Working Paper 2022/14

Reviewing TCFD Information in 2017–2021 Reports of NZSX-Listed Companies

MCGUINNESS INSTITUTE
TE HONONGA WAKA

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Note: This paper is to be read alongside *Working Paper 2022/15 – Excerpts from seven NZSX-listed companies TCFD reports 2017–2021 (other than annual reports).*

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.

Title

Working Paper 2022/14 – Reviewing TCFD Information in 2017–2021 Reports of NZSX-Listed Companies

This paper forms part of the Institute's ReportingNZ and ClimateChangeNZ projects.

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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 2021. 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. Under the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021, a small number of entities move from a voluntary climate-reporting regime to a mandatory climate-reporting regime. This will include all large NZSX-listed companies, as defined under the following legislation: the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 amends the Financial Markets Conduct Act 2013 (FMC Act), the Financial Reporting Act 2013, and the Public Audit Act 2001. The Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 will require around 200 large financial institutions covered under section 461K of the FMC Act to start making climate-related disclosures.

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'.[1] The 2017 report is the TCFD's key document.[2, 3]

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.[4]

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 disclosures[5]

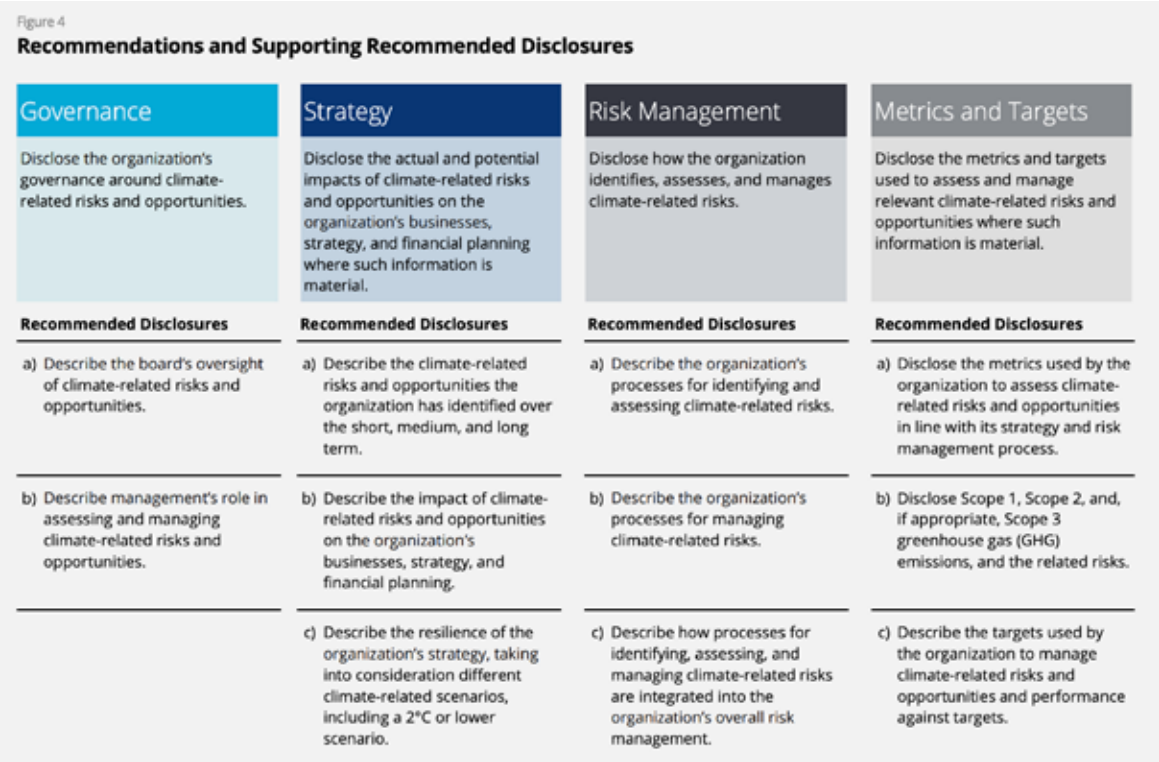


Figure 4

Recommendations and Supporting Recommended Disclosures

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

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)[6]

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'.[7] The annual report is then published on NZX's website for each entity.[8]

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).[9] 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)

Source: McGuinness Institute. (2020). *Report 17: ReportingNZ: Building a Reporting Framework Fit for Purpose*, Table 6 (p. 57).

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

Publication of TCFD information is currently voluntary until the mandatory framework becomes legally binding. In the meantime, TCFD information may be published by a company in its annual report, specific TCFD report, 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, and used this as a way to find TCFD information. If TCFD information is not mentioned in a company's annual report, it is unlikely that it would have come to the Institute's attention.

