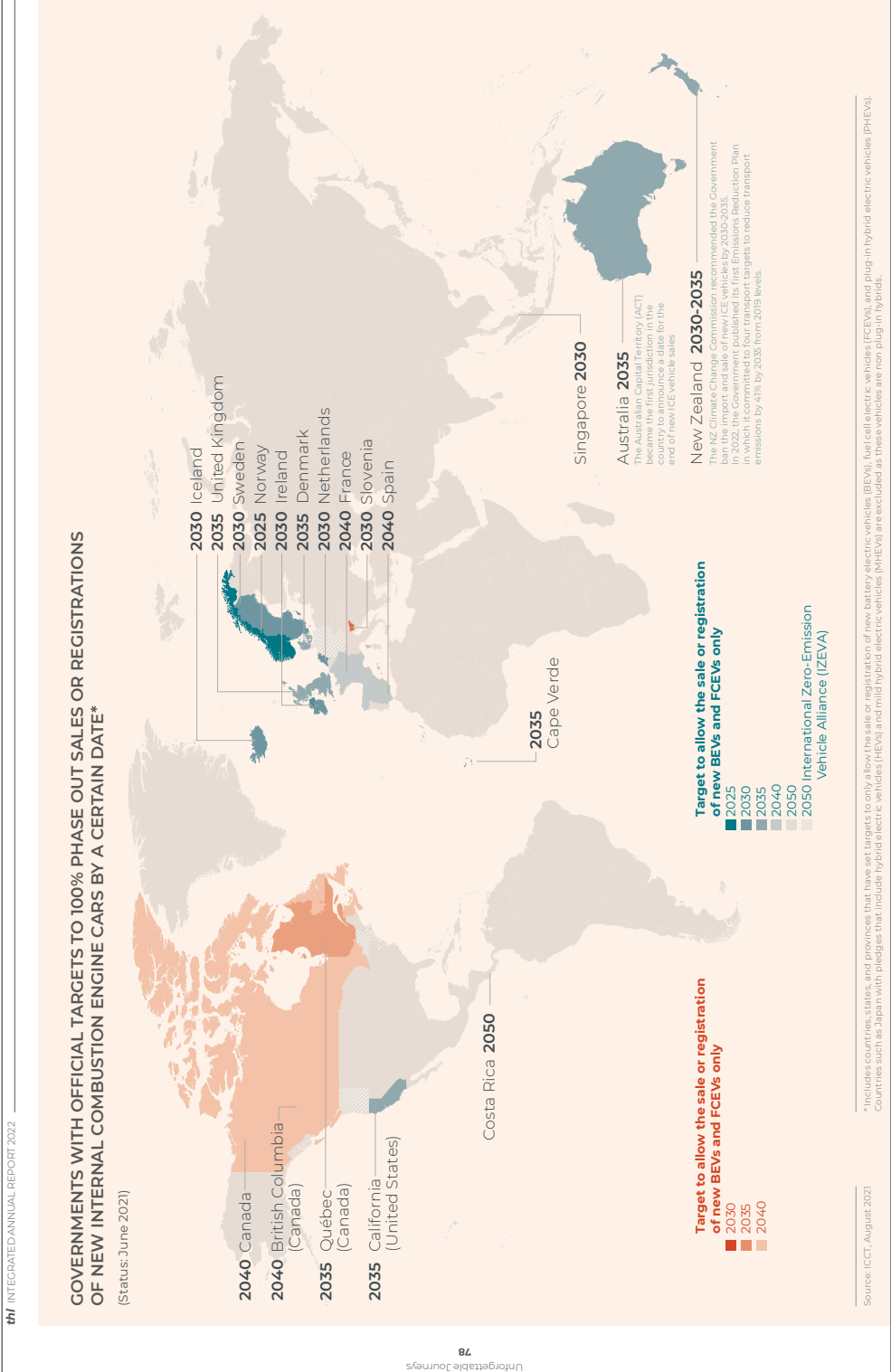


USA	19,391
Australia	13,243
New Zealand	3,929
Total GHG emissions (tonnes CO₂e)	36,563
	31% decrease on FY21

Tourism Holdings Annual Report 2022 (continued)



Tourism Holdings Annual Report 2022 (continued)



Tourism Holdings Annual Report 2022 (continued)



**Next Steps:
Our Strategic Response**

- ✓ FY23 will be an important year for us at **thi**, with a key focus being to engage the whole business in our **Carbon Challenge**: carbon sprints to set decarbonisation pathways with targets/milestones to help us gain momentum towards our science-aligned target.
- ✓ Through our **Future Fleet** programme we will continue to invest in R&D, piloting and scaling lower-emissions vehicles, supply permitting, and partnering with OEMs that are leading the way.
- ✓ These two initiatives will form part of a high level **transition plan**¹ to be developed consistent with the TCFD's recent guidance.
- ✓ We will start to develop a high level **adaptation plan**, aligned with the New Zealand National Adaptation Plan (NAP - currently out for consultation) and the Tourism Adaptation Roadmap (currently being developed by the Aotearoa Circle with **thi**) and other tourism stakeholders) to address how we will adapt to the physical risks from climate change.
- ✓ We will assess the **financial impacts** of Climate-Related Risks and Opportunities (CR&O) and disclose these in our next TCFD report which will aim to align with the External Reporting Board's (XRB) reporting standards for climate-related disclosures to be issued later in 2022.
- ✓ We will set a **science-aligned target for our Scope 3 emissions** and will seek to support our suppliers, customers and industry peers on their decarbonisation journeys.
- ✓ We will review and further develop a **sustainability lens, including climate**, over strategy development, major plans of action, risk management policies, performance objectives, major capital expenditures, etc.
- ✓ We will continue to use our commitment to the **Future-Fit Business Benchmark** and the **Global Sustainability Programme** described in this report.
- ✓ A key element of this is our **Sustainable Procurement Programme** which takes a systems approach to drive down our carbon emissions, and to support our suppliers and customers on their decarbonisation journey.
- ✓ We will continue to **regularly report our progress** to the Board and our stakeholders.
- ✓ We will continue to use the Sphera digital platform for internal reporting on our branch-level carbon impacts to inform decision-making.

¹ A transition plan describes how an organisation aims to minimise climate-related risks and increase opportunities as the world transitions toward a low-carbon economy, including by reducing emissions of its own operations and those of its value chain.

Appendix 2: NZSX-listed 2022 annual reports – External link

Row from Table 4	NZSX-listed company name	Page number
4	ANZ Bank [ANZ]	117
6	Argosy Property [ARG]	118
8	Auckland International Airport [AIA]	119
13	Channel Infrastructure NZ [CHI]	120
16	Downer Group [DOW]	121
20	Genesis Energy [GNE]	122
28	Kiwi Property Group [KPG]	123
34	Meridian Energy [MEL]	124
38	Napier Port Holdings [NPH]	125
42	NZ Oil and Gas [NZO]	126
47	Precinct Properties NZ [PCT]	127
68	Vector [VCT]	128
69	Ventia Services Group [VNT]	129

Note: In its 2022 annual report, NZ Oil and Gas Limited referred the reader to its 2022 sustainability report to find TCFD information. However, the web page linked does not contain a 2022 sustainability report.



Appendix 2:
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ANZ Bank
Annual Report 2022

Our approach to climate change

We want to be the leading Australia- and New Zealand-based bank in supporting customers' transition to net zero emissions by 2050.

Our environmental sustainability strategy identifies priority sectors, technologies and financing opportunities to help achieve our ambition. Our climate change commitment provides the framework for our strategy and our commitment to enable the transition by aligning our lending portfolio with net zero emissions by 2050. We joined the Net-Zero Banking Alliance (NZBA) in 2021, reflecting that commitment.

The most important role we can play in meeting the Paris Agreement goals is to help our customers reduce emissions and enhance their resilience to a changing climate. We support an orderly transition that recognises and responds to social impacts. This aligns with our purpose to shape a world in which people and communities thrive.

To achieve our environmental sustainability strategy we are:

- Directing our finance into key priority areas (as per diagram to the right);
- Aligning our lending decisions to the Paris Agreement goals and have disclosed metrics and targets for our power generation portfolio and large-scale commercial buildings;
- Progressively developing metrics and targets for key sectors, in line with our NZBA commitment, which is aimed at ensuring the majority of our portfolio emissions are covered by end 2024;
- Funding and facilitating \$50 billion of sustainable solutions by 2025, to support customers in their efforts to achieve improved environmental outcomes, including the reduction of their greenhouse gas emissions. This year, 140 transactions worth \$18.09 billion have been completed, bringing our progress towards our \$50 billion target to \$40.04 billion since October 2019;
- Equipping our employees with a deeper understanding of climate risks and opportunities focusing on our Institutional bankers in key customer segments such as resources, energy and Agribusiness;

- Reducing emissions from our operations including a target to increase renewable energy use to 100% by 2025 and setting updated targets for our environmental footprint;
- Implementing strategic partnerships, for example with climate advisory and investment firm, Pollination;
- Actively participating in recognised industry associations to help shape policy development and settings to enable the development of taxonomy and standards; and
- Engaging constructively with stakeholders on our approach through Environmental, Social and Governance (ESG) market briefings, investor roundtables, civil society engagement and other avenues.



Refer to our **ESG Supplement** available at anz.com/annualreport for an update on our ESG Targets.

Our 2022 Climate-related Financial Disclosures will be released prior to our Annual General Meeting (AGM). This will be our sixth report using the Task Force on Climate-related Financial Disclosures, (TCFD) recommendations and will be available at anz.com/annualreport. This report will provide a more detailed update on our approach to climate change including our customer engagement program.



1. Supporting sustainable resource extraction in areas such as iron ore, lithium, nickel, cobalt, rare earths, copper and bauxite. 2. Supporting basic materials production including green steel and low-carbon aluminium production. 3. Supporting new technology projects focused on upstream hydrogen and carbon capture use and storage. 4. Initial focus on financing high-efficiency residential buildings and retrofits. 5. Supplying green investment options for environmental sustainability-focused funds/insurers and partnering with financial institutions to deliver alternative capital.



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Argosy Property Annual Report 2022

Topic specific disclosures		
Disclosure title	GRI	Location or reference
Green Buildings		
Disclosure on management approach	103	Pages 20-26
Disclosure on energy intensity	302	https://argosy.co.nz/assets/Argosy-Property-Energy-and-Emissions-Disclosures-310322.pdf
Climate Change		
Disclosure on management approach	103	Pages 25-26 and Argosy's TCFD disclosures https://argosy.co.nz/assets/documents/Climate-related-Financial-Disclosures-2022.pdf
Disclosure on emissions	305	https://argosy.co.nz/assets/Argosy-Property-Energy-and-Emissions-Disclosures-310322.pdf
Tenant experience, engagement and wellbeing		
Disclosure on management approach	103	Page 31
Engaged, healthy, diverse and capable workforce		
Disclosure on management approach	103	Pages 30 and 84
Community engagement		
Disclosure on management approach	103	Pages 28-29
ESG governance		
Disclosure on management approach	103	Pages 20-21
ESG leadership		
Disclosure on management approach	103	Pages 20-21



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Auckland International Airport Annual Report 2022

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Climate Change Disclosure

Auckland Airport has continued to advance our understanding of how climate change, including rising sea levels and temperatures, and unpredictable weather patterns will impact our operations and infrastructure.

A copy of Auckland Airport's full Climate Change Disclosure Report, in accordance with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD), is available on our website at corporate.aucklandairport.co.nz/investors/results-and-reports.

Part 1: Governance and risk management

The Board considers climate change issues when reviewing and guiding business strategy, plans and budgets. The Safety and Operational Risk Committee (SORC) of the Board, responsible for risk oversight and monitoring, receives a quarterly update on enterprise-wide risks (including climate change), the controls in place to mitigate the risks and the planned actions to address them. The SORC also receives a detailed annual update from management on climate-related risks and opportunities, progress towards climate-related goals and the implementation of mitigation initiatives. Our process for risk management is continuous and is designed to monitor and provide advanced warning of



- **Governance**
The organisation's governance around climate-related risks and opportunities
- **Strategy**
The actual and potential impacts of the climate-related risks and opportunities on the organisation's businesses, strategy and financial planning
- **Risk management**
The process used by the organisation to identify, assess and manage climate-related risks
- **Metrics and targets**
The metrics and targets used to assess and manage relevant climate-related risks and opportunities

Part 2: Strategy

Climate-related risks and opportunities are considered as part of Auckland Airport's strategic planning including our short-term asset management plans, medium-term infrastructure projects and longer-term masterplan for the whole of the airport precinct. In the 12 months to 30 June 2022, Auckland Airport undertook further modelling of potential flooding and inundation risk across the airport precinct under three Representative Concentration Pathways (RCPs) outlined in the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. This modelling identified that under

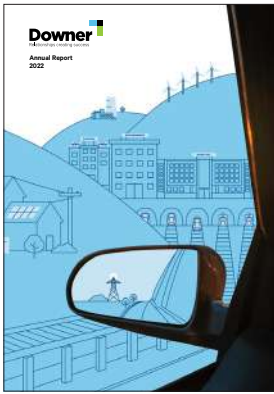
all pathways, without intervention, infrastructure close to or draining to the coastline will be subject to more frequent and severe flooding and inundation in the long-term (circa 2110). However, near term planned upgrades to the stormwater network and surrounding infrastructure and further long-term flood management responses will provide sufficient mitigation for this risk. Auckland Airport's physical and transitional risks to the business due to climate change and the controls to mitigate them are outlined in more detail in our full Climate Change Disclosure Report.



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NZSX-listed 2022 annual reports –
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Channel Infrastructure NZ
Annual Report 2022

STRATEGIC PILLAR	2022 HIGHLIGHTS	OUR FOCUS FOR 2023
Position for Future Growth		
Support lower carbon fuels transition	First Sustainability Report published aligned to TCFD reporting standards available at www.channelnz.com	Fortescue Future Industries (FFI) to complete study of the potential for hydrogen production at Marsden Point
	New Zealand's first shipment of SAF received through Marsden Point	Continue to assess SAF options for Marsden Point
Grow and diversify	Private storage contracts signed with approximately \$9 million per annum revenue (in real terms) over 10 years.	Utilise Marsden Point facilities to support the Government's 70 million litre domestic diesel fuel reserve and minimum domestic stockholding obligation
	Additional terminal storage revenue contracted in H2 2022 with approx \$25 million revenue expected over five years	Reduce electricity costs through long-term supply
	Over half of contracted private storage commissioned	Work with customers and Government to improve fuel resilience, ahead of expected strong growth in jet fuel demand



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NZSX-listed 2022 annual reports –
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Downer Group
Annual Report 2022

This year, the Board considered information on Downer's climate-related risks and opportunities, as identified through the TCFD analysis. Due to the opportunities identified, decarbonisation and energy transition have been highlighted as a key growth strategy for Downer. As an outcome Downer established a centralised decarbonisation fund, which makes funds accessible to Business Units for initiatives that result in structural decarbonisation. The Board has endorsed a series of decarbonisation initiatives in the short term which include PV solar, fuel switching of asphalt manufacturing process from diesel to natural gas and biogas, and the acceleration of alternate fuel vehicles such as hybrid and electric into the fleet.

In FY23 and beyond Downer will:

- Continue to progress activities under the six decarbonisation strategic focus areas mentioned on page 130, with a specific focus on Downer's fleet and fixed assets.
- Actively seek to progress opportunities to assist our customers' decarbonisation, in line with our Urban Services strategy.
- Consider a framework to integrate climate thinking into Downer's capital allocation decision-making process that considers the carbon implications of investment over the short and longer terms.

Refer to Downer's Climate Change Report which will be located at www.downergroup.com/2022sustainabilityreport for further disclosures on Downer's response to climate change as it specifically addresses the TCFD recommendations.



Genesis owns and operates a diverse portfolio of generation assets in New Zealand, including hydropower, wind and thermal generation.

We are committed to living our purpose of empowering New Zealand's sustainable future in all aspects of our business, from the way we generate and supply energy, care for the environments in which we operate and the way we interact with our customers, our people, and wider communities. It guides our vision of the future and the way we build it. We understand the importance of our role in New Zealand's transition to a low carbon future and that decarbonising ourselves, helping our customers do the same and the individual actions of our people will contribute to achieving the country's goal. This means meeting the needs of the present, without compromising future generations.

Our purpose is underpinned by ambitious Science Based Targets with the goal to remove 1.2m tonnes of carbon by FY25 from a FY20 base (4,495,002 tCO₂e), tied to the international benchmark of limiting global warming to 1.5°C. These targets ensure we can measure our progress and hold ourselves accountable. Progress through the current financial year can be tracked through our quarterly reports posted to the NZX and in our Climate Risk Report for FY22.

Genesis seeks to identify social, economic, and environmental risks and benefits as part of our strategic decision-making processes. Through our comprehensive and evolving Sustainability Framework, Genesis has made significant progress in the areas that we believe matter the most to, and have the greatest impact on, our stakeholders. These include reducing emissions from generation,

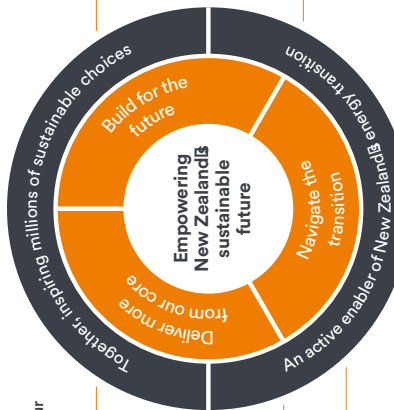
providing a supportive and inclusive workplace, collaboration, and partnership within the communities we work with a particular focus on education relating to energy. We also understand that a 'just transition' is vital and that for the communities connected to our assets, community support with investment in new energy, new industries and new jobs is important.

We have embedded further accountability and transparency with a new Sustainable Finance Framework. This includes \$250 million of sustainability linked loans to support our commitment to invest in sustainable assets and outcomes. Through the Sustainable Finance Framework, Genesis aims to lead the industry's response to helping New Zealand achieve its net zero emissions goals, address social challenges, and provide a mechanism for investors to contribute capital towards a more sustainable future.

Our purpose, visions and strategies

Our refreshed retail strategy emphasises five key priorities, delivering more from our core whilst building for the future

- 1 **Improve customer experiences**
- 2 **Make sustainable choices compelling**
- 3 **Leverage our multi-brand platform**
- 4 **Build future-proof foundations**
- 5 **Supercharge our people**



Our FutureGen strategy focuses on the opportunity to deliver value uplift navigating the energy transition

- 1 **Grow renewables**
- 2 **Value from flexibility and reliability**
- 3 **Transition Huntly**

**Appendix 2:
NZSX-listed 2022 annual reports –
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Genesis Energy
Annual Report 2022**



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Kiwi Property Group Annual Report 2022

Total sales growth

+6.7%

Kiwi Property

Stepping up on sustainability

Sustainability has been at the heart of our business for 20 years and today, our Environmental, Social and Governance (ESG) performance is amongst the best in our sector. Full details of the Company's delivery against our Sustainability Strategy are available in our standalone 2022 Sustainability Report, available on our website. The comprehensive document outlines our ESG performance over the past 12 months, including our achievement against the three pillars of our strategy: Places, People and Partnerships, and the actions we're taking to mitigate climate risk.

This year, we continued to make significant progress against our aspirational goal to become net carbon negative in our operations by 2030 and have now reduced our greenhouse gas emissions by 60% compared to our 2012 baseline.

Reaching the target won't be easy, but it's the right thing to do for both our current and next generation of stakeholders. We've recently announced plans to create New Zealand's largest rooftop solar power installation at Sylvia Park, capable of producing enough electricity annually to power the average household for over 200 years or charge over 60,000 electric vehicles.

We believe strongly that we will only achieve enduring success if the communities we operate in do as well. To this end, we've recently begun working with the Mental Health Foundation and look forward to collaborating on initiatives to improve Kiwis wellbeing, including bringing the highly regarded Pink Shirt Day campaign to life at our assets.

In July 2021, we also undertook a successful \$150m Green Bond issue. The oversubscribed offer highlights the growth of sustainable finance and the level of market support for Kiwi Property's sustainability performance, both of which place the Company in good stead for future debt raising activity, if required.

Subsequent to balance date, we also further diversified our debt facilities by introducing MUFG into our banking panel, providing access to an additional \$100 million of debt facilities on three, four and five year terms.

Outlook

Kiwi Property's robust financial performance and strong delivery against strategy in FY22 have set the platform for an exciting year ahead. We have made significant strides on our ambition to intensify our mixed use assets and bring build to rent to life, starting at Sylvia Park.

In FY23, we will look to broaden that focus to Drury and LynnMall, as well as striving to ignite the second pillar of our strategy growing with third party capital. While COVID 19 may continue to be a consideration going forward, we are squarely looking to the future, with a commitment to creating value for our shareholders and other stakeholders, and a focus on creating connected communities.

Ngā mihi,

Clive Mackenzie
 Chief Executive Officer

Annual Report 2022



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Meridian Energy Annual Report 2022

APPENDIX 2
PREPARING THIS REPORT
MENU
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Global Reporting Initiative Standards

Again this year, we've included in the Dow Jones Sustainability Asia/Pacific Index, which adopts a robust and structured Environmental, Social, and Governance framework to assess performance.

This is our fourth year of completing a voluntary climate-related disclosure (CRD) in accordance with the recommendations of the TCFD. Our FY22 disclosure incorporates some new indicative provisions based on External Reporting Board (XRB) consultation documents for the proposed standard, Aotearoa New Zealand Climate Standard 1: Climate-related Disclosures (NZ CS 1).

Our CRD describes how climate-related issues are governed, how risks are managed, any impacts or influences of these on our strategy and what associated metrics and targets we set for ourselves. Our FY22 CRD is available at [meridianenergy.co.nz/about-us/investors/sustainability/climate-related-disclosures](https://www.meridianenergy.co.nz/about-us/investors/sustainability/climate-related-disclosures).

We also prepare the Annual Report to meet integrated reporting standards, and this year have chosen to align to the 2021 GRI Standards. These ensure we communicate concisely how our strategy, governance

and performance work together, in the context of our external environment, to enable us to step up together and deliver balanced, sustainable value creation.

The relevant director committees review our reported information at a quarterly Committee meeting, and recommend that information be approved at their subsequent monthly Board meeting. For example, the Annual Report and its alignment with the GRI Standards is reviewed by the Safety and Sustainability Committee and the FY22 CRD is reviewed by the Audit and Risk Committee. Both Committees subsequently recommend that reported information be approved by the Board.

After reviewing all our disclosures in 2022, we opted to cease participating in the Carbon Disclosure Project. We provide emission and climate-focused information for our stakeholders through the reports mentioned above.



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**Napier Port Holdings
Annual Report 2022**

**SECTION 1: DECARBONISING
NAPIER PORT**

Napier Port is committed to a goal of net zero emission by 2050 and our sustainability strategy includes an objective for the business to develop and adopt an emissions reduction strategy to support this goal.

As we work towards reducing emissions, it is critical the right environmental and investment decisions are made. Port operations are capital intensive with container-handling equipment, marine vessels and truck fleet all having a natural, long-term life cycle. There is still uncertainty regarding emerging technology, cost and the supply and distribution of green electricity, hydrogen and charging networks.

While there are currently a number of viable options for moving to low emission technology, these tend to be for lower-power and lower-range equipment where the technology is well advanced and requires moderate electrical infrastructure, not for Napier Port's major emission sources such as cranes, container handlers, marine fleet and generators.

With the goal of net zero emissions by 2050 front of mind, we believe right now we can make a meaningful difference to emissions by implementing the following goals:

- Focus on the reduction of diesel consumption
 - ☒ Diesel usage is the primary source of our current emissions, with forklifts, marine fleet, generators, cranes and trucks being the top emission sources.
- Investment in low emissions technology aligned to:
 - ☒ Our Asset Renewal Programme
 - ☒ Any future Napier Port container terminal transformation programme
 - ☒ Availability of emerging technology
- Grow our electrical infrastructure through potential electrical capacity upgrades, and
- Establish a decision-making framework that:
 - ☒ Requires mandatory consideration of low emissions technologies for any investment or business case
 - ☒ Explores the possibility of establishing an internal price of carbon (shadow price) to be used in investment or business development decisions, including the procurement of electricity

This strategy framework will continue to be further developed during the coming years and will involve further investigations into the viability of alternative fuel sources and the range of new low emissions technology.

**SECTION 2: ADDRESSING
CLIMATE CHANGE**

This year, we published our second Climate Change Related Disclosure Report, providing an understanding of the potential financial implications of climate change on the business.

In 2021, we outlined our climate-related risks and opportunities over a 50-year timeframe, describing our processes for identifying, assessing and managing climate-related risks, and considering how those risks are integrated into our overall risk management. To ensure they reflect material changes, we are committed to reviewing these risks at least annually.

**A number of de-carbonisation initiatives
are currently underway, supporting
the reduction of our carbon footprint:**

3	electric vehicles and 2 hybrid vehicles introduced
2	new Eco Reachstackers have been ordered
14	LED floodlight towers now installed (up from 9 in FY21)
	At least 50% air travel reduction, offsetting emissions for domestic air travel
	Investigating electrification/alternative fuels of Napier Port's tugs, cranes and forklifts
	Investigating options for hydrogen usage and generation.

The impacts identified as most material to Napier Port in 2021 remain relevant in 2022: increase in sea level, extreme rainfall events, erosion, drought, global shipping, and government regulations to encourage a shift to a low-carbon economy (resulting in higher fuel costs), a shift to alternative fuels, and increased use of rail. Each of these are discussed in detail in our Climate Related Disclosure Report found at napierport.co.nz/investor-centre

For each of the risks identified, the likelihood and timeframe has remained consistent with FY21, with the exception of government regulation to encourage shift to a low carbon economy, resulting in higher fuel costs. In this case, we anticipate the likelihood being a moderate risk in the short term and almost certain in the medium to long term, and the timeframe moving from medium to short to medium term.

At this stage, we do not consider that the effects of climate change materially change our overall strategy.

**PROGRESS ON CLIMATE-RELATED METRICS
AND EMISSION REDUCTION TARGETS**

Last year, we focused on defining our greenhouse gas (GHG) inventory scope to reflect best practice, including identifying a wider range of Scope 3 emissions.

Under the GHG Protocol, these emissions are classified under the following categories:

Scope 1 ☒ Direct GHG emissions occurring from sources that are owned or controlled by the company.

Scope 2 ☒ Indirect GHG emissions occurring from the generation of purchased electricity, heat and steam consumed by the company.

Scope 3 ☒ emissions that occur as a consequence of the company's activities, but from sources not owned or controlled by the company. These have been further categorised using the Scope 3 standard categories:

- ☒ Purchased goods and services (category 1);
- ☒ Business travel (category 3);
- ☒ Employee commuting (category 3);
- ☒ Capital goods (category 4);
- ☒ Fuel and energy-related activities not included in Scope 1 or 2 (category 4);



Appendix 2:
NZSX-listed 2022 annual reports –
External link

NZ Oil and Gas Annual Report 2022

Sustainability and Community

The Company publishes a separate sustainability report. It also maintains a sustainability section on its website at: <https://www.nzog.com/sustainability/>

TCFD RISK DISCLOSURE
Taskforce on Climate-Related Financial Disclosure risks, and the framework for managing climate risks, are comprehensively reported in the Sustainability Report.

TCFD reporting is also maintained on our Company website.

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**Precinct Properties NZ
Annual Report 2022**

Sustainability report.

Precinct takes an active approach to climate action, as well as Climate-related disclosures.

Since 2021, Precinct has reported climate-related financial disclosures that align with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD). This prepares us to meet the incoming mandatory Aotearoa New Zealand Climate Standards in subsequent reporting periods. Presently, we have identified physical and transition climate-related risks and incorporated them into Precinct's climate-related risk register, which is a component of the Risk Management Plan. Risks are evaluated according to three time horizons: short term (<2 years); medium term (2-10 years); and long term (10+ year). They include:

Physical risks: Rising sea levels, rising mean temperatures, and increased severity and frequency of extreme weather events.






Transition risks: Current and emerging regulation, changing customer behaviour, and lower-emissions product substitution.

While Precinct's business growth remains strong, ongoing monitoring and evaluation of our climate-related risks are essential to ensure Precinct remains resilient into the future.

Our full climate-related disclosures can be found here: www.precinct.co.nz/tcfid-framework

Performance and benchmarks

To assess and manage our impacts and effectively communicate our performance, Precinct have established long-term targets and metrics, which involve a balanced approach to our ESG ambitions and are aligned with our material sustainability topics. Being able to measure, review and evaluate Precinct's ESG performance against industry peers and global benchmarks is key.

Participation in	Overview	Target	Current performance
	The overarching measure Precinct have chosen to use as its core ESG indices performance benchmark is the Global Real Estate Sustainability Benchmark (GRESB). It is considered the global standard for ESG benchmarking and reporting for real estate entities.	Target to be in the top quartile of reporting global peers	 <p>82 (global average 73)</p> <p>Public disclosure level A (global average C)</p> <p>2021 Top 25%: No (30%) 2020 Top 25%: Yes (20%) 2019 Top 25%: No (43%)</p>
	Precinct have chosen to participate in Carbon Disclosure Project (CDP) which is the gold standard for corporate environmental reporting and is fully aligned with the TCFD recommendations. CDP runs the global environmental disclosure system and supports thousands of companies globally.	Target 'A leadership and strategic best practice'	B (oceania regional average C and global average B-) 2020: B - 2019: Not scored 2018: F
	Morgan Stanley Capital International (MSCI) ESG Rating aims to measure a company's resilience to long-term, financially relevant ESG risk.	Target A or better	BBB (on a scale of AAA-CCC) 2021: BBB 2020: BBB 2019: A
	Toitū carbonzero certifies Precinct is a carbon neutral organisation in accordance with internationally recognised ISO 14064-1:2006 standards.	Carbonzero certification	Achieved 2021: Achieved 2020: Achieved



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Vector Annual Report 2022



More detailed information relating to climate change and Vector's approach to decarbonisation is available in Vector's Greenhouse Gas Emissions Inventory Report, and Taskforce for Climate-related Financial Disclosure report, both available on vector.co.nz



Appendix 2:
NZSX-listed 2022 annual reports –
External link

Ventia Services Group Annual Report 2022

HIGHLIGHT

Sustainability

Ventia’s sustainability strategy and targets

At Ventia, we are committed to creating a lasting and positive legacy for people and the planet. This is engrained in our purpose of making infrastructure work for our communities and our approach to sustainability. Our strategy encompasses the social impact we have with our people and communities, how we manage our environmental footprint and the way we conduct our business.

In 2022, we made progress with clear actions towards our targets and further detail will be provided in Ventia’s Sustainability Report, which will be released in March 2023.



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Row from Table 4	NZSX-listed company name	Page number
14	Contact Energy [CEN]	131
19	F&P Healthcare [FPH]	132
43	New Zealand Exchange [NZX]	133
54	Scales Corporation [SCL]	139
71	Westpac [WBC]	141

TCFD index

Disclosure	Page number
Describe the board's oversight of climate-related risks and opportunities.	66 67
Describe management's role in assessing and managing climate-related risks and opportunities.	66 67
Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	83 84
Describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning.	46
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2 degree or lower scenario.	46
Describe the organisation's processes for identifying and assessing climate-related risks.	46
Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	25 26
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	25 27, 43
Disclose Scope 1, 2 and if appropriate 3 greenhouse gas (GHG) emissions, and the related risks.	45, 81 82
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	27, 43 45

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Contact Annual Report 2022



Appendix 3:
NZSX-listed 2022 annual reports –
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F&P Healthcare
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TCFD INDEX

The Task Force on Climate-related Financial Disclosures (TCFD) seeks to develop recommendations for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear, and efficient, and provide decision-useful information to lenders, insurers, and investors. Fisher & Paykel Healthcare is integrating the recommendations of the TCFD, and we have included commentary in the governance, risk management and environment sections of this report, along with disclosures addressing our global carbon footprint. Below is an index for locating these disclosures.

Governance	Strategy	Risk Management	Metrics & Targets
<p>Disclose the organisation's governance around climate-related risks and opportunities.</p>	<p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.</p>	<p>Disclose how the organisation identifies, assesses, and manages climate-related risks.</p>	<p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.</p>
<p>a) Describe the Board's oversight of climate-related risks and opportunities. pp. 80-81</p>	<p>a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. pp. 66-68</p>	<p>a) Describe the organisation's processes for identifying and assessing climate-related risks. pp. 66-68</p>	<p>a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. p. 66</p>
<p>b) Describe management's role in assessing and managing climate-related risks and opportunities. pp. 80-81</p>	<p>b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. pp. 66-68</p>	<p>b) Describe the organisation's processes for managing climate-related risks. pp. 66-68</p>	<p>b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. pp. 50-51</p>
	<p>c) Describe the resilience of the organisation's strategy taking into consideration different climate-related scenarios, including a 2°C or lower scenario. p. 68</p>	<p>c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management. pp. 66-68</p>	<p>c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets. pp. 50-51</p>



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New Zealand Exchange Annual Report 2022

NZX Annual Report 2022

PLANET - environmental disclosures

302-1	Energy consumption within the organisation	The NZX Group has a commercial arrangement with Toitū Envirocare to provide carbon management tools, guidance, and certification., NZX has committed to the Toitū net carbonzero programme and met the programme requirements to be a certified net carbonzero organisation in 2021 and 2022. Energy consumption, scope 1-3 emissions, and reduction of GHG emissions are reported in Operating Responsibly: Our Environment. See page 36
302-3	Energy intensity	Energy intensity: absolute energy consumption (including diesel purchases, purchased electricity, and transmission and distribution losses) totalled 65.0 tCO ₂ e. Energy intensity per full-time equivalent employee was 0.20 tCO ₂ e. Energy intensity per million dollars of revenue was 0.68 tCO ₂ e. NZX purchases its electricity from electricity retailers that supply from the national electricity supply using predominantly renewable sources. In the year to 30 September 2022, 89.6% of NZ's electricity supply was generated from renewable sources (2022 full year data not yet available).
305-1	Direct (Scope 1) GHG emissions	GHG emissions intensity: Total gross measured emissions per million dollars of revenue were 3.88 (gross tCO ₂ e / \$Millions) which improved from 7.22 in the baseline year. Gross emissions intensity for scope 1 and 2 sources is 0.63 tCO ₂ e per million dollars of revenue, which has improved from 0.72 tCO ₂ e in the baseline year. Emissions intensity per employee is 1.16 (gross tCO ₂ e / per FTE per annum) which improved from 2.22 in the baseline year.
305-2	Energy indirect (Scope 2) GHG emissions	
305-3	Other indirect (Scope 3) GHG emissions	
305-4	GHG emissions intensity	
305-5	Reduction of GHG emissions	
	TCFD implementation	The New Zealand government has introduced legislation requiring mandatory climate-related financial disclosures for some entities and published disclosure standards (the Aotearoa New Zealand Climate Standards) in December 2022 that are consistent with TCFD and other GHG reporting standards. NZX Group is a climate reporting entity required to make mandatory climate-related disclosures for the accounting period commencing 1 January 2023. In the interests of transparency, NZX has chosen to report voluntarily for the 2022 financial year, in line with ANZCS and the recommendation of TCFD, where data is available. See page 132
201-2	Financial implications and other risks and opportunities due to climate change	Risk Reporting. See page 54
Nature loss	Land use and ecological sensitivity	Not material for NZX Group. NZX Group does not own, lease, manage in, or adjacent to, protected areas or areas of high biodiversity value outside protected areas.
Freshwater availability	Water consumption and withdrawal in water-stressed areas	Not material for the NZX Group
Solid waste	Impact of solid waste disposal	The NZX Group recognises that society and environmental impacts of solid wastes streams, and the company measures emissions from waste to landfill within its Toitū net carbonzero certification. Emissions from waste to landfill totalled 7.2 tCO ₂ e in 2022.
	Single-use plastics	The NZX Group recognises that the consumption and disposal of single-use plastics is an issue of high public concern, and the company will be assessing our corporate supply chain within efforts to measure and manage a wider range of scope 3 emissions.
307-1	Non-compliance with environmental laws and regulations	No breaches of environmental laws, regulations or consents have been identified in the period. No environmental fines have been incurred.

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NZX Annual Report 2022

Appendix 2

NZX 2022 CLIMATE STATEMENT

Governance of climate matters

NZX is committed to comprehensive ESG and sustainability reporting. This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards, and with reference to the recommendations of the World Economic Forum's Measuring Stakeholder Capitalism Towards Common Metrics and Consistent Reporting of Sustainable Value Creation (2020) and the Taskforce for Climate-related Financial Disclosures (TCFD).

Governance body oversight

The NZX Board has oversight of all climate-related risks and opportunities. The Audit and Risk Committee is responsible for the oversight and monitoring of NZX's risk culture and the management of risk, including climate risks. Refer to www.nzx.com for Board and committee charters.

Governance of climate and ESG matters requires a wide range of skills in a multi-faceted business of this nature. A board skill matrix is used to ensure the Board has an appropriate range of skills and competencies. Skills and competencies related to climate matters include legal expertise, regulatory governance, and environmental and energy sector experience.

NZX's strategy is developed by management in consultation with the NZX Board and approved according to delegated authorities. Climate-related opportunities are integral to NZX's strategy including through the

energy and environmental markets, products and services.

Consideration of climate-related risks and opportunities is integrated in board processes for considering risks and opportunities across the Group to ensure appropriate prioritisation. The NZX Board and its subsidiary boards approve the respective annual workplans for the Group and associated key performance indicators for the CEO or business unit leader. Business unit or subsidiary level annual plans and key performance indicators are then cascaded to their respective senior leaders and teams. Where these include metrics and targets for climate-related matters, the NZX Board oversee achievement through reporting to the Board including annual performance review processes. The Head of Sustainability develops annual ESG workplans and targets for NZX Board approval, and reports progress against NZX's ESG workplan and associated climate-related metrics and targets to the NZX Board quarterly, with quarterly risk updates to the Audit & Risk Committee also.

The method for measuring the company's performance is set out in the remuneration policy (available at www.nzx.com). Where applicable, executive remuneration is linked to the achievement of climate-related KPIs through the Short-Term Incentive (STI) scheme. The STI is designed to reward achievement of short-term business goals that are set as part of plans to meet NZX's longer-term strategy. Any short-term incentive plan payment is conditional on performance criteria set by NZX and

includes NZX's financial performance; division and/or business unit performance; and individual performance. Long-term incentives for senior executives are designed to encourage longer-term decision-making and to align senior managers' and shareholders' interests.

Management's role

The NZX CEO has overall responsibility for NZX's management of climate-related risks and opportunities. The Head of Sustainability role leads the sustainability function for the NZX Group including ESG strategy, plans and reporting, and reports to the Chief Financial & Corporate Officer. Revenue-generating climate opportunities are managed by their respective business unit leaders, and risks are assigned to relevant business owners.

Respective management committees have responsibility for monitoring and managing climate-related opportunities and risks, both current and emerging, in each business unit and meet quarterly or monthly. The senior leadership team project prioritisation committee meets quarterly to consider new project proposals including capital allocation and to monitor delivery of in-flight projects including climate-related opportunities. Education sessions were provided for senior managers in 2022 on key climate topics.

New Zealand Exchange

Annual Report 2022 (continued)

Impact of climate matters on strategy

Current impacts

As an office-based organisation operating in a temperate climate country, the current physical impacts of climate on our business are minimal. Impacts on NZX's operations from current climate impacts are primarily the strategic and regulatory impacts of the global and local economic transition. NZX is a climate reporting entity under the mandatory climate-related disclosures framework (Aotearoa New Zealand Climate Standards ANZCS)) that came into effect on 1 January 2023. NZX's subsidiary company, Smartshares, is a separate climate reporting entity as an investment scheme manager and will report in line with ANZCS in 2024 for the 2023/24 year. The financial markets regulator, the Financial Markets Authority, will monitor compliance against ANZCS.

In addition to NZX's own reporting obligation in line with the ANZCS, NZX has an important role to ensure market policy is appropriate, and consistent with New Zealand law and investor expectations. NZX has a role to ensure listed issuers and other customers are well supported and educated to adapt to this change.