3.0 Methodology

3.1 Method

There are two separate but connected types of research discussed in this working paper. Part 1 reviews TCFD mentions in annual reports. Part 2 reviews TCFD information by Intergovernmental Panel on Climate Change (IPCC) weather and climate extremes. The method for each part is discussed in the two sub-sections below.

3.1.1 Part 1: Analysing TCFD mentions in annual reports

The research method for Part 1 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 2021, but published in 2022, was grouped in the 2021 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 2021 annual reports of NZSX-listed companies, the list of companies was derived from the list of NZSX-listed companies as at 31 December 2021.

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

This occurred in two cases in 2020; one company was in receivership and the other was only listed on the NZSX on 21 December 2020. This means in 2020, 130 annual reports went through to step 2.

We were unable to find six companies' annual reports; one company was in receivership (Smiths City Group Limited [SCY]), two were de-listed (DGL Group Limited [DGC] and QEX Logistics Limited [QEX]), and three only provided financial statements (Chatham Rock Phosphate Limited [CRP], Greenfern Industries Limited [GFI], Vulcan Steel Limited [VSL]). In 2021, 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), 2017–2021

Data sets	2017		2018		2019		2020		2021	
	No. of entities	No. of available annual reports	No. of entities	No. of available annual reports	No. of entities	No. of available annual reports	No. of entities	No. of available annual reports	No. of entities	No. of available annual reports
NZSX-listed companies	129	126	124	123	132	130	132	130	138	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 each sheet referring to each year (listing the company name and the relevant page number/s in the annual report). The number of mentions of the TCFD in annual reports can be found in Table 4 and relate to 2018–2021 data sets.

Step 3: Categorise the results

The six categories of how TCFD information was reported were determined by the Institute after scoping the results (see list in Table 3 below).

The categories are as follows:

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 2021 annual reports that fell under categories 1–4.

Step 4: Analyse the results

Once TCFD mentions were sorted into their relevant categories, the resulting list of companies was then further analysed in Part 2 (see Section 3.1.2 below).

3.1.2 Part 2: Analysing TCFD mentions by IPCC weather and climate extremes

The research method for Part 2 was made up of two key steps:

Step 1: Review extent of TCFD information

The categorised list of annual reports from Part 1 was reviewed to determine what companies published a full TCFD report in the public arena (not just in annual reports). This enabled the Insitute to find 19 companies that produced a complete TCFD report (i.e. a report that contained all four core elements described in Figure 1).

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

All 19 companies' reports were searched for mentions of the six types of weather and climate extremes outlined in Chapter 11 of the IPCC's *Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report.*

The results were recorded in an Excel spreadsheet, listing companies in each row and each of the six weather and climate extremes in each column. The page numbers in the respective reports were then added to the spreadsheet. The results are found in Appendix 6 and summarised in Table 5 and Figure 4.

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; hence 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.
6. The sample size for Part 2 of the analysis was very small.

4.0 Research results

4.1 Part 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, 33% (43 out of 132) of 2021 annual reports mentioned the TCFD – this is over six times higher than the 2018 figure. Table 3 illustrates the spread of the 43 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, 2018–2021