NZX is leveraging its core business capabilities and strong reputation to support New Zealand's climate transition, which is today most clearly demonstrated in the operation of the carbon auction market for the New Zealand Government's Emissions Trading Scheme. As New Zealand continues its transition to a low-emissions climate-resilient future, NZX is well placed to further support this transition by providing markets and services that meet the evolving needs of New Zealand investors, businesses and customers. For example, the establishment of Green and Sustainability bond segments in the NZDX Debt Market has been well

received and we expect further development in the short-term and beyond.

NZX earns revenue for markets and services it provides, including climate-related markets and services outlined in this report.

Financial information for NZX is disclosed at a Group level, with segmental information also provided in the annual financial statements. Financial information relating to climate matters is reported within the relevant business segment e.g. markets, data and insights, funds management.

Scenario analysis

Scenario analysis will be undertaken in 2023 to further advance the resilience of NZX's strategy under three possible climate-related scenarios. Mandatory reporting in New Zealand will require analysis at a 1.5 degree scenario, a 3.0 degree or higher scenario, and a third scenario.

Climate-related risks and opportunities

A significant review of physical and transition climate-related risks was completed in 2022. The physical risk of a potential extreme weather event leading to unplanned disruption to business operations resulting in adverse operational impact is well managed at this time.

Transition risks include regulatory and emerging strategic, financial and reputation risks that have the potential to impact our business over time. For example, strategic risks could include impacts on the strategic growth or performance of one or more of NZX's markets depending on the pathway of global or local transition over the medium and long term; changes in global market competition due to differing regulation in different jurisdictions; investor demand for NZX listed companies or products changing; and

impacts on NZX listed issuers' long-term prospects. Detailed assessments of these risks are being undertaken and integrated through NZX's risk management processes.

Climate risks and opportunities have been mapped across short-, medium- and long-term timeframes, being defined as 1-3 years, 4-9 years, and 10+ years. These timeframes enable NZX to monitor emerging risks and opportunities on the horizon.

NZX has identified climate opportunities to provide products, services and markets that support NZ's transition to a low-emissions economy. These are described on page 136. Both physical and transition climate-related risks have been identified. In some cases, aspects of the transition may present both risk and opportunity depending on NZX's response eg. our reputation may be impacted positively or negatively depending on stakeholders' individual views on NZX's actions.

NZX's strategic planning processes focus on annual plans (see annual reports, investor presentations at www.nzx.com). Capital deployment and funding decisions are made within annual budgeting decision-making processes to ensure appropriate prioritisation of capital and resourcing across the Group for best overall shareholder value.

Anticipated impacts and financial impacts

NZX has evaluated its anticipated impacts with reference to local and international scientific projections (including the Ministry for the Environment's 2020 National Climate Change Risk assessment for New Zealand; and IPCC Climate Change 2014 Synthesis Report) as well as industry related guidance. Acute and chronic physical risks are assessed as low impact in the short-term given the effectiveness of management plans in place. Recent

New Zealand Exchange Annual Report 2022 (continued)

NZX Annual Report 2022

events such as pandemic lockdowns and extreme weather events, as well as crisis scenario tests, have shown our business continuity plans and technology infrastructure to be fit for purpose to withstand acute physical events.

NZX could benefit from positive climate impacts such as increased operational efficiency or resilience as a result of its growing attention to GHG emissions in its business and supply chain. NZX could, and does currently, see increased revenue from climate-related products and markets it provides. It is expected that as different needs evolve in New Zealand's transition, that will give rise to new products or services to be provided within current markets (e.g. sustainability bonds on the NZDX; ESG indices and ETFs in NZSX) as well as new markets to be established (e.g. spot and derivative markets in carbon). Through these changes NZX will look to continue to create sustainable value for shareholders and other stakeholders.

The introduction of climate-related disclosures for many of NZX's listed issuers and investment scheme managers effective from 2023 and 2024 could attract greater interest from investors. Depending on their analysis of these disclosures, increased or decreased trading revenue for NZX could result.

Anticipated financial impacts of climate-related impacts are dependent on market uptake of the services NZX provides, and therefore difficult to forecast particularly for new and emerging products, services or markets. Revenues and costs are reported within the annual financial statements, including segmental reporting of revenue.

Anticipated financial impacts of climate-related opportunities are considered within annual earnings guidance issued at the start of each financial year.

Time horizons over which anticipated climate-related opportunities could reasonably be expected to occur are noted in page 136. Time horizons over which anticipated climate-related risks could reasonably be expected to occur are in development and will be refined in line with climate change scenario analysis.

Risk management of climate matters

NZX recognises risk management is an integral element of good management practice and governance, and has a well established risk management framework and practices. A significant refresh of physical and transition climate-related risks was undertaken in 2022, using risk classifications recommended by the Taskforce for Climate-related Financial Disclosures (TCFD). The process included education sessions by independent climate experts, then a climate mapping exercise by senior executives and managers to identify and assess risks, informed by local and international scientific projects and relevant industry guidance. Assessing climate risks across short-, medium- and long-term time horizons was made where possible. This analysis will be further refined in 2023, along with scenario analysis and management plans.

On an ongoing basis NZX operates a risk management committee comprising senior leaders and managers from across the business, including the CEO, GM Group Risk & Compliance, and Head of Sustainability. The committee meets monthly and reports to ARC quarterly. Physical and transition climate risks have been added to the risk register and these risks are integrated into NZX's overall risk management processes for further

assessment and ongoing management.

No parts of the value chain were specifically excluded however it is anticipated that future efforts to measure a wider range of Scope 3 emissions will provide an opportunity to identify any further risks across the value chain.

Climate risks are assessed by management quarterly and reported to ARC and the Board twice a year.

NZX assesses and prioritises climate risks in accordance with its risk management framework, including established criteria for defining impact, likelihood, and risk appetite.

Metrics and targets for climate matters

Targets

NZX's first target was to reach net carbon zero. This target was set and achieved in 2021, and again in 2022. Achieving Toitū net carbonzero certification means our carbon footprint, emissions reductions, and offsets have been independently verified to Toitū's international standards. Each year we work to maintain this target through verification of the year's emissions and offsets. No interim targets are applied.

NZX has also committed to continually manage and reduce our emissions on a six-year cycle, and report on this each year as part of our commitment to achieve Toitū net carbonzero certification. NZX is targeting a 21% reduction in absolute emissions by 2025 from a 2019 baseline year. This absolute emissions reduction target has been determined using a science-based target calculated with an absolute contraction approach, as described by the Science Based Targets Initiative (SBTi), and is in line with limiting our impact to a 1.5 degree warming scenario.

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Annual targets are also set for climate-related opportunities (by respective business units) and specific emission reductions initiatives. In the 2022 year, revenue earned from climate related opportunities was estimated to total \$2.83m (3.0% of total operating revenue). No assets are linked to climate-related opportunities.

In addition to reducing absolute emissions, NZX compensates for remaining emissions by purchasing high quality carbon credit offsets from New Zealand based projects as recommended under the Toitū programme to achieve net zero emissions.

In 2022 the following was achieved:

- ▣ NZX again met its net carbonzero commitment
- ▣ Absolute gross GHG emissions were 26.0% lower than the baseline 2019 year
- ▣ Initiatives were identified to reduce absolute emissions, including one targeting a 29% reduction in electricity usage in one office that has been approved for implementation. Results against target will be measured in 2023.

Looking ahead it is anticipated that targets related to developing a complete scope 3 inventory, and reducing scope 3 emissions sources, will also be relevant.

GHG emissions

Since 2021 NZX has been a member of the Toitū net carbonzero programme that provides internationally reputable, independent verification of our carbon footprint, emissions reduction and offsets. Toitū net carbonzero certification is accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) which was the world's first to be accredited under ISO 14065, and is also accredited by the CDP (formerly

Carbon Disclosure Project). The programme requirements that NZX meets under the Toitū net carbonzero programme meet and exceed international standards and best practice, including ISO 14064-1 and the GHG Protocol.

Toitū net carbonzero organisation certification is proof an organisation is positively contributing to the sustainability of our future through measuring, reducing and offsetting their carbon footprint. To achieve Toitū net carbonzero certification, NZX measures all operational greenhouse gas (GHG) emissions required under the international standard for carbon footprints, ISO 14064-1, including vehicles, business travel, fuel and electricity, paper, and waste. The emissions are measured annually, and the inventory is independently verified to ensure it is accurate and complete. In addition to measuring our footprint, NZX must develop plans to continually manage and reduce our emissions on a six year cycle. Each year, unavoidable emissions are offset through the purchase of quality carbon credits to achieve net zero emissions. NZX chooses to purchase quality carbon credits in New Zealand based projects only.

An operational control consolidations approach is used in the measurement of GHG emissions. The emissions of the NZX Group including all wholly owned subsidiaries are included, and the GDT partnership which NZX has a one-third share in with Fonterra and EEX is excluded as NZX does not have operational control of that entity.

The GHG emissions sources included in this inventory are those required for Programme certification and were identified with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards as well as the Toitū Programme Technical Requirements.

All emissions were calculated using Toitū calculation methodology with emissions factors and Global Warming Potentials provided. Global Warming Potentials (GWP) from the IPCC fourth assessment report (AR4) are the preferred GWP conversion.

The Aotearoa New Zealand Climate Standards will require NZX to work towards measuring all material sources of Scope 3 emissions over time. To date we have measured all Scope 3 emissions sources that sit within the Toitū programme requirements. A focus for the future is to expand the range of Scope 3 emissions sources we measure, to enable a full understanding of the emissions within our value chain and to reach full compliance against the new Climate Standards in accordance with the adoption provisions.

Assurance of GHG emissions

Assurance of NZX's 2022 gross GHG emissions has been completed by Toitū Envirocare in accordance with GHG protocols and consistent with the ISO 14064-1:2018 standard. Assurance was obtained to a 'reasonable' level of assurance for categories 1 Direct Emissions (company car fuel) and Category 2: Indirect emissions from purchased electricity, and to a 'limited' level of assurance for remaining categories measured (air travel, accommodation, taxis, car rental, working from home, waste to landfill, and electricity transmission and distribution losses). Location-based emissions were reported where applicable. Data quality was noted as high. Further information is available on request in our Toitū net carbonzero certification reporting.

New Zealand Exchange

Annual Report 2022 (continued)

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Types of opportunities (consistent with TCFD)	Opportunity for NZX	Description	Time horizon
Resource efficiency	Reduce operating costs through efficiency	Opportunities exist to reduce operating costs through reducing emissions from business air travel, energy efficient offices, and waste minimisation.	Short-term
Energy source	Reduce emissions by increasing electricity from renewable sources	More than 80% of NZX's electricity usage comes from renewable electricity already. The NZ electricity industry is pursuing a goal of 100% decarbonisation. In the medium-term, NZX could reduce electricity emissions by purchasing renewable electricity certificates, however our short-term focus is to first explore all options to reduce our emissions through energy efficiency.	Medium-term
	Reduce operating costs through better electricity efficiency	Initiatives to reduce emissions by reducing electricity usage have been identified and will be implemented in the short-term.	Short-term
Products and services	Increase revenue through GSS bonds	GSS bonds have been positively received. We expect further development of the DX market and growth in GSS bonds. Aspiration is to grow GSS bonds from 27% of the DX in 2022 to 35% in 2027.	Short-term and medium-term
	Increase revenue through ESG indices and ETFs	Launching climate or ESG themed indices and ETFs on NZSX gives investors choice to align their investment decisions to companies that emphasise climate performance. NZX is a facilitator and works with issuers to educate issuers on the implications of new indices. Smartshares sees opportunities to broaden the range of products as well as investment approaches it offers, to meet the evolving demands of investors interested in climate and ESG themed investment. Smartshares' high level of transparency is a competitive advantage in helping customers make informed choices.	Short-term
	Increase revenue through data services	Mandatory climate-related financial disclosures came into effect in 2023 for NZX listed issuers above \$60m market capitalisation. Opportunities to support the availability of high-quality climate information will be explored.	Medium-term
Markets	Increase revenue by developing Carbon Markets	NZX made a successful entry into the compliance carbon market with the launch of the NZU auction service for the NZ Government's Emissions Trading Scheme in 2021. The NZ ETS is internationally recognised, and demand for well governed markets is growing. NZX's operation of the NZU auctions positions us well to further assist with secondary market liquidity development. NZX has a 5-year strategy to grow Carbon Markets in NZ further. NZX is actively involved in public consultations relating to further improving the market infrastructure in New Zealand's spot and derivatives markets for carbon.	Short-term and medium-term
	Increase revenue by developing Energy Markets	NZX provides the electricity market operator service for the NZ government's Electricity Authority. New Zealand's drive towards 100% renewable electricity for NZ, and increasing electricity demand from electrification, brings new opportunities for NZX to expand its services into supplying an integrated market operator platform.	Medium-term
Resilience	Increase business resilience by managing physical risks in business operations and in value chain	Measuring Scope 3 emissions (particularly from purchased goods and services) may identify opportunities to lift climate resilience in our business and reduce emissions in our value chain.	Short-term



Scales Corporation Annual Report 2022

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Corporate Governance Statement

Principle 4 – Reporting and Disclosure

The Board should demand integrity in financial and non-financial reporting, and in the timeliness and balance of corporate disclosures.

RECOMMENDATION 4.1

An issuer's board should have a written continuous disclosure policy.

Shareholder Communications and Market Disclosure

Scales' Board is committed to the principle that high standards of reporting and disclosure are essential for proper accountability between the Company and its investors, employees and stakeholders.

It achieves these commitments, and the promotion of investor confidence, by ensuring that trading in its shares takes place in an efficient, competitive and informed market. The Company has in place a written Shareholder Communications and Market Disclosure Policy designed to ensure this occurs. The policy includes procedures intended to ensure that disclosure is made in a timely and balanced manner and in compliance with the NZX Listing Rules, such that:

- All investors have equal and timely access to material information concerning the Company, including its financial situation, performance, ownership and governance
- Company announcements are factual and presented in a clear and balanced way

Accountability for compliance with disclosure obligations is with the Managing Director and Chief Financial Officer. Managers reporting to the Managing Director are required to provide the Chief Financial Officer with all relevant information that may be material and to regularly confirm that they have done so.

Significant market announcements, including the preliminary announcement of the half year and full year results, the financial statements for those periods, and any advice of a change in earnings forecast are approved by the Board.

Directors consider at each Board meeting whether there is any material information which should be disclosed to the market.

RECOMMENDATION 4.2

An issuer should make its Code of Ethics, Board and Committee charters and the policies recommended in the NZX Code, together with any other key governance documents, available on its website.

Governance Policies and Charters

Scales' key corporate governance documents can be found at www.scalescorporation.co.nz/about-us/governance.

RECOMMENDATION 4.3

Financial reporting should be balanced, clear and objective. An issuer should provide non-financial disclosure at least annually, including considering material exposure to environmental, economic and social sustainability risks and other key risks.

Financial and Non-Financial Reporting

Scales' Board is committed to ensuring integrity and timeliness in its financial reporting and in providing information to the market and shareholders which reflects a considered view on the present and future prospects of the Company.

A programme of clear, meaningful, timely and effective communications with shareholders is centred around a comprehensive set of information regarding Scales' operations and results being available on the Company's website and in shareholder reports.

The Audit and Risk Management Committee oversees the quality and integrity of external financial reporting including the accuracy, completeness, balance and timeliness of financial statements. It reviews interim and annual financial statements and makes recommendations to the Board concerning accounting policies, areas of judgement, compliance with financial reporting standards, stock exchange and legal requirements, and the results of the external audit. All matters required to be addressed and for which the Committee has responsibility were addressed during the period under review.

Half year and full year financial statements are prepared in accordance with relevant financial standards.

Both financial and non-financial disclosures are made at least annually, including reporting of material exposure to environmental, economic and social sustainability risks and other key risks. Scales has a strategic target to develop best-in-class sustainability reporting and to measure and report on key sustainability aspects affecting its businesses.

Scales' Sustainability Report is included at pages 16 – 24 of this report and provides details of the continuing growth and improvements in Scales' initiatives in this area. The Group-wide report identifies material sustainability topics, grouped under the headings Governance and Strategy, People, Marketplace, and Environment. Included in this report is work being undertaken on TCFD (Taskforce on Climate-related Financial Disclosures) reporting.

Scales Corporation
Annual Report 2022 (continued)

APPENDIX 3

Environment (continued)

CRD Index – Summary of Key Disclosures

Governance	Page number
Identify the governance body responsible for oversight of climate-related risks and opportunities	17
Description of the governance body's oversight of climate-related risks and opportunities	17
Description of management's role in assessing and managing climate-related risks and opportunities	17
Strategy	
Description of current climate-related impacts	23
Description of the scenario analysis undertaken	22
Description of the climate-related risks and opportunities identified over the short, medium and long-term	23
Description of the anticipated impacts of climate-related risks and opportunities	23
Description of how the business will position itself as the global and domestic economy transitions towards a low-emissions, climate-resilient future state	9, 23
Risk Management	
Description of the processes for identifying, assessing and managing climate-related risks	17, 22, 23
Description of how the processes for identifying, assessing and managing climate-related risks are integrated into overall risk management processes	17
Metrics and Targets	
The metrics that are relevant to all entities regardless of industry and business model	21, 22
Industry-based metrics relevant to its industry or business model used to measure and manage climate-related risks and opportunities	21, 22
Any other key performance indicators used to measure and manage climate-related risks and opportunities	21, 22
The targets used to manage climate-related risks and opportunities, and performance against those targets	21, 22
GHG Emissions	
A statement describing the standard or standards that GHG emissions have been measured in accordance with	21
The GHG emissions consolidation approach used: equity share, financial control or operational control	21
The source of emission factors and the GWP rates used or a reference to the GWP source	21
Summary of specific exclusions of sources, including facilities, operations or assets with a justification for their exclusion	N/A



Westpac Annual Report 2022

Sustainability

TCFD index

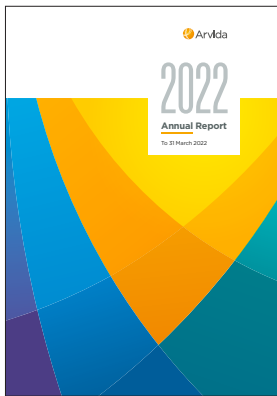
DISCLOSURE REQUIREMENT	REFERENCE IN THIS REPORT
GOVERNANCE Disclose the organisation's governance around climate-related risks and opportunities. a) Describe the board's oversight of climate-related risks and opportunities. b) Describe management's role in assessing and managing climate-related risks and opportunities.	Refer to Section 2 Sustainability Governance and Risk Management
STRATEGY Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material. a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Refer to Section 2 Sustainability Governance and Risk Management
RISK MANAGEMENT Disclose how the organisation identifies, assesses, and manages climate-related risks. a) Describe the organisation's processes for identifying and assessing climate-related risks. b) Describe the organisation's processes for managing climate-related risks. c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	Refer to Section 2 Sustainability Governance and Risk Management
METRICS AND TARGETS Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material. a) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Refer to Section 1 Climate Change

Appendix 4: NZSX-listed 2022 annual reports – Partial mention

Row from Table 4	NZSX-listed company name	Page number
7	Arvida Group [ARV]	143
9	A2 Milk [ATM]	155
23	Infratil [IFT]	159
29	Manawa Energy (previously Trustpower)	165
62	Spark [SPK]	174
64	Summerset [SUM]	176

Note:

1. To be considered a partial mention, the annual report must reference some but not all of the core elements of the TCFD recommendations.



Appendix 4:
NZSX-listed 2022 annual reports –
Partial mention

Arvida Group
Annual Report 2022

ARVIDA GROUP LIMITED

Introduction

Climate change and our approach to the subject has been a regular discussion point for Board and management over the last year. In 2020 we started measuring and monitoring our carbon emissions. Over the intervening period, we have been putting in place the roadmap to being able to report our climate strategy.

The report applies the External Reporting Board's (XRB) recently proposed climate-related financial disclosures as the basis for disclosures. Our disclosures will evolve as we prepare to meet the upcoming disclosure requirements. The XRB disclosures may change as they are finalised.

SECTION		FY22	FY23	FY24
GOVERNANCE	a. Describe the board's oversight of climate-related risks and opportunities.	✓	✓	✓
	b. Describe management's role in assessing and managing climate-related risks and opportunities.	✓	✓	✓
STRATEGY	a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	🔄	✓	✓
	b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	🔄	✓	✓
	c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	🔄	🔄	✓
RISK MANAGEMENT	a. Describe the organisation's processes for identifying and assessing climate-related risks.	✓	✓	✓
	b. Describe the organisation's processes for managing climate-related risks	✓	✓	✓
	c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.	✓	✓	✓
METRICS & TARGETS	a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	🔄	✓	✓
	b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks	🔄	✓	✓
	c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	🔄	✓	✓

✓ Aligned with TCFD requirements 🔄 In progress

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

Governance

TCFD recommendation:
Disclose the organisation's governance around climate-related risks and opportunities.

a. Describe the board's oversight of climate-related risks and opportunities.

An entity must include the following information when describing the board's oversight of climate-related issues:

(a) processes and frequency by which the board and/or board committees are informed about climate-related issues;	✓
(b) how the board sets and monitors progress against goals and targets for addressing climate-related issues;	✓
(c) how the board holds management accountable for the implementation of climate-related policies, strategies, and targets, including whether and how related performance metrics are incorporated into remuneration policies;	✓
(d) whether and how the board accesses expertise on climate-related issues, either from its own internal capacity and/or from external sources in order to provide appropriate oversight on climate-related issues; and	✓
(e) whether and if so, how, climate-related issues are incorporated into governance processes and decision making.	✓

The Board has statutory responsibility for, and approves, the strategic direction of the Company. The strategy is informed by and includes consideration of Arvida's climate-related risks and opportunities. Board responsibilities are set out in the Board Charter and include:

- approving the Company's overall strategy, business plans and budgets
- monitoring actual results against the business plan and strategic objectives
- setting sustainability policy

A review of the Company's strategy and business plan is performed by the Board at least once a year. This year that review included the review and approval of a sustainability framework (page 53), which presents the future goals for the Company around climate and sustainability.

The Board normally meets around eight times a year. Sustainability is a standing agenda item for Board meetings. Management board reporting involves an update on sustainability and climate-related issues. This includes progress against goals and targets set. The Board, through these

sessions, has the opportunity to further refine the Company's strategy and plans.

Pursuant to its charter, the Audit and Risk Committee has delegated responsibilities in relation to compliance and risk management practices. It is responsible for reviewing and assessing Arvida's risks, risk management processes, and internal controls. This includes climate-related risks and controls.

New and emerging risks are considered initially by the Audit and Risk Committee, and where they are assessed as being high or extremely high, they are added to the Company's risk register and then approved by the Board.

Climate change risk was added to our risk register in 2020. This year the Audit and Risk Committee reviewed this risk as part of a deep dive session where the risk, including its likelihood and impact, were scrutinised and re-evaluated. The Audit and Risk Committee assessed overall climate change risk as 'high' risk.

The Audit and Risk Committee's recommendations to the Board were accepted and approved.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

The Company has a dedicated Head of Sustainability & Compliance who leads the assessment of climate-related risks and opportunities, and coordinates the Company's response as part of the overall sustainability programme.

During the year, a sustainability working group was formed to assist in providing recommendations around the broader sustainability programme.

The working group comprises seven members, including three directors (of which two are the Chair and chair of the Audit and Risk Committee), the Chief Executive Officer, Chief Financial Officer, the General Manager Strategy and the Head of Sustainability & Compliance.

The working group has assisted in developing the sustainability framework and in monitoring management's progress.

It is the intention that the working group will meet at least four times yearly.

b. Describe management's role in assessing and managing climate-related risks and opportunities.

An entity must include the following information when describing management's role in assessing and managing climate-related issues:

(a) whether the board has assigned climate-related responsibilities to management-level positions or management committees; and, if so, whether such management positions or committees report to the board or a committee of the board;	✓
(b) a description of the related organisational structure(s) showing where these positions and committees lie; and	✓
(c) processes by which management is informed about, makes decisions on, and monitors, climate-related issues.	✓ Refer to risk management section

Management's role is to identify, assess and manage climate-related risks and opportunities day-to-day as part of the risk management framework.

The effectiveness of controls and performance of other mitigation strategies is reported to the Audit and Risk Committee.

Overall accountability for delivery of the sustainability strategy and management of climate-related risks sits with the Chief Executive Officer. The Chief Executive Officer is also responsible for reporting progress against the overall sustainability goals and targets.

Responsibility for delivery of climate-related targets and goals sits with management. Each strategic pillar has an owner who is responsible for the delivery of that strategic objective.

For further information on the Company's risk management process, please refer to the risk management section on page 101.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

Strategy

TCFD recommendation:

Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.

a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.

An entity must include the following information when describing its climate-related risks and opportunities:

(a) how it defines short, medium and long term and how the definitions are linked to its strategic planning horizons and capital deployment plans;	✓
(b) a description of the time horizon over which each climate-related risk or opportunity could reasonably be expected to have a financial impact on the entity; and	✓
(c) whether the risks and opportunities identified are physical or transition risks or opportunities and, where relevant, their sector and/or geography.	✓

The Company's strategy is being adjusted in response to identified climate-related risks and opportunities. We have identified the following physical and transition risks in relation to climate.

PHYSICAL RISKS

Risks related to the physical impacts of climate change. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events. They can also relate to longer-term shifts

(chronic) in precipitation and temperature and increased variability in weather patterns. (XRB)

The Company has considered acute physical risks (an extreme weather event such as severe storms that cause flooding, etc) and chronic physical risks (a sea level rise) as a single risk. The existing risk in relation to fire, disaster and crisis addresses the short-term impacts of acute physical risks. This additional risk has therefore been positioned to address the medium- and long-term impacts of acute and chronic physical risks.

Physical Risks	Acute and chronic physical risks.
Description	Severe storms, floods, sea level rise and extreme heat leading to stranded assets or an inability to operate our business.
Likelihood	Possible.
Impacts	Increased costs and/or decreased revenue. Reduced ongoing investment. Reduced ability to attract investment.
Timeframe	S M L Short term risk covered through fire, disaster or crisis risk.
Financial implications	Not quantified.
Management response	Climate resilience assessments for each Arvida site. Fit for purpose maintenance for all our buildings.

TRANSITION RISKS

Risks related to the transition to a lower-emissions global and domestic economy, such as policy and legal risks, technology risks, market risks and reputation risks. (XRB)

The Company has identified three main climate-related transition risks that are believed to pose a significant risk to Arvida and two key climate-related opportunities.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

	TRANSITION RISKS			OPPORTUNITIES	
	Changing and emerging legislation	Changing market behaviour	Stakeholder feedback	Energy source / Resource efficiency	Products and services
Description	New policies, changes in rules or regulations or new legislations and a potential for rising costs as a result.	Lower demand for our products and services because of changes in market behaviours.	A failure to meet climate or sustainability goals leading to negative impacts on the business.	Decreased operational costs and mitigation against rising prices.	Better design of buildings and communities may attract residents.
Likelihood	Almost certain	Possible	Possible	Likely	Possible
Impacts	Increased costs and/or decreased revenue. Reduced ability to attract and maintain investment.	Decreased revenue.	Decreased revenue. Reduced ability to attract and maintain investment.	Lower costs.	Increased revenue.
Timeframe*	S M	M	M L	S M	M L
Financial implications	Not quantified.	Not quantified.	Not quantified.	Not quantified.	Not quantified.
Management response	Arvida participates in government consultations through the RVA and adapts to proposed changes. Our risk and compliance framework also assists to mitigate our risk.	Stakeholder engagement that understands changing customer behaviour and a 'retirement community of the future'.	Embedding sustainability and climate risk into our strategy and KPIs. A culture of transparency and assurance around our commitments and progress.	Projects to reduce energy across the business including LED, solar and a project to identify our biggest energy sources.	Investigating the 'retirement community of the future' and adopting Homestar into some of our design criteria.

Timeframe Key

S = Short term (0-3 years); **M** = Medium term (3-10 years); **L** = Long term (10-30 years)

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

TIMEFRAMES

Timeframes have been selected that align with the horizons of the Company's physical assets and business activities, where the medium term represents the overall development and building timeframe for retirement communities.

The medium-term risk timeframe also aligns with the estimated duration to develop the Company's land bank and with the average tenure of an independent resident (8-9 years) living in the Company's retirement communities.

The Company's buildings and retirement communities have a total useful life that aligns with the long-term timeframe. However, the ability to modify and adjust several aspects as part of refurbishments and regular maintenance is a key factor in reducing our long-term timeframe.

b. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.

An entity must include the following information when describing the impact of climate-related risks and opportunities on its business model, strategy and financial planning:

(a) a description of its business model and strategy;	✓
(b) the actual impacts of climate-related risks and opportunities on its business model, strategy and financial planning;	✓
(c) the actual financial impacts of climate-related risks and opportunities on its financial position, financial performance and cash flows;	☹
(d) how climate-related risks and opportunities serve as an input to its financial planning processes, including for capital deployment and funding; and	☹
(e) the transition and adaptation plan aspects of its strategy, including the extent to which financial plans are aligned with these plans.	☹

During the year the Company defined in more detail the climate-related risks and opportunities for the business. This information directly impacted the annual strategy review with the Company's strategy updated for climate risks and opportunities. This included the development of a sustainability framework (please refer to page 53 for details of the framework). Sustainability now forms part of all four of the Company's strategic pillars - Growing Well, Engaging Well, Living Well, Nurturing Well - with targets and focus areas under each. Please refer to pages 8 to 11 understand more about the overall business model and strategy.

The new sustainability framework supports the identification of climate related opportunities across the business, for example:

- The Company has sought to address its emissions from its construction activities by investigating options for Homestar and Green Star frameworks on certain developments.
- The Company considers climate change-related risks when performing acquisition due diligence. This includes the physical risks that a property may be exposed to in the future.
- The Company has undertaken additional analysis of resource efficiency with several projects identified to help improve energy efficiency and use of renewable energy. Please refer to page 52 for further details of these initiatives. They will impact both cost and emissions.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

Whilst the new sustainability framework focuses on opportunities, changes have also been made to processes and controls around climate-related risks. Emerging risks and revised legislation are discussed regularly with the senior leadership team and added to the risk register where appropriate.

The Company has also started to make changes to the way feedback is collected from residents. Historically, the resident survey was performed annually. This is moving to more active pulse surveys and the establishment of a people's panel to react more quickly to changes in the market, and product and service requirements.

To mitigate the other sustainability risks identified, the Company has implemented a process to monitor progress against the sustainability framework. This includes a new sustainability working group. This group will meet at least four times annually and monitor progress with goals through regular reporting.

Information is being collated on the probable financial impacts of climate-related risks and opportunities on the business. This includes defining categories and creating a reporting framework. Additional disclosures are intended for future reporting.

c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

An entity must include any other key performance indicators used to measure and manage climate-related risks and opportunities.

(a) the potential impacts of climate-related risks and opportunities on its business model and strategy;	✓
(b) how its business model and strategy might change to address such risks and opportunities;	✓
(c) the potential financial impacts of climate-related risks and opportunities on its financial position, financial performance and cashflows; and	🔄
(d) a description of the scenario analysis it has undertaken, using a range of climate-related scenarios including, at a minimum, a 1.5°C scenario and a greater than 2°C scenario.	🔄

The Company has not yet undertaken any substantive assessment of the impact of different climate-related scenarios on strategy, including a 2°C or lower scenario.

The potential impacts of climate risks and opportunities could necessitate a change in business strategy to address the risks and opportunities, for example proposed changes to building regulation under the Building for Climate Change programme may require a change in design of the built form or construction process. This may result in changes to strategy, the types of buildings constructed or materials used.

Similarly, the Company would need to adapt to changes in attitudes towards the products and services offered. If certain products or services are viewed more positively by the market, modifications to existing or future products or services may be required.

The intention is to complete analysis in this area over the next twelve months. The preference is to work with other sector participants to develop a common set of scenarios to aid investors and other stakeholders in being able to compare scenario modelling across the sector.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

Risk Management

TCFD recommendation:

TCFD recommendation: Disclose how the organisation identifies, assesses, and manages climate-related risks.

a. Describe the organisation’s processes for identifying and assessing climate-related risks.

An entity must include the following information when describing its processes for identifying and assessing climate-related risks:

(a) the tools and methods used to identify, and to assess the scope, size, and impact of the climate-related risk;	✓
(b) the short-, medium-, and long-term time horizons considered, including specifying the duration of each of these time horizons;	✓
(c) the value chain stage(s) covered; and	✓
(d) the frequency of assessment.	✓

Risks including climate related risks are identified, assessed and managed as part of the Company’s risk management framework.

Risks are identified through a variety of ways:

- Review and discussion of the latest climate-related research and information
- News and media reports
- Consideration of the latest trends and emerging issues with subsequent discussion in the senior leadership team meeting held every two weeks
- Through the Audit and Risk Committee based on their knowledge and expertise as part of the risk review process

The risks identified through the above process are added to the senior leadership team meeting agenda and discussed. They are assessed to establish whether further work is required to determine their likelihood, potential business impact and the timeframes they relate to. This may include seeking further information or external assistance depending on the internal and Board experience possessed in relation to the identified risk.

All key risks identified are reconsidered and reassessed each year as part of the annual review process. Risks assessed as significant and those reviewed through deep dive sessions by the Audit and Risk Committee are reviewed more regularly.

Proposed methodologies for climate change risk assessment and adaptation planning, both nationally and internationally, continue to be monitored.

Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED

b. Describe the organisation’s processes for managing climate-related risks

An entity must include the following information when describing its processes for managing climate-related risks:

(a) how it determines the relative significance of identified climate-related risks;	✓
(b) how it determines the relative significance of climate-related risks in relation to other risks; and	✓
(c) how it makes decisions to mitigate, transfer, accept, or control those climate-related risks.	✓

After risks are identified and assessed, a formal management process begins with the assignment of a risk owner and risk assessment.

Initially, the inherent likelihood and consequence is discussed with key stakeholders and a collective decision is made based on available information. This discussion may highlight the need for further information and a plan for collecting that information.

The existing controls in the business are also considered. Additional proposed controls may also be identified at this stage. When controls have been identified, formal work begins around whether the control is operating. Effectiveness is assessed and an action plan developed where controls are not operating or are considered ineffective.

When the likelihood and consequence of the risk (both inherent and residual) have been determined, a comparison is made against other identified climate-related risks to determine the relative significance. We also consider our risk appetite and consider the boundaries in which we will mitigate, transfer, accept or control the risks identified.

c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management.

The day-to-day management of climate-related risks and opportunities occurs across Development, Sustainability, Finance, Operations, and Strategy. Climate related risks have been added to the Company’s risk register in the same way as all other risks identified. The process for identifying, assessing and managing climate-related risks is also consistent.

Arvida Group

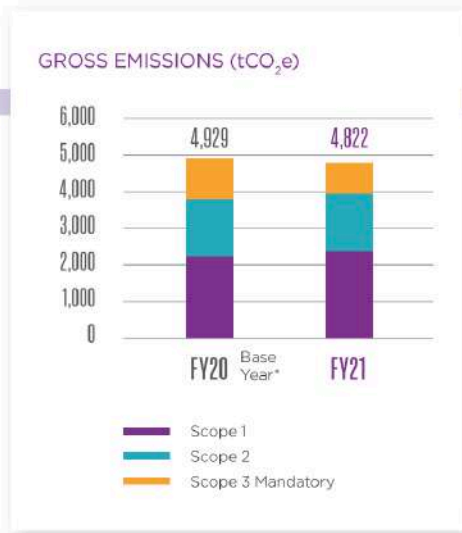
Annual Report 2022 (continued)

ARVIDA GROUP LIMITED	
Metrics and Targets	
TCFD recommendation: Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	
<ul style="list-style-type: none"> a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets. 	
An entity must disclose cross-industry metrics consistent with the climate-related metric categories below:	
(a) greenhouse gas (GHG) emissions: gross scope 1, scope 2, scope 3 (value chain) emissions in metric tonnes of CO2e	
(b) GHG emissions intensity;	
(c) transition risks: amount or percentage of assets or business activities vulnerable to transition risks;	
(d) physical risks: amount or percentage of assets or business activities vulnerable to physical risks;	
(e) climate-related opportunities: proportion of revenue, assets, or other business activities aligned with climate-related opportunities, expressed as an amount or percentage;	
(f) capital deployment: amount, in reporting currency, of capital expenditure, financing, or investment deployed toward climate-related risks and opportunities;	
(g) internal emissions price: price on each tonne of greenhouse gas emissions used internally by an entity, expressed in reporting currency per metric tonne of CO2e; and	
(h) remuneration: proportion of management remuneration linked to climate-related risks and opportunities in the current period (see Governance on page 95), expressed as a percentage, weighting, description or amount in reporting currency	

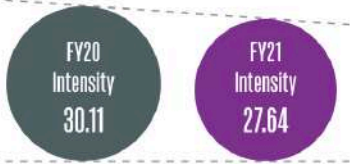
Arvida Group

Annual Report 2022 (continued)

ARVIDA GROUP LIMITED



EMISSIONS INTENSITY (tCO₂e per \$million Revenue)



Scope 3 emissions in FY20 and FY21 currently only represent waste to landfill, business travel and transmission losses. We intend to widen out scope 3 emissions in our inventory next year.

* The base year FY20 emissions were restated from 4,582 previously reported to capture additional data.

The Company has measured its emissions for the second year and recorded a reduction in emissions by 107 tonnes (2.16%) on an absolute basis and by 8.2% on an intensity basis. The inventory has been assured by Tōitu and prepared in accordance with the Greenhouse Gas Protocol and ISO14064-1:2006.

In FY21 Scope 1 and 2 emissions increased, mainly as a result of increasing from 33 to 35 retirement communities. The reductions mainly came from reduced business travel, particularly air travel due to Covid-19 restrictions.

KEY ASSUMPTIONS

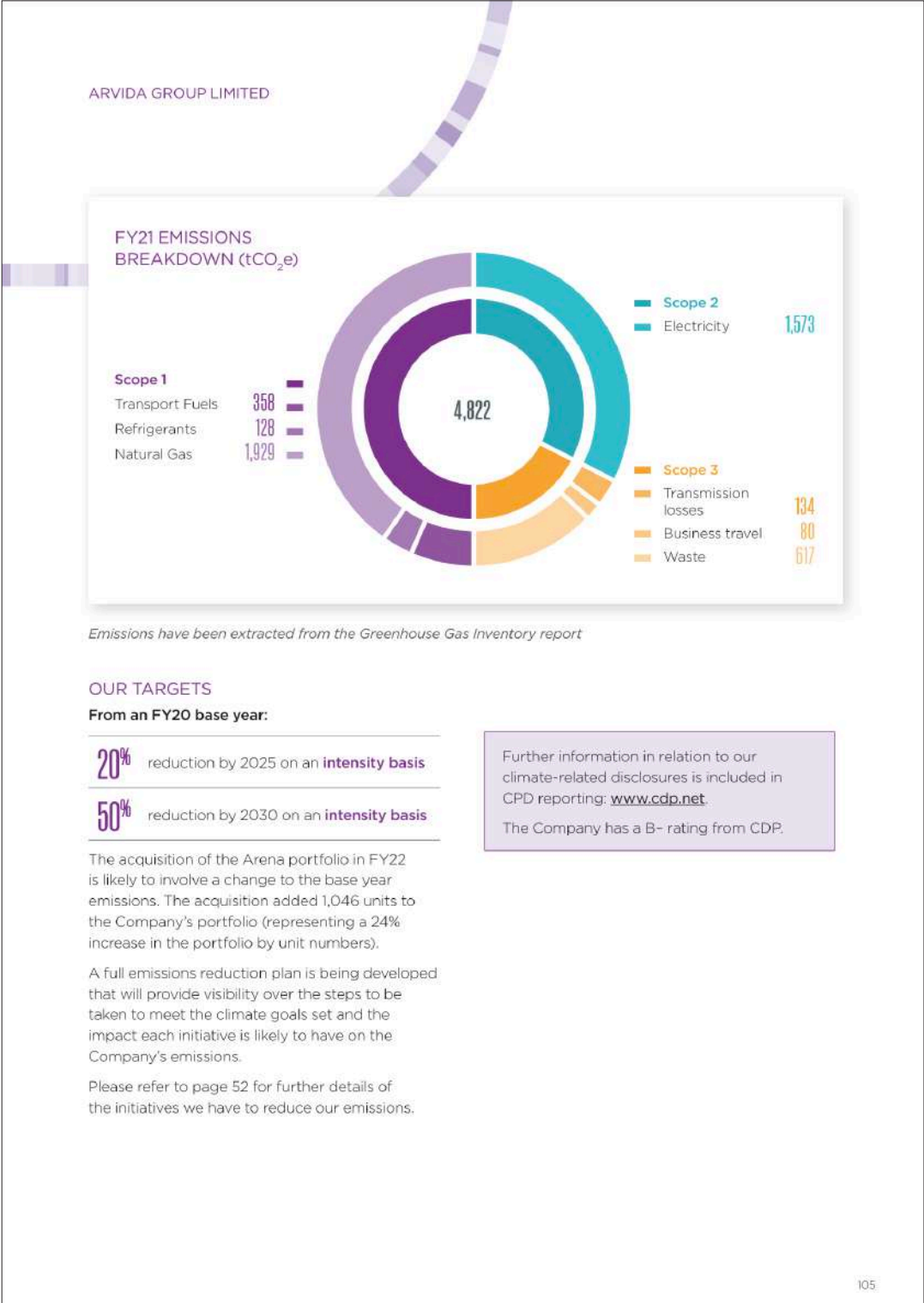
- Our operating boundary does not include our joint venture (Village at the Park) or the energy use of our independent residents.
- Volume of waste has been estimated for nine sites with a local council landfill collection.