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

Table 4: Companies' mentions of the TFCD in annual reports, 2018–2021

	NZSX-listed companies [see Note 1]	2018	2019	2020	2021	Number of pages (2021)	See page/s (2021)
1	Air New Zealand [AIR]	Intent to publish	Intent to publish	Dedicated section	Dedicated section	5	pp. 64–68
2	AFT Pharmaceuticals [AFT]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 22
3	AMP Limited [AMP]	Partial mention	No mention	Casual reference	External link	1	p. 35
4	ANZ Bank [ANZ]	No mention	Dedicated section	Dedicated section	External link	1	p. 39
5	Arvida Group [ARV]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 40
6	Auckland International Airport [AIA]	Not applicable	Not applicable	Not applicable	External link	1	p. 36
7	A2 Milk [ATM]	No mention	Intent to publish	Intent to publish	Intent to publish	1	p. 37
8	Barramundi [BRM]	Not applicable	Not applicable	Not applicable	Casual reference	1	p. 30
9	Channel Infrastructure NZ Limited (previously Refining NZ) [CHI] [See Note 2]	No mention	No mention	Intent to publish	Intent to publish	1	p. 8
10	Contact Energy [CEN]	Indexed throughout	Indexed throughout	Indexed throughout	Indexed throughout	1	p. 77
11	Delegat Group [DGL]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 85
12	Downer Group EDI [DOW]	Partial mention	Dedicated section	External link	External link	1	p. 135
13	Freightways [FRE]	Not applicable	Not applicable	Not applicable	Dedicated section	18	pp. 50–67
14	F&P Healthcare [FPH]	No mention	No mention	Indexed throughout	Indexed throughout	1	p. 144
15	Genesis Energy [GNE]	No mention	No mention	Dedicated section	Dedicated section	4	pp. 38–41
16	Investore Property [IPL]	Not applicable	Not applicable	Not applicable	Partial mention	1	p. 22–25
17	Kingfish [KFL]	Not applicable	Not applicable	Not applicable	Casual reference	1	p. 32
18	Marlin Global [MLN]	Not applicable	Not applicable	Not applicable	Casual reference	1	p. 33
19	Marsden Maritime Holdings [MMH]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 8
20	Mercury [MCY]	No mention	Indexed throughout	Indexed throughout	Dedicated section	11	pp. 64–74
21	Meridian Energy [MEL]	Partial mention	External link	External link	External link	1	p. 19
22	Napier Port Holdings [NPH]	No mention	No mention	Intent to publish	External link	1	p. 27
23	NZ Oil and Gas [NZO]	No mention	No mention	Dedicated section	Dedicated section	12	pp. 38–49
24	New Zealand Exchange [NZX]	No mention	No mention	Intent to publish	Intent to publish	1	p. 38
25	Precinct Properties NZ [PCT]	No mention	No mention	Intent to publish	External link	1	p. 24
26	Property for Industry [PFI]	No mention	No mention	Dedicated section	Dedicated section	6	pp. 33–39
27	Port of Tauranga [POT]	No mention	No mention	Partial mention	Partial mention	2	pp. 26–27
28	Rua Bioscience [RUA]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 101
29	Sanford [SAN]	No mention	Intent to publish	Intent to publish	Intent to publish	1	p. 79
30	Scales Corporation [SCL]	No mention	No mention	Dedicated section	Dedicated section	2	pp. 22–23
31	SkyCity Entertainment Group [SKC]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 121
32	Spark [SPK]	No mention	No mention	Partial mention	Partial mention	2	pp. 55–56

	NZSX-listed companies [see Note 1]	2018	2019	2020	2021	Number of pages (2021)	See page/s (2021)
33	Stride Property & Stride Investment [SPG]	Not applicable	Not applicable	Not applicable	Partial mention	2	pp. 46–47
34	Summerset [SUM]	No mention	No mention	Intent to publish	Intent to publish	1	p. 41
35	Tourism Holdings [THL]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 19
36	Trustpower [TPW]	Not applicable	Not applicable	Not applicable	Partial mention	2	pp. 28–29
37	T&G Global [TGG]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 43
38	Vector [VCT]	Casual reference	Casual reference	Intent to publish	Intent to publish	1	p. 9
39	Ventia Services Group [VNT]	Not applicable	Not applicable	Not applicable	External link	1	p. 40
40	Vista Group [VGL]	Not applicable	Not applicable	Not applicable	Intent to publish	1	p. 5
41	Westpac [WBC]	Dedicated section	Dedicated section	External link	Dedicated section	3	pp. 28–29, 48
42	Warehouse Group [WHS]	No mention	No mention	Casual reference	Intent to publish	1	p. 39
43	Z Energy [ZEL]	No mention	No mention	Dedicated section	Dedicated section	8	pp. 32–37
	Total companies that mention TCFD	**7**	**10**	**27**	**43**	**NA**	**NA**

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: New Zealand King Salmon's [NKS] 2018 and 2019 annual reports did not mention the term 'TCFD'; however, the 2020 annual report mentioned an 'intent to publish'. In the 2021 annual report, there was no mention at all of the term 'TCFD'. This indicates the company has moved backwards in terms of looking to report on TCFD, and therefore they are no longer listed on this table.

Note 4: Telstra's [TLS] 2018 and 2019 annual reports did not mention the term 'TCFD'; however, the 2020 annual report provided an 'external link'. As at 26 March 2021, Telstra Corporation Limited announced that they would be delisting from the NZSX with a final day of trading on 16 June 2021. As a result the Institute did not find an annual report for 2021, therefore they are no longer listed on this table.

4.2 Part 2: Analysis of TCFD mentions based on IPCC climate impacts

The results from analysing reporting on the TCFD that includes all four TCFD core elements are summarised in Table 5, and illustrated in Figures 4 and 5. The limitations and assumptions are included in Section 3.2 and the observations are discussed in Section 5.2.