Emissions reported relate to the FY21 financial year as the audit process for FY22 emissions has not yet commenced. FY22 emissions will be published in the half year report.

FY23 emissions will be reported alongside the FY23 financial results. We are also in the process of calculating all Scope 3 emissions as we recognise that Scope 3 emissions represent our biggest source of emissions and have the most opportunity for reduction.

Arvida Group

Annual Report 2022 (continued)





Appendix 4: NZSX-listed 2022 annual reports – Partial mention

A2 Milk Annual Report 2022

Reporting transparency

Nature-related financial disclosures

Broader nature related risk and opportunity disclosure is an emerging area of focus for stakeholders. There is new awareness globally that nature underpins the global economy. A series of recent reports led to the launch of the Taskforce of Nature-Related Financial Disclosures which aims to introduce a framework for companies to voluntarily report and act on evolving nature related risks. It is expected that this framework will be published in 2023.

Given the importance of nature to its business model and activities, the Company has commenced reviewing this voluntary framework in the context of its business. This year, the Company commenced an initial pilot analysis of nature-related risks and intends to build on this work in future years.

Investor Day

The Company hosted an Investor Day in October 2021 to release its refreshed growth strategy. The Investor Day outlined the findings of its holistic review of its growth opportunities, insights on key markets, categories and channels, as well as its financial ambition and key initiatives to deliver on this ambition. The event also provided an opportunity for the Company to introduce its renewed Executive Leadership Team.

The objective of the Investor Day was to provide the market with a greater understanding of the Company's business, and extensive information was provided to the market to facilitate this.

Carbon Disclosure Project (CDP) Climate Change Questionnaire

The Company completed the FY21 Climate Change questionnaire to receive a rating for the first time during the period and this was the Company's third submission since FY20. The questionnaire measures and outlines the risks and opportunities the business faces with regards to climate change. This questionnaire is scored by CDP and then released for public review following the rating. This comprehensive questionnaire provides transparency to shareholders on climate change impacts and how the Company is navigating these challenges. The rating also provides shareholders with a comparison to other corporates as it relates to its approach to climate change.

Task Force on Climate-related Financial Disclosures

In 2019, the Company indicated that in response to the increasing demand for transparency on the identification and management of climate-related risks, it would move towards aligning with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD). In subsequent years, the Company increased its disclosures on climate-related financial disclosure reflecting the additional work being undertaken internally to understand these dimensions and potential impacts to the business. This report includes disclosures to fully align to the original voluntary TCFD framework in line with the Company's commitment to do so for FY22. The framework will be mandatory for a2M from FY24.

Recently, the New Zealand External Reporting Board, announced it is developing new standards for climate-related financial disclosure. It is expected that these standards will closely follow the recommendations of the Taskforce for Climate-Related Financial Disclosures. Based on the work undertaken by a2M over the past number of years, the Company believes it will be well placed to report to the requirements of the External Reporting Board when the standards are published.

Overview of climate scenarios methodology and approach

As part of the ongoing management and integration of climate risk and to better understand its exposure to climate risks and opportunities, the Company has conducted a detailed scenario analysis across both transition and physical risks and opportunities in line with the TCFD recommendations.

The Company first undertook this analysis in 2020, and again in 2022 based on material changes to its business operations including in particular the Company's acquisition of a 75% interest in Maitaia Valley Milk, along with the latest available climate data. The analysis involved modelling the potential financial impacts of climate change on the business, taking a long-term view out to 2050, to inform future strategic and financial planning.

The Company has undertaken two climate risk and opportunities analyses:

- **Transition risk analysis:** two transition risk scenarios representing a high transition risk future aligned with 1.5-degree trajectory and a low transition risk future aligned with a greater than 3-degree trajectory
- **Physical risk analysis:** two physical risk scenarios representing a high physical risk future aligned with a greater than 3-degree trajectory and a low physical risk future aligned with a less than 2-degree trajectory

Whilst these scenarios are hypothetical constructs and not designed to deliver precise outcomes or forecasts, the analysis will assist the Company with strategic planning and in responding to trends and external events which may change over time.

	Transition risk analysis		Physical risk analysis	
	Risk profile	Underlying scenario	Risk profile	Underlying scenario
High temperature scenario >3°C	LOW	IEA STEPS	HIGH	RCP8.5
Low temperature scenario <2°C	HIGH	IEA NZE	LOW	RCP2.6

A2 Milk

Annual Report 2022 (continued)

BUILDING A SUSTAINABLE GROWTH BUSINESS

GOALS SHAREHOLDERS (CONTINUED)

Transition risk analysis

The above transition scenarios were used to assess how the Company would perform and operate under a low carbon transition scenario where the economy decarbonises in line with 1.5-degrees relative to a business-as-usual trajectory. This allowed for an assessment of the impact of climate action, policy, technology deployment and market shifts on the Company.

To model these impacts, the Company used data provided by the International Energy Agency's (IEA's) Net Zero emissions by 2050 scenario to assess high transition risks and data from the IEA Stated Policies Scenario to assess low transition risks.

The analysis focused on two key impacts which were deemed to be most material to the Company:

- Regulatory impacts associated with future implementation of plausible emissions pricing regimes in Australia, New Zealand and the United States; and
- Market impacts focusing on changing consumer preferences associated with the shift from traditional dairy products to plant-based milk products.

Physical risk analysis

The above physical scenarios were used to assess how the Company would perform and operate under a 'hot house world' scenario in which there is limited climate action and as such the economy fails to decarbonise resulting in global temperature rise of above 3-degrees relative to a low physical risk trajectory. This allowed for an assessment of the impact of acute and chronic physical risks on the Company.

To model these impacts, the Company used data provided in the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathway (RCP) 8.5 to assess high physical risks and the RCP2.6 to assess low physical risks. The analysis included bottom-up farm level analysis of exposure to acute and chronic physical risks across the Company's supply chain, with deep dives on the most material risks, being drought and flood.

Analysis on an unmitigated basis

Aligned to the TCFD recommendations, the Company's analysis under each scenario combined the internal and external data referred to above to identify financial material impacts on the Company, with the impacts being assessed on an unmitigated basis. This was done to inform future strategic decision making around how the Company can better build resilience and capitalise on future opportunities. The Company plans to update the scenario analysis as material changes to the business arise and will continue to deepen and evolve the methodology.

Key insights: Transition risks and opportunities

The following key insights have been taken from the Company's transition risk scenario analysis.

1. If the Company meets its emissions reduction targets, it will significantly reduce exposure to carbon pricing across the business

Carbon pricing would increase costs for the Company's products in the absence of emissions reduction activities scenario relative to a scenario in which the Company delivers on its emissions reduction targets.

The plan to meet these targets is based on several initiatives including methane inhibitors, electrification of coal boilers, renewable energy supply and decarbonisation of transport over time.

Investments in these initiatives will make the business more resilient to carbon pricing in the medium to long-term.

2. The Company's liquid milk products could be exposed to demand erosion associated with plant-based milk alternatives

The demand and market share of plant-based milk alternatives is growing and poses a risk to dairy milk products. Perceived health benefits are the biggest driver of 'switching' from dairy to plant-based alternatives with environment and animal welfare concerns being secondary drivers.

Carbon pricing has the potential to amplify these trends by affecting dairy milk supply chains substantially more than plant-based supply chains – resulting in a smaller price differential between the two product categories.

Given the Company's premium brand – which is driven by health benefits – it is possible that a2MC is protected from 'switching'. Underpinning the 'premium' brand position with both health and sustainability attributes, coupled with demonstrating environmental credentials, may offer further protection.

3. Product exposure to emissions pricing is dependent on price elasticity of demand as well as product emissions intensity

IMF is relatively more protected from emissions pricing than liquid milk products due to lower emissions intensity per dollar of revenue. However, these impacts could be more pronounced in a more disorderly transition scenario in which carbon pricing is rolled out sharply and heterogeneously across different markets.

Key insights: Physical risks and opportunities

The following key insights have been taken from the Company's physical risk scenario analysis.

1. Reliance of the Company's liquid milk products on local supply chains in Australia and the USA exposes them to supply chain disruption from drought

The Company's liquid milk supply chains in Australia and the USA are highly exposed to drought risks. Drought has the potential to significantly impact on-farm dairy productivity, creating supply constraints in highly exposed regions.

The Company's analysis indicates that if unmitigated, drought risk could impact profitability under both the below 2-degrees scenario and the above 3-degrees scenario referred to above.

2. The Company's New Zealand IMF supply chains are relatively protected from drought risk but are exposed to regulatory risks relating to water

The New Zealand IMF supply chain is relatively protected from drought risk under climate scenarios with some regions forecast to experience increased intensification of rainfall.

While some farms are at risk across the New Zealand supplier base, surplus milk available in the milk pool could provide some protection against impacts on supply and profitability. Despite this, some parts of the supply chain – including the Canterbury region – are exposed to water quality and usage issues.

A2 Milk Annual Report 2022 (continued)

Transition and physical risks and opportunities summary

The following table summarises the key risks and opportunities, the potential financial impact, magnitude and time horizon.

Transition risks and opportunities	Risk / opportunity	Overview	Potential financial impact	Potential magnitude	Time horizon
Regulation	Risk	<p>Carbon pricing</p> <p>The Company's direct operational emissions (Scope 1 and 2) are predominantly from the lignite used for the boiler at MVM. With a plan in place for a high-pressure electrode boiler to be commissioned in 2023, a2MC's direct operational emissions will be modest, making direct carbon pricing liabilities immaterial to the business. However, emissions pricing (across all GHG emissions) in the supply chain could increase the cost of milk inputs.</p> <p>On farm emissions represent a large proportion of the Company's lifecycle emissions footprint and these costs are likely to be passed on by farmers under current market conditions. This is particularly relevant in the New Zealand context where proposed regulatory changes regarding a price on agricultural emissions are being developed. The materiality of these regulatory risks will depend on market price elasticity of demand for the Company's products and the extent to which these costs are passed on by suppliers. Under current market conditions the price elasticity of demand for the Company's IMF and liquid milk products is low, reducing the materiality of this risk. It will also be impacted by the extent to which the Company can reduce its emissions and decarbonise its supply chain.</p>	Increased indirect operating costs	Low	Medium-term
Market	Risk / opportunity	<p>Changing consumer behaviour</p> <p>Consumer preference shifts away from traditional dairy products towards plant-based products have been observed in recent years, driven by various factors including climate and environmental considerations. Carbon pricing has the potential to amplify switching, by affecting dairy milk supply chains more than plant-based supply chains resulting in a smaller price differential between the two product categories. The Company views this as both a risk and opportunity and is responding with strategies to maintain and grow its premium brand positioning, and through the development of a low-carbon transition strategy to reduce potential carbon liabilities.</p>	Decreased / increased revenues due to reduced demand for products	Low	Short-term
Physical risks and opportunities	Risk / opportunity	Overview	Potential financial impact	Potential magnitude	Time horizon
Chronic	Risk	<p>Drought</p> <p>Drought can impact dairy farms in several ways, including limited supply and high cost of feed, limited water supply, and impacts to the health and output of cattle due to change in feed nutrition mix. Drought has the potential to impact availability of supply and increase operating costs.</p>	Increased indirect operating costs	Medium	Long-term
Acute	Risk	<p>Flooding</p> <p>Flooding can result in the loss of livestock, occupational health and safety risks for employees and other stakeholders, damage to property including paddocks and pastures, critical equipment and facilities, temporary loss of farm access, and loss of inventory.</p>	Increased indirect operating costs	Medium	Long-term

A2 Milk

Annual Report 2022 (continued)

BUILDING A SUSTAINABLE GROWTH BUSINESS
GOALS SHAREHOLDERS (CONTINUED)

Strategic response and next steps

The Company is implementing and will continue to evolve a mitigation and adaptation strategy to address the impact of climate change.

Importantly, it has commenced the development of low carbon transition strategy out to 2040 with targets for Scope 1, 2 and 3 greenhouse gas emissions reduction to net zero by 2030 (for Scope 1 and 2) and by 2040 (for Scope 3).

Furthermore, the Company views changing consumer preferences as both a risk and opportunity and is responding with strategies to maintain and grow its premium brand positioning, and through the development of a low-carbon transition strategy to reduce potential carbon liabilities. It is likely that over time there will be a shift in consumer preference towards climate and environmentally friendly dairy products. This creates an opportunity to strengthen the visibility and transparency around these attributes in the Company's products.

The Company's mitigation approach to the impact of climate change includes decarbonisation initiatives already underway in our direct operations, for example:

- Converting the MVM coal-fired boiler to a high-pressure electrode boiler and utilising renewable energy for the electrification of the site.
- Undertaking a study for the Company's primary milk processing facility in Australia, Smeaton Grange, with key projects progressed to a detailed feasibility study, following the installation of solar power at Smeaton Grange last year.
- 'Green Energy' or equivalent contracts established at all sites where available which included converting contracts for offices in Sydney and Melbourne, operations in Sydney, while continuing contracts already in place for Auckland and the USA.

Given the materiality of the Company's Scope 3 GHG emissions, it is also investing in mitigation initiatives in its supply chain. These include:

- Contribution to the conversion of Synlait's coal-fired boiler to biomass
- Working with methane mitigating asparagopsis based feed supplement provider
- Establishing / continuing farmer grants programmes, which in 2022 were extended beyond Australia to New Zealand (see page 39 for further details)

The Company's adaptation approach includes investing in resilience throughout its direct operations and supply chain, for example:

- Establishing a global framework for 'farm environmental plans' which is currently being rolled-out across supplier farms
- Farmer grants programmes, which in 2022 was extended beyond Australia to New Zealand (see page 39 for further details)

In August 2022, New Zealand released its first national adaptation plan which contains strategies, policies and actions that will help the country adapt to the changing climate and its effects. a2MC is reviewing this plan to help inform the next steps on adaptation.



Appendix 4:
NZSX-listed 2022 annual reports –
Partial mention

Infratil
Annual Report 2022

Infratil's Sustainability Strategy

With its Aotearoa New Zealand origins at its core, Infratil's purpose is to invest wisely in ideas that matter and, in doing so, create long-term value for our shareholders.

We focus our sustainability efforts on six key pillars where we believe our activities can have the most impact, as described in our Sustainability Framework below.

Infratil's sustainability strategy identifies a series of sustainability commitments, investee company expectations and medium-term sustainability targets.

We have developed an Impact Measurement Framework against these six key pillars that we will publish in the upcoming year and will use to assess the performance of our activities against annually.



Climate Change

We believe that global emissions must be reduced and that we must address climate change and emission reduction, fairly and efficiently.

Our goal is to invest in a manner that contributes positively to global decarbonisation and benefits from the transition to a low-carbon economy, and to advocate for societal responses to climate change.



Community

We believe in making a positive contribution to those who use our services and to our communities; we must be a trusted provider of services within our communities.

Our goal is to invest in a manner that has a positive impact on communities while doing so responsibly and in accordance with social standards.



Transparent & Reliable

We believe that providing clear and accessible information to capital providers and other key stakeholders will enable informed investment decision making.

Our goal is to improve the accountability of governance and management, and the company's transparency.



Natural Environment

We believe that each business has an obligation and responsibility to protect and foster the physical environment in which it operates.

Our goal is to invest in a manner that acknowledges humankind's important relationship with and commitment to the natural environment, and ensure that Infratil's ecological commitments are delivered.



Our people

We believe that the wellbeing, health and safety of Infratil's people is a high priority, as reflected in our Diversity Policy, Position Statement on Modern Slavery, Code of Ethics and other policies.

Our goal is to operate in a manner that supports the wellbeing of our people in a physical, emotional, intellectual, and material sense.



Leadership & Accountability

We actively allocate capital and manage activities in recognition of our wider social and environmental responsibilities as these evolve over time.

Our goal is to implement internationally accepted governance practices as appropriate to the unique structure of Infratil.

Committed to Sustainability

We have a vision for Infratil to be a leader in sustainable infrastructure investment.

Infratil's goal is to provide excellent risk-adjusted returns for shareholders and, in so doing, to allocate capital and to manage our activities and investment.

But alongside the return on financial capital, we also endeavour to deliver positive returns on all of human, social and natural capital. We recognise that sustainable approaches to the environment, society and our governance are critical at all levels of our business and operations.

Part of being a sustainable business is understanding the impacts arising from our investments and how we manage their operations and ourselves. We must also be accountable through measurement, reporting, and transparency to enable positive impacts for people and communities, and the environment.

This year's annual report outlines the vision and objectives we have put in place to gauge and report the progress we make towards improved environmental, societal and governance objectives, and which compares our performance alongside our peers.

This formalises our focus and how Infratil has operated over the past two-and-a-half decades. We were early with our interest in developing clean, renewable energy, sustainable transport and identifying the importance of digital innovation to facilitate connections. These sectors can both demonstrate significant value potential and be at the leading edge of sustainability.

As a global infrastructure investor, our goal is to work with 'ideas that matter', executing in ways which are efficient, effective, and accountable. Anticipating and preparing for change is the foundation of how Infratil allocates its capital through ideas such as:

- Tackling the threat of climate change with our investments in renewable generation.
- Lowering the emission intensity of transport as the demand for travel expands.
- Delivering data processing, storage facilities and telecommunications infrastructure with carbon emissions, energy and water minimisation at the core.
- Improving health outcomes and access through more efficient and affordable technological responses.

The challenge for Infratil is to manage our existing and new investments in ways which continue to improve the sustainability of communities and our environments – whether it be low emission air travel, sustainably designed communication systems, and more equitable access to high quality health services. As we consider new investments, we incorporate sustainability into our management practices and this underpins how we identify risks and opportunities, and underpins our delivery of risk-adjusted returns to our investors.

We will maintain high standards of governance practice as we manage and disclose material sustainability risks effectively and transparently. We will ensure our internal systems of practices, controls, and procedures allow us to make effective decisions on behalf of our investors, our companies and our communities, while treating our employees with respect and inclusivity.

Communities, consumers and investors are demanding responses on a range of environmental and societal issues. Corporates are increasingly being asked to account for environmental, social and governance issues as well as deliver commercial returns. Businesses which try to operate in a purely commercial vacuum are finding that to be an uncomfortable place.

Climate-related disclosures

We are focussed on ensuring that Infratil is financially resilient to the physical and transitional impacts of climate change and committed to reporting to stakeholders in line with the recommendations of the Taskforce for Climate-related Financial Disclosures ('TCFD'). We also intend to provide comprehensive reporting on Infratil's financed carbon emissions, together with carbon emission trajectories and targets. Our reporting will be aligned with the Partnership for Carbon Accounting Financials' ('PCAF') Global GHG Accounting & Reporting Standard for the Financial Industry.



Tackling the threat of climate change

The Infratil Board acknowledges that climate change is happening and that emissions must be reduced. It is committed to understanding, overseeing and providing transparency over what climate change and the transition to lower emissions could mean for Infratil and its long-term financial performance.

Infratil's approach

The global response to climate change presents strategic opportunities for Infratil. For example, Infratil has long prioritised decarbonisation in its investment strategy and has successfully invested in the transition to a low carbon economy in Australia, New Zealand and the United States. It is likely that this transition could accelerate further over the short to medium-term leading to the potential for Infratil to deploy significantly more capital into decarbonisation-linked activities

through existing businesses – Longroad Energy, Manawa Energy, Gurin Energy, and Galileo Green Energy – or entities that we may invest in or establish in the future.

Scenario analysis

To assess the actual and potential impacts of climate change on its strategy, portfolio entities and financial planning, Infratil has identified a number of scenarios that it will use to assess the future risks and opportunities associated with climate change. These scenarios are not intended to predict the future, but rather to help us understand the financial resilience of Infratil's strategy to climate change and the actions required to enhance resilience and preparedness.

Working together with a leading global economics consultant, Infratil has developed and assessed four climate scenarios which describe transition and mitigation pathways over the next 30 years. Informed by the scientific work assessing carbon emission pathways and resulting degrees of warming undertaken by the Network for Greening the Financial

System – a network of central banks including the Reserve Bank of New Zealand, the International Energy Agency, and the Intergovernmental Panel on Climate Change – these four 'bookend' scenarios range from, in essence, society doing a lot to mitigate climate change, to doing very little.

There are two 'transition' scenarios: **Organised & Decisive** where early coordinated global action occurs with moderate climate change mitigation policies (2°C global warming trajectory); and **Disorganised & Fragmented** with delayed and more severe government action in future years (2-2.5°C trajectory).

There are also two 'no transition' scenarios: The **Status Quo / Baseline** scenario which assumes no material step-change in carbon reduction action beyond current announced policies and initiatives (>3°C trajectory); and **Too Little Too Late**, an extreme downside scenario which assumes failure of current policies and further inaction eventually resulting in extreme physical impacts (extreme warming).

Infratil

Annual Report 2022 (continued)

The consultant's 'Global Equilibrium Model' was used to map the respective carbon emission and climate pathways of the four scenarios and project the transition and physical risks in a macroeconomic framework. That work produced a set of macroeconomic and operating variables which can be applied at the asset level and portfolio level to assess the potential aggregate economic impacts on Infratil.

The key findings

Transition scenarios: Achieving a 2°C or lower pathway represents a major departure from today's global trajectory. It will require a rapid transition across all industry sectors as well as substantial investments in low and negative emissions technologies e.g., direct air capture and carbon storage. Whenever the response occurs, it will require strong government support which may include fiscal policy and other measures that result in a period over the next 10-20 years where the economy moves away from the equilibrium. The earlier global coordinated action commences, the less severe the mitigation policies and actions required to achieve the transition and the lower the level of disruption to the economy.

No transition scenarios: If a transition does not occur over the next 20 years the economy is expected to continue relatively unaffected until the greenhouse gases in the atmosphere pass a tipping point that would result in much higher temperatures and severe physical damage, the worst of which would materialise after 2050. The high temperatures and severe physical damage could lead to a rapid decline in global productivity and prosperity post-2050.

The following pages describe at a high level the potential impacts on society and the economy of each climate change scenario that we have assessed. We will utilise these scenarios to undertake detailed financial analysis to inform Infratil's investment strategy and risk management processes.

Managing climate change risk

It is clear that the investments within Infratil's portfolio are not equally exposed to climate-related risks.

An airport faces different risks to a medical radiology business or a large-scale renewable energy project.

Different infrastructure investments face different market, operational, physical, regulatory and reputational risks associated with increasing climate volatility and change. The risks depend on multiple factors including but not limited to the asset's geography, the nature of its activities e.g., dependence on fossil fuels, or the correlation of its financial performance with macroeconomic variables e.g., GDP, energy prices and inflation. Climate change risks could therefore materialise in different ways, such as reduced customer demand, increased financing costs, capital expenditure to protect asset value, or changes in insurance costs and/or coverage.

Underpinned by the scenario analysis described earlier, Infratil will continue to actively review the risks and opportunities associated with climate change across different time horizons.

The following pages describe at a high level the potential impacts of various climate change scenarios on society and the economy that Infratil will use to comply with its TCFD obligations.

Emissions

Greenhouse gases in the atmosphere increase due to fossil fuel-related energy use and other non-energy related emissions.

Rising Temperatures

Global temperatures rise due to a linear relationship with greenhouse gases in the atmosphere.

Economic Impact

As temperatures increase, economic productivity is impacted. The relationship is non-linear.

The Recommendations of the Taskforce for Climate-related Financial Disclosures

The Financial Stability Board established the Task Force on Climate-Related Financial Disclosures ('TCFD') to develop recommendations for more effective climate-related disclosures that could promote more informed investment, credit, and insurance underwriting decisions and, in turn, enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system's exposures to climate-related risks.

Its disclosure recommendations are structured around four thematic areas that represent core elements of how organisations operate: governance, strategy, risk management, and metrics and targets. These thematic areas are intended to interlink and inform each other.

- **Governance:** Disclose the organisation's governance around climate related risks and opportunities.
- **Strategy:** Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning where such information is material.

- **Risk management:** Disclose how the organisation identifies, assesses, and manages climate-related risks.

- **Metrics and targets:** Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.

Public support for the TCFD (demonstrated via the initiative's website) has grown to 3,400 organisations as of February 2022, from 513 in September 2018. Infratil became a public supporter of the TCFD in September 2020.

In 2021, New Zealand became the first country in the world to pass a law that will ensure financial organisations disclose and ultimately act on climate-related risks and opportunities.

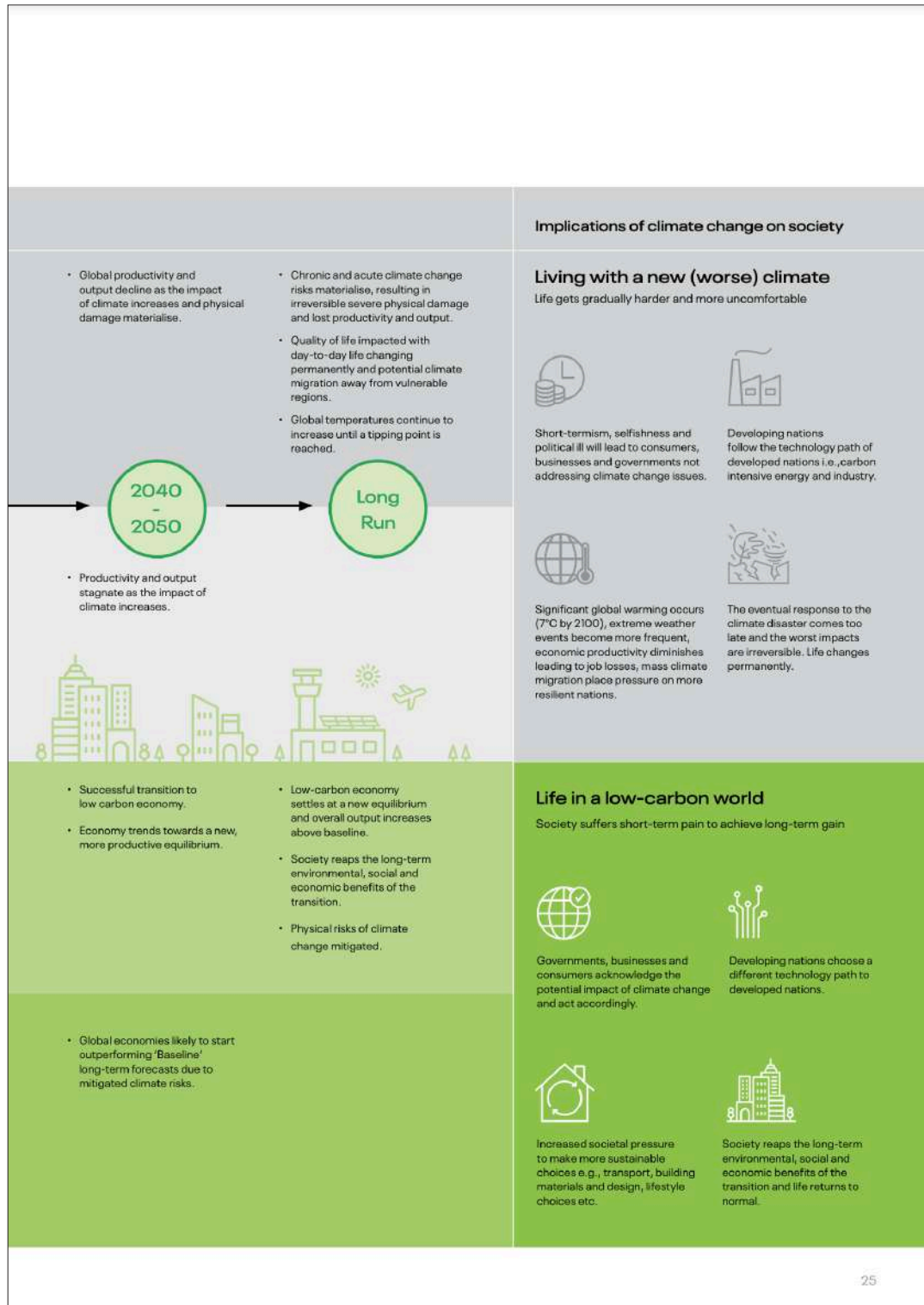
The new law will require around 200 large financial institutions (including Infratil) to start making climate-related disclosures. Organisations will be expected to publish disclosures from financial years commencing in 2023 (for Infratil the year ended 31 March 2024), subject to the publication of climate standards from the External Reporting Board. The standards will be developed in line with the recommendations of the TCFD.

Climate Change Scenario

	Scenario	Implications of climate change on the economy
No Transition Scenarios	Too Little Too Late Limited climate action and failure in meeting current Nationally Determined Contributions (NDCs) Extreme Warning RCP 7.0 No further mitigation Severe irreversible physical damage	<ul style="list-style-type: none"> No change to status quo. Inflationary pressures build as fossil fuel demand outstrips supply.
	Status Quo / Baseline Status quo. Reflects existing policy and commitments as made in countries' NDCs >3°C Trajectory RCP 6.0 Limited (current) mitigation policies Unmitigated irreversible physical damage	<div style="text-align: center;"> </div> <ul style="list-style-type: none"> No change to status quo. No change to status quo.
Transition Scenarios	Disorganised & Fragmented Delayed and disorganised global action requires severe response to meet mitigation goals >2-2.5°C Trajectory RCP 2.6-4.5 Severe mitigation policies Physical damage largely mitigated	<ul style="list-style-type: none"> No change to status quo. Period of potential reduced output as global economy structurally transitions to a low carbon economy. Due to delayed action, the measures required to meet mitigation goals are likely to be more severe compared to the Organised & Decisive scenario.
	Organised & Decisive Immediate and coordinated global action by all stakeholders to meet mitigation goals, allowing for phased and moderate economic responses 2°C Trajectory RCP 2.6-4.5 Moderate mitigation policies Physical damage mitigated	<ul style="list-style-type: none"> Global stakeholders implement a range of mitigation measures to drive transition. Mitigation measures may include market intervention policies. Period of potential reduced output as global economy structurally transitions to a low carbon economy. Successful transition to low carbon economy. Economy trends towards a new, more productive equilibrium.

Infratil

Annual Report 2022 (continued)



Spotlight on climate change

Global momentum on tackling climate change continues to build. Investors and stakeholders are becoming increasingly interested in what companies are doing to adapt and mitigate in the drive towards a low emissions future. Manawa Energy's major shareholder, Infratil Ltd, has stipulated climate related criteria for its investment decisions, which clearly signal its expectations of its investee companies. The shift towards decarbonisation is a significant opportunity to grow our renewable generation business.

To achieve our climate action aspirations, we are focusing on:

- Investing in a renewable future
- Reducing Manawa Energy's own greenhouse gas emissions
- Working to understand and address the risks and opportunities associated with climate change on our business
- Collaborating with business, stakeholders, Government and suppliers to achieve mutual climate change aspirations through policy, partnership and advocacy.

Physical risk

More extreme weather patterns resulting from climate change could increase the risk of damage to our assets and impact hydro generation revenue. Drought frequency and intensity could reduce inflows feeding Aotearoa New Zealand's hydroelectric power schemes, potentially increasing energy prices and the use of alternative energy production, like diesel, to meet energy demands. Extreme weather events and storms are also likely to increase, with flooding, high winds and heat waves (impacting cooling systems) posing a risk to our assets.

There is no doubt our changing climate will shape the way we operate in the medium to long term. We have a number of initiatives and measures in place to help us mitigate the climate risks, as well as capitalise on opportunities.

- We consider short and long-term risks through our Enterprise Risk Management framework, and incorporate climate assessment and hydrology measures to help predict and understand the effects of climate change at our schemes.



Appendix 4: NZSX-listed 2022 annual reports – Partial mention

Manawa Energy (previously Trustpower) Annual Report 2022



Manawa Energy (previously Trustpower) Annual Report 2022 (continued)



Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Manawa Energy Annual Report 2022 | **Spotlight on climate change**

- Climate change is carefully considered when upgrading and maintaining our plants to better manage extreme flows and extended dry periods. For example, the new runner installed at Matahina means we can operate to lower flows more efficiently, and our new infiltration gallery at Branch will allow us to continue to operate in higher flow events.
- Manawa Energy, together with other large generators, is participating in a hydrology working group on climate change. The aim is to understand the impact of climate change on large floods and to update the methodology on maximum flood probability. This will ensure a consistent approach and enhance our understanding in this field.
- Where experts predict increased rainfall, for example at our West Coast and Taranaki hydro schemes, this provides an opportunity to increase generation output. We have made generation enhancements that increase the capacity and efficiency of our intakes within consents.



- This improves our ability to use the water more effectively through flood harvesting and adapt to increased volatility. Changing weather patterns may also increase opportunities for new wind and solar generation.
- Regular droughts and lower rainfall in other areas could lead to higher demand for access to stored water for uses such as drinking water supply, industrial purposes, irrigation and/or hydro generation. This presents an opportunity for alternative uses of Manawa Energy's hydro storage capacity and may add value to our schemes that have this capability.
- We manage the associated dam safety risks through five-yearly comprehensive reviews of our high and medium Potential Impact Category (PIC) hydro schemes, and ten-yearly comprehensive reviews of our low PIC schemes. These reviews allow us to plan remediations and upgrades, helping identify any potential hydrological changes that feed into discussions with councils and communities. This approach will be enhanced once the results of the hydrology generators working group can be incorporated into flood assessments.
- We regularly collaborate on, and contribute hydrological data towards, science and studies on climate resilience in Aotearoa New Zealand.

Electricity wholesale market

The drive towards a low carbon future is expected to increase Aotearoa New Zealand's reliance on intermittent power generation (primarily wind and solar in the short to medium term) with a decrease in controlled thermal generation. We anticipate this may increase the volatility of wholesale prices,

As we transition to a low carbon future, we are likely to see more competition come into the market. For example, solar providers could become grid electricity retailers, as has occurred in some overseas markets.

increasing the value of storage and controllable generation. We maintain a balance between uncontrolled generation (run-of-the-river), and controlled hydro with storage, and we look to enhance our overall market exposure with a range of risk management products.

We have a proven track record of delivering new products in a tight market and will continue to do so. Increased electricity demand due to the electrification of transport and industrial heat means there will be opportunity for increased revenue. We are actively looking to grow our renewable generation portfolio to support the transition from other forms of energy to electricity.

Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Manawa Energy Annual Report 2022 | **Spotlight on climate change**

Technology

Significant research and development into renewable electricity sources and associated technologies has led to a rapid decline in the cost of decentralised electricity generation like solar and batteries. While COVID-19 has produced some headwinds in this space, this is expected to pass with time. We continue to monitor new technologies that will best position our business to participate in Aotearoa New Zealand's transition to a low carbon future. Through this research, we continue to create strong partnerships with stakeholders and intend to develop commercial opportunities as the technology develops.

Regulatory

Policy and legislative changes have the potential to significantly impact Manawa Energy's business. This last year saw the Climate Change Commission finalise its advice to the Government on Aotearoa New Zealand's first three emissions budgets. When published, the resulting Emissions Reduction Plan will provide a positive framework for Manawa Energy to grow renewables to support a low-emissions Aotearoa.

Our work is ongoing alongside industry and sector groups to help the Government understand the risks arising from policy on energy security, affordability, and sustainability. Depending on the nature and magnitude of the specific changes, these have the potential to negatively impact customers, the industry and Aotearoa New Zealand and we are advocating for appropriate balance to mitigate any downside to these reforms.



Metrics and targets

To ensure Manawa Energy is on top of changes and understands its climate-related risks and opportunities, we measure and monitor the following:

- Frequency and intensity of extreme rainfall events and extended dry periods.

- Electricity demand.
- Price volatility.
- Probable Maximum Flood (PMF) assessments.
- Greenhouse gas (GHG) emissions.

Our target is to meet all TCFD mandatory requirements. You can find out more about our Task Force on Climate-related Financial Disclosures and Greenhouse Gas Disclosures on page 131 of this report.

Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Gender diversity at Board and officer levels**

	2022	2021	2020
Board	4	6	6
Female	2	1	1
Gender diverse	-	-	-
Officer	6	6	6
Female	2	1	2
Gender diverse	-	1	-

** Note: In 2021, we introduced a 'gender diverse' category as part of our Diversity and Inclusion work. This change influences the comparison of FY20 and FY21 results. Figures correct as at 31 March 2022.

Safety and Wellbeing

Manawa Energy is committed to establishing and maintaining a safe and healthy workplace for our people (employees, contractors) and members of the public. We take a managed approach to working towards meeting the requirements outlined in the Health and Safety at Work Act 2015 and associated regulations; the approved codes of practice, guidelines and rules developed by WorkSafe, the Electricity Engineers' Association and StayLive; and Public Safety around Electricity Generation Assets. Health and Safety risks, performance and management are included within this report in the Chair & Chief Executive Report (see page 13).

Board of Directors

Our Directors are elected by shareholders and responsible for the performance and management of Manawa Energy. The Board operates to a charter which outlines its responsibilities and commitments.

The Constitution provides for a maximum of seven directors and the NZX Listing Rules require that at least two directors must be independent directors. The Board has determined that Joanna Breare and Sheridan Broadbent are independent directors and that each of Paul Ridley-Smith, Peter Coman and Kevin Baker (by being associated with Infratil Limited) and Michael Smith (by being associated with Tauranga Energy Consumer Trust) are non-independent directors.

TECT Holdings Limited, owned by Tauranga Energy Consumer Trust, exercised its power of appointment under clause 25.3 (b) of Manawa Energy's constitution in appointing Michael Smith to the Board.

Recommendation 2.8 of the NZX Corporate Governance Code is that a majority of the Board should be independent directors. Manawa Energy has not adopted Recommendation 2.8. Manawa Energy has four non-independent directors (determined as noted above) and two independent directors. This reflects that Manawa Energy is a subsidiary of Infratil Limited, and the Tauranga Energy Consumer Trust has exercised its right under Manawa Energy's constitution to appoint one director.

Recommendation 2.9 of the NZX Corporate Governance Code is that an issuer should have an independent Chair of the Board or, if the Chair is not independent, the chair and the Chief Executive Officer should be different people. Manawa Energy is compliant with Recommendation 2.9 in that the Chair and the Chief Executive Officer are different people. At the request of majority shareholder Infratil Limited, which request the Board has accepted, a nominee of Infratil Limited (currently Paul Ridley-Smith) is Chair of the Board.

Board Committees

Manawa Energy has four standing Board committees – the Audit and Risk Committee, the Governance and Nominations Committee, the People and Remuneration Committee and an Independent Directors Committee. Each committee is summarised on pages 83 and 84 of this report, with committee charters and comprehensive coverage of roles and responsibilities available in our Governance Documents in our investor centre.

Reporting and Disclosure

Manawa Energy has a Continuous Disclosure Policy to ensure that all of Manawa Energy's shareholders have the same access to material information about the company and its prospects in a timely manner.

Remuneration

The Board has established coherent people and remuneration strategies, policies and practices to ensure Manawa Energy has the appropriate level of capability, culture, leadership and diversity within its workforce to meet its current and future requirements.

Managing Risk and Auditing

Manawa Energy operates a comprehensive, enterprise-wide risk management framework to identify and mitigate risk. Our Executive Team regularly report to the Audit and Risk Committee and the Board on Manawa Energy's risks and our treatment of those risks. The Enterprise Risk Management framework encourages risk-based decision making and is supported by a Risk and Assurance Policy and Guidelines document, all working to ensure risks are considered and acted upon accordingly. Risk management is embedded into all business activities and risks are analysed based on financial, reputation, business disruption consequences and the likelihood of consequence.

Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Management of Manawa Energy's energy market exposure and the associated trading activities it undertakes are critical parts of Manawa Energy's operation. The Board has approved a comprehensive Energy Trading Policy which establishes the framework in which Manawa Energy's trading activities are governed, managed and reported on. This was most recently reviewed and approved by the Board on 13 May 2022.

We have established an internal audit function for monitoring Manawa Energy and the Group's system of internal financial control and the integrity of the financial information reported to the Board. Internal audit operates independently from the Board and reports its findings directly to the Audit

and Risk Committee. The Board has engaged PricewaterhouseCoopers to act as external auditor. In addition to the risks identified on page 30, cyber attacks and the loss of corporate IT are identified and managed as key risks.

- Cyber attack on a Manawa Energy network or system: Major security breach or attack of Manawa Energy's IT, OT, or ISP networks and/or systems caused by a malicious cyber-attack.
- Loss of corporate IT systems: Significant or sustained loss of IT (Information Technology) systems caused by physical damage, hardware or software failure, human error, incorrect/unauthorised operation (but excludes cyber-attack).

Energy Trading

We have adopted an Energy Trading Policy to manage the risk relating to the purchasing of electricity and gas from wholesale energy markets and the trading of carbon related products.

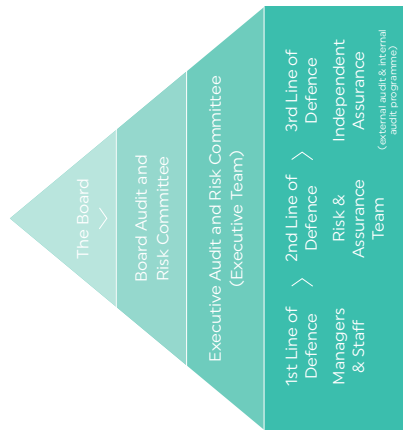
Treasury Policy

We have a Board-approved Treasury Policy to manage finance, interest rate, foreign exchange and foreign investment risks.

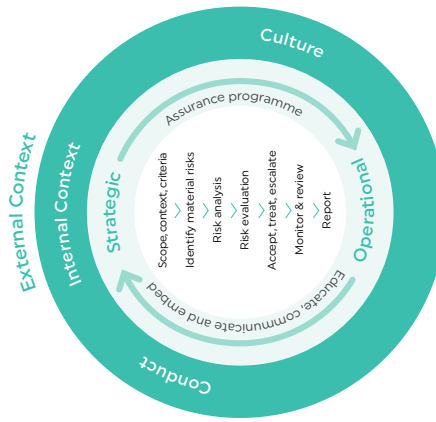
Environment

We recognise the importance of environmental issues and are committed to the highest levels of performance. To help meet this objective we have developed and implemented both environmental policies and a comprehensive environmental management system. Taskforce on Climate-Related Financial Disclosure reporting has also been included within this annual report.

Risk Authorities, Responsibilities and Accountabilities



Risk Management Framework



Shareholder Engagement

Manawa Energy keeps shareholders informed of all major developments affecting the Group's state of affairs. The Board encourages full participation of shareholders at the annual meeting to ensure a high level of accountability and identification with the Group's strategies and goals.

Other Corporate Policies

The Group has other policies covering but not limited to human resource activities, health and safety, buildings and security, business continuity and major incident planning. These policies are regularly reviewed and approved by senior management and, where required, the Board.

Our Board Committees

The Board has established four standing subcommittees; the Audit & Risk Committee, the Governance & Nominations Committee, the People & Remuneration Committee and an Independent Directors Committee. The committees assist the Board in carrying out its responsibilities in key areas.

Audit & Risk Committee

A standing Audit & Risk Committee assists the Board to fulfil its responsibilities in relation to risk management, external financial reporting, and internal and external audit functions. Quarterly risk reporting to this Committee ensures, amongst regular review of current and emerging risks (including climate change) in the context of our risk profile, our strategic aspirations and changing external conditions.

Audit & Risk Committee Members

Kevin Baker (Chair)
Sheridan Broadbent
Joanna Breare

Recommendation 3.1 of the NZX Corporate Governance Code is that the Chair of the audit committee should be an independent director. Prior to her resignation from the Board,

Susan Peterson (an independent director) was head of the Audit & Risk Committee. Following Susan Peterson's resignation in September 2021, Kevin Baker was appointed as Chair of the Audit & Risk Committee. Kevin Baker is not an independent director. The Board considers this is appropriate given the current composition of the Board. Manawa Energy is compliant with the other aspects of recommendation 3.1.

Governance & Nominations Committee

The Board has established a Governance and Nominations Committee to assist Manawa Energy with:

- ensuring Manawa Energy has good corporate governance and a process in place to promote continuous improvement in corporate governance;
- ensuring the Board has an appropriate balance of skills, experience, knowledge, judgement, and diversity to govern Manawa Energy appropriately; and
- selection and retention of directors based on merit, the collective needs of the Board and Manawa Energy's strategic objectives.

Governance & Nominations Committee Members

Sheridan Broadbent (Chair)
Peter Coman
Paul Ridley-Smith
Michael Smith

Recommendation 3.4 of the NZX Corporate Governance Code is that a majority of an issuer's nomination committee should be independent directors. Manawa Energy has not adopted Recommendation 3.4. The Governance and Nominations Committee comprises one independent director and three non-independent directors. The Board considers this is appropriate given the current composition of the Board.

Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Manawa Energy Annual Report 2022 | Our Board Committees

People & Remuneration Committee

To govern our remuneration and people policies, the Board has established a People and Remuneration Committee. The primary purpose for this Committee is to establish coherent remuneration strategies, policies and practices for our people.

Responsibilities for the Committee include reviewing and recommending: remuneration levels and packages for directors and the Chief Executive and their direct reports; aggregate remuneration levels for non-executive staff; diversity and inclusion, code of ethics and protected disclosure policies; and key measurable objectives of diversity and inclusion. They also monitor our key people risks including compliance with employment law and regulations.

People & Remuneration Committee Members

Joanna Breare (Chair)

Paul Ridley-Smith

Michael Smith

Recommendation 3.3 of the NZX Corporate Governance Code is that a majority of an issuer's remuneration committee should be independent directors. Manawa Energy has not adopted Recommendation 3.3. The People and Remuneration Committee comprises one independent director and two non-independent directors. The Board considers this is appropriate given the current composition of the Board.

The Independent Directors Committee

The Board has established an Independent Directors Committee which is activated from time to time as a conflict arises which is required to be considered by the Independent Directors Committee. The standing members of the Independent Directors Committee are Manawa Energy's independent directors. Additional directors can be invited to join the Independent Directors Committee to consider specific conflict matters where that director does not have a conflict or interest in relation to the matter.

Independent Directors Committee Members

Sheridan Broadbent (Chair)

Joanna Breare

• A full statement of roles and responsibilities for each committee, and their charters, can be found in our governance documents within our Investor Centre on the Manawa Energy website <https://www.manawaenergy.co.nz/governance-documents>

Manawa Energy (previously Trustpower) Annual Report 2022 (continued)

Sustainability Disclosures

Task Force on Climate Related Financial Disclosures (TCFD)

Disclosure	Page No.
Describe the board's oversight of climate-related risks and opportunities.	pages 81-82 Managing Risk and Auditing section pages 83-84 Our Board Committees
Describe management's role in assessing and managing climate-related risks and opportunities.	pages 81-82 Managing Risk and Auditing section
Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	page 58-60 Spotlight on climate change section
Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.	page 58-59 Spotlight on climate change section
Describe the organisation's processes for identifying and assessing climate-related risks.	pages 81-82 Managing Risk and Auditing section
Describe the organisation's processes for managing climate related risks	pages 81-82 Managing Risk and Auditing section
Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	pages 58-60
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	page 58
Disclose Scope 1, 2 and if appropriate 3 greenhouse gas (GHG) emissions.	page 131

Greenhouse Gas Emissions FY22

Greenhouse gas (GHG) emissions were measured for the Manawa Energy business across FY22. Reporting uses tonnes of carbon dioxide released per kilowatt hour of energy produced to measure its emission intensity. This metric is widely used throughout the electricity generation industry. Adapted under the GHG protocol, our emissions are classified under the following scopes:

- Direct GHG emissions (Scope 1): emissions from sources that are owned or controlled by our business, e.g. our fleet emissions or generation emissions.
- Indirect GHG emissions (Scope 2): emissions from our purchased/used electricity consumed by our business, e.g. our electricity bill.
- Indirect GHG emissions (Scope 3): emissions from sources our business uses but does not own or control, e.g. travel emissions.

The emission reporting for FY22 covers Scope 1 and 2 greenhouse gas emissions, and some Scope 3 emissions most relevant to our business.

In calculating Scope 3 emissions, it excludes emissions sources implied from the purchase of electricity through the ASX, from the wholesale electricity market and/or through various power purchase agreements.

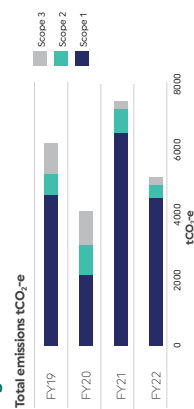
Overall emissions are largely made up of Scope 1 emissions, primarily due to fuel consumption associated with our Bream Bay diesel peaking station. This asset provides fast-start power generation for times when New Zealand's electricity supply is weak due to low inflows or wind. Corresponding market prices encourage this form of generation to ensure the supply of power is secure and uninterrupted.

Total emissions for FY22 were significantly lower than FY21, but higher than FY20. Scope 1 accounts for 88% of Manawa Energy's overall emissions, with Bream Bay accounting for 57.8% of total emissions. Scope 2 accounts for 7.7% and Scope 3 for 4.4%. See Figure 1 (below).

Scope 1 emissions are the largest source of emissions for FY22, with the majority coming from our Bream Bay diesel peaking station. Due to market conditions and maintenance requirements, emissions from Bream Bay were halved in FY22 compared to FY21. Our fleet usage was up in FY22, which was likely due to easing COVID travel restrictions. Our Scope 2 emissions were reduced in FY22 compared to FY21 partly due to less electricity consumed at our Highbank Station. Scope 3 emissions were, on balance, similar between FY21 and FY22.

In the year ahead we will be setting emissions reduction targets and a plan to support this, taking into account the refreshed scope and context of the Manawa Energy business and its strategic aspirations.

Figure 1.





Appendix 4: NZSX-listed 2022 annual reports – Partial mention

Spark Annual Report 2022

Spark New Zealand Annual Report 2022



Climate-related risk

Climate change poses a risk to our business due to potential disruption to our supply chain, our infrastructure, and our customers. The Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 has implemented a requirement for climate-related disclosures for larger New Zealand businesses. The details of the climate-related disclosure framework are under consultation, but this will be largely aligned to the requirements of the international Task Force on Climate-related Financial Disclosures (TCFD) framework.

Spark's climate reporting aligns to the TCFD framework requirements. Our Leadership Squad and Board have been engaged on the design of the risk process and reviewed the findings. We will continue to incorporate TCFD reporting into our Integrated Report, providing an annual process for the review of our climate-related financial risks and disclosures.

In FY21 we completed our first scenario-based climate risk analysis against two scenarios. This initial analysis did not identify any immediate or extreme risks. We do not intend to complete a full climate scenario analysis on an annual basis. Over the past year there was no new available data to significantly impact the conclusions of this analysis.

Having access to data and modelling is essential to support Spark and other infrastructure providers to understand where infrastructure assets, and the services they provide, are exposed and vulnerable to the impacts of climate risk. This data will also inform long-term decisions on infrastructure design and investment, so the right infrastructure is in the right places and the appropriate programmes of work are in place to maintain, upgrade, repair or replace existing infrastructure.

Improving access to data and modelling was included as a recommendation in Spark's submission on the draft National Adaptation Plan. The Plan will build the foundation for adaptation action so that all sectors and communities are able to live and thrive in a changing climate. The Plan lists roads, rail, ports, airports, energy, water, and telecommunications and digital services as lifeline utilities. While the actions in the Plan are important next steps, industry and government will need to continue to work closely to manage national adaptation risk.

Our climate change scenario-based risk assessment:

Our climate risk assessment considered two scenarios matching those used by the National Climate Change Risk Assessment produced by Ministry for the Environment and aligned to TCFD recommendations:

Scenario 1 - RCP 4.5: A future where early, ambitious mitigation has limited temperature change. This identifies risks to Spark from rapid de-carbonisation, for example from regulatory intervention, a high carbon price.

Scenario 2 - RCP 8.5: A future where insufficient early mitigation has led to significant risk requiring adaptation to rising temperatures. This identifies risks to Spark from extreme weather events, sea-level rise, and knock-on impacts on our operating environment.

This analysis was undertaken through a series of interviews with key teams across Spark, with oversight of the Environment and ESG Squads. This was supported by a process to map our infrastructure against publicly available climate scenario modelling data, to understand the number and location of sites that may be of greater risk.

Ko Te Pae Anamata, Whakamaua 71

Spark

Annual Report 2022 (continued)

Our governance and risk management

Our climate change scenario-based risk assessment

Our climate scenario risk analysis considered the likelihood, impact, and urgency of risks using 3, 10, and 30-year time horizons. Using the same impact and likelihood categories as our standard enterprise risk management system we identified no risks that met our highest 'Extreme' risk category, and seven that fell into lower risk rating categories:

OUR CLIMATE SCENARIO RISK ANALYSIS		
<p>Physical adaption risk</p> <p>Rated as high likelihood with low impact in the 3-year horizon, growing in impact over the 10 and 30 year time horizons.</p>	<p>Includes impacts on network resilience and future investment, increased weather events, sea level rise, planning and Resource Management Act (RMA) requirements, and insurance costs.</p> <p>We mapped key infrastructure against publicly available climate scenario models. This showed many of the most extreme climatic changes expected to 2050 are in lightly-populated areas, for example on the West Coast of the South Island. Most of the population, and therefore much of our network, is in coastal areas. Analysing site proximity to coastal inundation risk zones, and factoring site elevation, shows only a small number of sites at greater than moderate risk in 2050 under the RCP 8.5 scenario.</p> <p>In the next two years the RMA will be repealed and replaced with three new acts: the Natural and Built Environments Act, the Strategic Planning Act, and the Climate Change Adaptation Act (CAA). We will actively monitor RMA reform to inform our long-term adaptation work. Spark also engaged in the development of the New Zealand's first National Adaptation Plan. The Plan will focus on addressing the 43 priority risks identified in the National Climate Change Risk Assessment and the risk to the telecommunications network.</p>	HIGH RISK RATING
<p>Supply chain risk</p> <p>Rated as high likelihood with low impact in the 3-year horizon, growing in impact over the 10 and 30 year time horizons.</p>	<p>Includes increased supply lead times, increased air freight cost, increased supply cost, supply chain disruption, and increased inventory and working capital</p> <p>The increasing number of extreme weather events across the globe increases the risk of disruption to our supply chain. Growing competition for resources from emerging climate mitigation technologies such as EVs may also increase cost and disruption. This is likely to drive increased cost and lead-times on purchasing and require larger local inventory and working capital to manage risk. This may impact our ability to provide devices to our customers and maintain and grow our infrastructure.</p> <p>In the past year we have implemented an enhanced supplier relationship management system which includes improved risk monitoring, reporting, and supplier engagement processes. We have also joined the JAC (Joint Audit Cooperation) initiative, a coalition of global telecommunications operators working together to ensure adherence to internationally recognised standards along the ICT supply chain and upholding human rights, social, labour and environmental standards</p>	HIGH RISK RATING
<p>Provision of climate related services</p> <p>Rated as medium likelihood with low business impact in the 3 year horizon, growing to moderate impact in 3-10 years.</p>	<p>Includes provision of monitoring and control devices over Spark's IoT network plus other potential climate related services</p> <p>Digital technology has the opportunity to enable significant emissions reductions. We provide services that support digitisation towards a low-carbon economy, but it is difficult to isolate business-as-usual digital transformation from specific sustainability enablers.</p> <p>To assess this opportunity we analysed our IoT revenues that are related to climate or sustainability services such as environmental monitoring services, energy efficiency, metering, or fleet management. This analysis found that around half of our IoT revenue is associated with these services, and that this share is likely to grow alongside growth in our IoT business.</p> <p>In the past year we have done further evaluation of the opportunity for our industry to support New Zealand's transition to a low-carbon economy. The New Zealand Climate Change Commission (CCC) has modelled a number of emissions pathways for the country to achieve its binding targets. However, the role of ICT is not prominent. Spark is working with an external partner to combine existing global research insights with the CCC's modelling and our knowledge of current and future ICT opportunities to identify, quantify and prioritise future opportunities.</p>	MEDIUM RISK RATING
<p>SBTI science-based emissions reduction target</p> <p>Moderate risk.</p>	<p>Includes the risk we will not meet our SBTi target.</p> <p>Risk we will not achieve our Scope 1 and 2 reduction target or risk we will be unable to influence 70% of suppliers by spend to adopt own SBTi-aligned targets.</p> <p>This risk rating reflects the ambition of our target, which will require significant effort over the next decade. Our planned actions reduce this risk rating to a 'low' rating. See page 51 for information on our SBTi target and plan.</p>	MEDIUM RISK RATING
<p>Social disruption</p> <p>Medium likelihood, low impact over the 30 year horizon</p>	<p>Low direct risk to Spark, however highlights the national risk of increased inequality as climate-intensive roles are disestablished and the importance of digital equity in New Zealand's transition. See page 57 for our work in digital equity.</p>	MEDIUM RISK RATING
<p>Risk to NZ economic activity</p> <p>Medium likelihood, low impact over the 30 year horizon</p>	<p>We referenced the Climate Change Commission's projected cost of action to achieve New Zealand's 2050 target, which was approximately 1% of projected annual GDP by 2050.</p>	MEDIUM RISK RATING
<p>Climate litigation</p> <p>Low likelihood, low impact, across all time horizons</p>	<p>Considered low-risk as Spark is not linked to infrastructure or investments with heavy emissions.</p>	LOW RISK RATING



Appendix 4:
NZSX-listed 2022 annual reports –
Partial mention

SummerSet
Annual Report 2022

OUR COMMITMENT TO SUSTAINABILITY

From going green to thinking green

We take our commitment to sustainability very seriously and we've worked hard to embed sustainability right across our business.

Since our base year, 2017, we have been measuring, managing and reporting on our carbon footprint and we're proud that we were the first net carbonzero™ retirement village operator in New Zealand. Toitū Envirocare began independently auditing our emissions to the ISO14064-1 standard in 2018, and we have been increasing our commitment to sustainability ever since (see verified audit on the Toitū website www.toitu.co.nz).

Over the last five years we've significantly reduced our construction waste (and exceeded our targets), became the first retirement village operator to obtain sustainability linked lending, introduced a science-aligned target, joined the Climate Leaders Coalition (the only retirement village operator to do so) and changed many practices across our business from fertiliser use to travel.

We've moved past the 'going green' phase to thinking green right across the company. We've integrated sustainability into business decisions and we're challenging ourselves in all parts of our business to do better.

We were very pleased to have Forsyth Barr, in their Inaugural Carbon and ESG Ratings for NZX listed companies, name us as one of the 'Leaders' on the NZX and 11th overall. We were also the top-rated listed retirement village operator. It was very pleasing to have this external acknowledgement of our work to date.

All this is not to say there's not more to do – there is. We have three sustainability targets across the short, medium and long term and these targets guide our approach covering activities within operations, construction and development, as well as involving our residents.

Our emissions profile

SummerSet's total emissions in 2022 were 8,549 tCO₂e, which is an increase on our 2017 base year of 5,939 tCO₂e. As SummerSet's portfolio grows and the number of villages in operation increases, it means our absolute carbon emissions will continue to increase. We are pleased that the growth in emissions per square metre of developed land has decreased by 17% when compared to our base year of 2017. Our existing

and new buildings are becoming more efficient and less carbon intensive as our portfolio grows.

Our emissions profile includes Scope 3 mandatory and additional emissions from residents captured under waste to landfill and electricity. Resident electricity consumption contributes to 26% of our overall footprint with energy consumption overall accounting for 77% of our total carbon emissions.

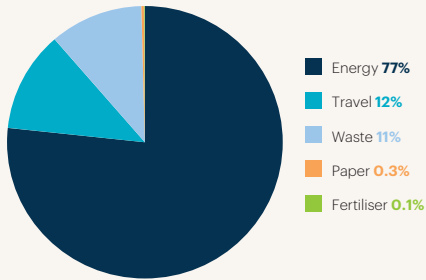
Final year of our first short-term target

Our short-term target was put in place in 2018 and ran until the end of 2022. It kicked off our sustainability activity and has been an important driver for us to learn more about what we do and how we do it, and how to educate and engage our staff, residents and other stakeholders.

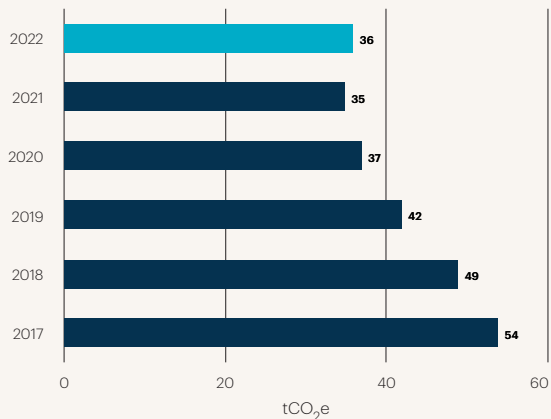
The Toitū-verified net carbonzero target aimed to reduce our emissions intensity by 5% from our 2017 base year. This target was intensity-based and focuses on the key areas of energy, waste to landfill, paper use, fertiliser and travel.

Summerset Annual Report 2022 (continued)

2022 key focus areas



Emissions intensity - tCO₂e per \$million of revenue



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We used intensity-based targets because they helped us to analyse lowering our emissions while we're growing as a business. To measure these areas, we used two key measures of efficiency: total emissions per \$million of revenue, and total emissions per square metre.

Throughout the five years of the short-term target our emissions intensity has steadily dropped, and against our mandatory target of emissions per \$million of revenue we have achieved an excellent 16% reduction based on a rolling average and adjusted for inflation.

We're very proud of the progress we've made: a 16% reduction demonstrates our commitment over the last five years to reduce our carbon footprint. A new five-year target that will run until the end of 2027 has been set for scopes 1 & 2 and scope 3. Our new scope 1 & 2 target is to reduce emissions intensity per square metre by 34% by 2027 (against base year 2022). This target is science-aligned and in line with the 1.5 degree of warming limit.

We have defined focus areas that keep us on track to meeting our targets:

ENERGY

We've decreased our energy consumption per square metre (including resident consumption and losses) by 14% when compared to our 2017 base year. This has been achieved through energy efficiency programmes, LED lighting upgrades and fuel switching opportunities.

Summerset

Annual Report 2022 (continued)

WASTE

Our construction sites have invested a huge amount of time and effort into waste diversion in partnership with Waste Management NZ. Our waste avoidance programme was recognised by the Sustainable Business Network which made us a finalist in their Outstanding Collaboration Award in 2022. The programme diverted 1,276 tonnes of waste from landfill and saved -238 tCO₂e in its first year.

PAPER

Our paper use has decreased by 50% per resident when compared to our 2017 base year. Initiatives such as follow me print, the use of low carbon paper, and transitioning resident invoices and newsletters to email and online have all contributed to this improvement.

FERTILISERS

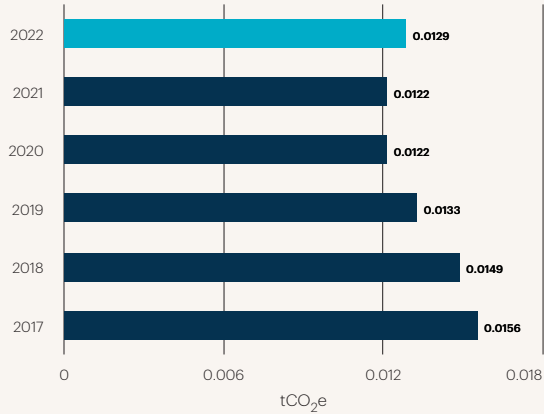
We have reduced the amount of nitrogen-based fertiliser we use around our village gardens and landscaping and we've increased the number of drought-friendly plants in our gardens.

TRAVEL

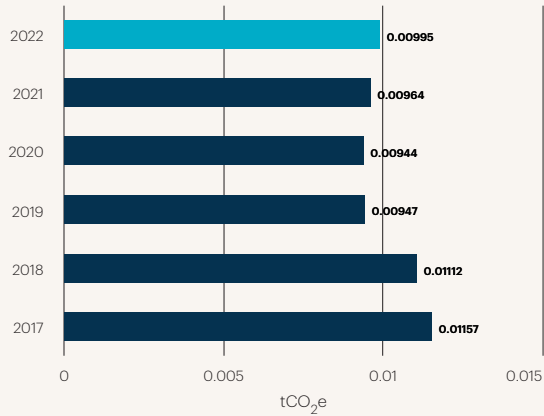
We expected a rise in travel emissions as the country reopened following COVID-19, our expansion into Australia and increase in the number of villages across New Zealand. The increased adoption of remote and virtual working will assist in keeping our travel emissions down.

Alongside actively working to reduce our emissions, we offset the emissions we can't avoid through purchasing carbon credits. This year we chose to again invest in Hinewai, an ecological restoration project on the Banks Peninsula of New Zealand. The primary aim of this project is to foster regeneration of native vegetation and wildlife.

Emissions intensity – tCO₂e per square metre



Energy emissions – tCO₂e per square metre



Summerset

Annual Report 2022 (continued)

Annual Report 2022



Summerset Mt Denby in Whangārei, our first of five lightweight and mass timber buildings

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Continued progress on our medium-term target

Our medium-term (2026) performance targets are based on our sustainability linked lending facility which we announced last year.

We were the first retirement village operator in New Zealand to link sustainability to our funding arrangements.

The facility enables us to access reduced lending rates by linking our sustainability targets to our medium-term business strategy. There are three key deliverables associated with this arrangement: ongoing dementia certification and increasing provision of dementia beds; reduction in our emissions intensity per square metre; and a reduction in construction waste going to landfill.

We are very pleased with our progress – we have exceeded our first term target for our construction waste avoidance programme where we’ve made significant changes to our processes and looked right throughout our supply chain to find efficiencies.

Similarly we remained on track with meeting our carbon emission intensity reduction targets.

While we continue to be dementia accredited there were some delays which caused us to miss our target for new memory care beds this year. Our two new memory care centres at Kenepuru (Wellington) opens in February 2023 and Te Awa (Napier) will open mid 2023.

This is a cumulative medium-term goal though, and as we have a number of dementia beds opening in 2023, we are very confident we’ll meet this target.

Our long-term goals

We introduced our long-term science-aligned target in late 2020 which supports our involvement in the Climate Leaders Coalition, Carbon Disclosure Project (CDP), Toitū and our sustainability linked lending arrangements.

This target means we have committed to reducing our emissions intensity by 62% per square metre by 2032, from our 2017 base year. This year we invested in a decarbonisation plan to assist in the transition to a low-carbon, climate-resilient future and to define the pathway toward meeting our science-aligned target.

Energy use currently accounts for 77% of our carbon emissions, so to achieve this target we recognise that we will need to move to more renewable energy sources. We have taken a number of steps to start this process including the introduction of a biomass boiler that uses wood pellets, and we’ve successfully introduced solar panels on the clubhouse at our Nelson village.

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Annual Report 2022 (continued)

OUR COMMITMENT TO SUSTAINABILITY



We have a further solar installation planned at our Karaka village and we're in the process of scoping incorporating solar panels into our new builds. We recognise reducing our absolute emissions is a challenge, particularly when we're growing so quickly. Reducing our reliance on the national grid will help us to achieve this goal.

Governance and reporting
Governance of our sustainability is important to keep us on target. This year we have invested further in innovation by introducing a research and development forum to support our efforts to build quality, sustainable housing in changing climatic conditions. Increasingly, we are being asked to disclose more about what we are doing in relation to environmental, social and governance (ESG) activities. We are committed to transparent governance and reporting and will continue to report in line with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFDs) and participate in the annual CDP

disclosure process, an international non-profit organisation that helps companies and cities disclose their environmental impact. This year we maintained our B result which puts us in the top 13 companies in New Zealand to be highly scored and among 30 who submitted a response to climate change questions. Our CDP Supplier Engagement Rating also scored high with an A-. To meet the Task Force on Climate-Related Financial Disclosures (TCFD) and External Reporting Board (XRB) disclosure timeframes and obligations we undertook a gap analysis process in 2022 to evaluate our disclosure progress. Progress was determined as advancing according to plan, with the findings from the gap analysis being used to refine our implementation pathway and roadmap. We have been a member of the Climate Leaders Coalition since its inception in 2018 when it was launched to promote business leadership and collective action on climate change.

We are now discussing a more ambitious science-aligned commitment for scopes 1, 2 and 3 emissions to support the delivery of the reductions needed to limit future global warming to 1.5 degrees Celsius. We will also continue to encourage our employees and residents to reduce their emissions as we continue our journey.

We also have an ongoing plan to actively identify and work to eliminate all forms of modern slavery in our supply chain.

Much of our business relies on international sourcing – so we are extremely attuned to supply risk. The range of risk we consider and assess is growing in both scope and depth, and as a business we feel we are taking the necessary steps to deepen our assessment of human

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rights risk as part of our wider supply chain assessment activities. Summerset's modern slavery statements are available on the online register at www.modernslaveryregister.gov.au. Summerset also notes the ongoing consultation and legislative proposals in New Zealand and will ensure that we are fully compliant with its requirements once it is enacted and in force.

Other initiatives this year

At our villages, our residents have taken a keen interest in sustainability. In Summerset at Karaka our residents wanted to recycle their food waste and worked with village management to implement a solution. Other residents around the country have created gardens around their villages, including at Palmerston North where raised gardens were created using recycled materials.

The process of replacing the Summerset fleet with Electric Vehicles (EVs) started this year, and public EV charging points have been installed at a number of villages with plans to put more in around the country.

To meet the needs of our future residents, EV charging infrastructure is being installed into all new Summerset villages.

Biodiversity and doing more to protect the land we purchase and build on has been a focus too. At our developing Waikanae village we are replanting more trees than we've removed as part of our earthworks and we've designated a large area of emerging Mahoe forest as protected.

Water conservation is a big part of protecting the land and the surrounding areas where our villages are located too. Our proposed Half Moon Bay village will have water tanks onsite to collect rainwater to use in our gardens and we're recycling collected storm water at a number of villages around the country to be used in our irrigation.

We've also made changes that will impact our embodied carbon figures with our newly consented main building at Whangārei, which is a lightweight design that utilises cross-laminated timber and significantly cuts down the use of concrete and structural steel. This lightweight design will become the standard for many of our new builds around the country. Reducing the embodied carbon of construction materials within design and construction remains a key focus across all typologies.

A-
CDP Supplier Engagement Rating

Our commitment to sustainability extends to our Australian villages too. We are currently working through the feasibility of green star certification for our villages. Solar power will be provided on all main buildings after Cranbourne North, demonstrating a commitment towards the use of renewable energy. Our Australian villages also integrate initiatives such as drought-resistant landscaping, reticulated greywater use (where available), rainwater collection for use in the village, and water-efficient fittings and fixtures used throughout. We are also planning on creating 100% electric villages that are completely fossil gas free after Cranbourne North.

We're committed to leading positive change within our industry.

To achieve this, we must consistently demonstrate how we're meeting the goals and targets that we've set through real action. This includes transparent climate-related governance systems, improved policies, regular reporting, further investment in capability building and taking our residents on the journey with us.

APPENDIX 4

Summerset

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Climate-Related Disclosures

THIS TABLE PROVIDES A ROADMAP OF PROGRESS AGAINST THE TCFD RECOMMENDATIONS ON CLIMATE-RELATED FINANCIAL DISCLOSURES. FROM FY23 SUMMERSET WILL REPORT AGAINST THE XRB REQUIRED DISCLOSURES.

SECTION	FY22
 GOVERNANCE A. Describe the Board's oversight of climate-related risks and opportunities. ● B. Describe management's role in assessing and managing climate-related risks and opportunities. ●	
 STRATEGY A. Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. ◐ B. Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning. ◐ C. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. ◐	
 RISK MANAGEMENT A. Describe the organisation's processes for identifying and assessing climate-related risks. ◐ B. Describe the organisation's processes for managing climate-related risks. ◐ C. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management. ◐	
 METRICS AND TARGETS A. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process. ◐ B. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks. ● C. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets. ●	
COMPLIANCE KEY Aligned Progressing In Progress	

ROADMAP TO COMPLIANCE AGAINST TCFD AND XRB DISCLOSURE OBLIGATIONS

The Company has developed a roadmap to support the implementation of the Taskforce for Climate Related Financial Disclosure guidelines and the External Reporting Board's climate-related financial disclosure standards. Summerset is aiming for its full disclosure to be ready for the FY23 reporting cycle, published in 2024. In working towards this, Summerset is evaluating the systems, processes, resourcing, strategy and governance measures that will be necessary for it to meet TCFD/XRB disclosure requirements and effectively address climate change issues.

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Casebrook construction team trial new reusable and changeable waste and recycling signage



1ST
NET CARBONZERO™
RETIREMENT VILLAGE
OPERATOR IN NZ



16%
REDUCTION IN tCO₂e
PER \$MILLION OF REVENUE
AGAINST 2017 BASELINE

51



1.5°
SCIENCE-ALIGNED
TARGET



5
NEW LIGHTWEIGHT
SUSTAINABLE MAIN
BUILDINGS PLANNED



1,276
TONNES OF
CONSTRUCTION
WASTE DIVERTED
FROM LANDFILL



A-
CDP SUPPLIER
ENGAGEMENT
RATING SCORE

SUMMERSET IS PROUD TO BE AFFILIATED WITH:



Appendix 5: Documents other than 2022 annual reports that contain TCFD information

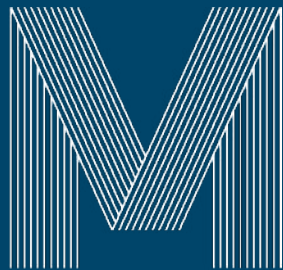
Row from Table 4	NZSX-listed company name	Document title	Website address
4	ANZ Bank [ANZ]	ANZ 2022 CLIMATE-RELATED FINANCIAL DISCLOSURES	www.anz.com.au/about-us/esg/reporting
6	[ARG]	2022 Climate-related Financial Disclosures	www.argosy.co.nz/community-and-environment/environment/tcf-report
8	Auckland International Airport [AIA]	Auckland Airport Climate Change Disclosure Report 2022	corporate.aucklandairport.co.nz/investors/results-and-reports
13	Channel Infrastructure NZ [CHI]	Sustainability Report 2022	channelnz.com/community-sustainability/sustainability
16	Downer Group [DOW]	Downer Sustainability Report 2022	www.downergroup.com/annual-sustainability-reports.com/2022sustainabilityreport
20	Genesis Energy [GNE]	FY22 Climate Risk Report	www.genesisenergy.co.nz/investor/results-and-reports/reports-and-presentations
28	Kiwi Property Group [KPG]	Bringing places to life Sustainability Report 2022	www.kiwiproperty.com/investors/reporting-suite
34	Meridian Energy [MEL]	Climate-related Disclosure Meridian Energy Limited FY22	www.meridianenergy.co.nz/about-us/investors/sustainability/climate-disclosures
38	Napier Port Holdings [NPH]	CLIMATE CHANGE RELATED DISCLOSURE REPORT	www.napierport.co.nz/investor-centre
42	NZ Oil and Gas [NZO]	-	www.nzog.com/investor-information/company-reports/sustainability-report
47	Precinct Properties NZ [PCT]	CLIMATE-RELATED FINANCIAL DISCLOSURES AUGUST 2022	www.precinct.co.nz/reporting-and-disclosure
68	Vector [VCT]	Vector’s journey to a new energy future	www.vector.co.nz/investors/reports
69	Ventia Services Group [VNT]	Ventia sustainability report 2022	www.ventia.com/campaign/sustainability-report-2022

Note: In its 2022 annual report, NZ Oil and Gas Limited referred the reader to its 2022 sustainability report to find TCFD information. However, the web page linked does not contain a 2022 sustainability report.

Endnotes

- 1 See External Reporting Board (XRB). (13 December 2022). Climate-related Disclosures. Retrieved 5 May 2023 from www.xrb.govt.nz/standards/climate-related-disclosures
- 2 See Shaw, J. (12 March 2021). Climate reporting for Crown financial institutions [press release]. Retrieved 26 May 2023 from www.beehive.govt.nz/release/climate-reporting-crown-financial-institutions
- 3 See Task Force on Climate-related Financial Disclosures. (2017). Recommendations of the Task Force on Climate-related Financial Disclosures, p. iii. Retrieved 21 May 2021 from assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf
- 4 See Task Force on Climate-related Financial Disclosures. (2017). Recommendations of the Task Force on Climate-related Financial Disclosures. Retrieved 21 May 2021 from assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf
- 5 The TCFD Secretariat is based in New York in Michael Bloomberg’s offices. The operational arm of the TCFD is likely to be led by a combination of the CDSB (Climate Disclosure Standards Board) and SASB (Sustainability Accounting Standards Board). The TCFD has also released a practical document showcasing best practice: the TCFD Good Practice Handbook. This was jointly launched by the CDSB and SASB in New York in September 2019. The CDSB is an international consortium of business and environmental NGOs, based in Europe. The SASB is an independent non-profit organisation that sets standards to guide the disclosure of financially material sustainability information by companies to their investors, based in the United States.
- 6 See Task Force on Climate-related Financial Disclosures (TCFD). (2017). Recommendations of the Task Force on Climate-related Financial Disclosures, p. 13. Retrieved 21 May 2021 from assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf
- 7 See Task Force on Climate-related Financial Disclosures (TCFD). (2017). Recommendations of the Task Force on Climate-related Financial Disclosures, p. 14. Retrieved 21 May 2021 from assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf
- 8 See Financial Markets Conduct Regulations 2014, cl 61D Annual report to be publicly available. Retrieved 20 September 2022 from www.legislation.govt.nz/regulation/public/2014/0326/latest/DLM6292901.html
- 9 See NZX. (17 June 2022). NZX Listing Rules. Retrieved 14 June 2021 from www.nzx.com/regulation/nzx-rules-guidance/nzx-listing-rules
- 10 See NZX. (17 June 2022). NZX Listing Rules. Retrieved 14 June 2021 from www.nzx.com/regulation/nzx-rules-guidance/nzx-listing-rules
- 11 Financial statements only are required to be delivered to the Registrar for lodgement (at the Companies Office). See Financial Markets Conduct Act 2013, s 461H Lodgement of financial statements: ‘(1) Every FMC reporting entity must ensure that, within 4 months after the balance date of the entity, copies of the financial statements or group financial statements that are required to be prepared under any of sections 460, 461, and 461B, together with a copy of the auditor’s report on those statements, are delivered to the Registrar for lodgement.’ Retrieved 20 September 2022 from www.legislation.govt.nz/act/public/2013/0069/latest/whole.html#DLM6027081
- 12 McGuinness Institute. (2020). Report 17: ReportingNZ: Building a Reporting Framework Fit for Purpose, Table 6 (p. 57). Retrieved 7 December 2023 from www.mcguinnessinstitute.org/wp-content/uploads/2021/06/20210621-4pm-Report-17-WEB.pdf

13 See External Reporting Board (XRB). (14 December 2022). Aotearoa New Zealand Climate Standard 3 General Requirements for Climate-related Disclosures (NZ CS 3). Retrieved 5 May 2023 from www.xrb.govt.nz/dmsdocument/4764



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