5.0 Observations

5.1 Part 1: Key findings of TCFD mentions in annual reports

- Dedicated TCFD sections of 2021 annual reports ranged between 1 and 16 pages in length.
  - The longest was Freightways Limited (16 pages).
  - The average length of a dedicated TCFD section was 7 pages.
- The number of reports that mention the TCFD has increased in reports 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.
  - By 2021, 33% of reports (43 out of 132) included TCFD mentions.
- The number of companies that include a dedicated TCFD section in their annual report has increased.
  - 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) provided dedicated TCFD sections in their annual reports.
  - In 2020, 5% (seven out of 130 companies) provided dedicated TCFD sections.
  - In 2021, 7% (9 out of 132 companies) provided dedicated TCFD sections (see Table 2).
- The most common type of TCFD mention in 2021 was a statement that the company intended to provide TCFD information in the future.
  - In 2018, 1% (one out of 123) of annual report mentions of TCFD was part of a statement that the company was intending 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.

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).

- The number of companies that provide an external link to TCFD information in their annual report has increased.
  - 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 separate documents.
  - In 2021, 6% (eight 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, Downer Group EDI did not include a dedicated section in its annual report, but instead provided a link to its TCFD response. In 2021 Downer Group EDI did not include a dedicated section in its annual report, but instead provided a link to its 2021 sustainability report. The sustainability report did not contain a full TCFD report but referred to their website, where this information could be found.

- 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 2021, two entities, Contact Energy and F&P Healthcare, provided a detailed index for users.
  - In 2018, 2019, 2020 and 2021 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 and 2021 (see Appendix 3).
  - Mercury (2019 and 2020) provided users with an index to each of the four core reporting TCFD elements in its annual reports. However, in 2021, Mercury's TCFD disclosure was a dedicated section instead.
- Of the companies that produced the 43 annual reports that mentioned TCFD:
  - Nine (21%) operate in the electricity, gas, water and waste services sector: Channel Infrastructure NZ Limited (previously Refining NZ), Contact Energy, Genesis Energy, Mercury, Meridian Energy, NZ Oil and Gas, Trustpower, Vector and Z Energy.
  - Eight (19%) operate in the financial and insurance services sector: AMP Limited, ANZ Bank, Barramundi, Kingfish, Marlin Global, New Zealand Exchange and Westpac.
  - Seven (16%) operate in the construction sector: Downer Group, Investore Property, Marsden Maritime Holdings, Precinct Properties NZ, Property for Industry, Stride Property & Stride Investment and Ventia Services Group.
  - Five (12%) operate in the agriculture, forestry and fishing sector: A2 Milk, Delegat Group, Sanford, Scales Corporation and T&G Global.
  - Five (12%) operate in the transport, postal and warehousing sector: Air New Zealand, Auckland International Airport, Freightways, Napier Port Holdings and Port of Tauranga.
  - Five (12%) operate in the health care and social assistance sector: AFT Pharmaceuticals, Arvida Group, F&P Healthcare, Rua Bioscience and Summerset.
  - Two (5%) operate in the arts and recreation services sector: SkyCity Entertainment Group and Tourism Holdings.
  - One (2%) operates in the information media and telecommunications sector: Spark NZ.
  - One (2%) operates in the retail trade sector: Warehouse Group.

5.2 Part 2: Key findings of TCFD mentions based on IPCC climate impacts

Table 5 and Figures 4 and 5 show the results of the research in Section 4.2. The limitations and assumptions are included in Section 3.2.

1. There is a risk that companies, communities and countries may fail to look at the compounding effects of weather and climate extremes. This is illustrated in Figure 4, which shows that compound events were mentioned least often out of the IPCC's six types of weather and climate extremes

   Compound events (e.g. hot and dry conditions and compound flooding) were the least frequently mentioned type of the IPCC's weather and climate extremes, and were discussed in only 6 out of 19 reports (32%).

2. There is also a risk that companies, communities and countries may fail to acknowledge weather and climate events for which there is a lack of evidence and information, compared to more commonly understood and quantified events. A lack of accurate data does not mean that the data itself is irrelevant, but rather it highlights a need for better information and stronger understanding.

3. The reporting to date for TCFD is very siloed. Some industries are reporting well, others are not.

   Only 5 out of 17 (30%) industry types contained NZSX-listed companies that provided TCFD information. These were:

   - Division A: Agriculture, forestry and fishing,
   - Division D: Electricity, gas, water and waste services,
   - Division E: Construction,
   - Division I: Transport, postal and warehousing,
   - Division K: Financial and insurance, and
   - Division Q: Healthcare and social assistance

4. We had expected that all entities would cover a similar range of topics, but some topics were reported on more than others.

   - Other types of flooding were discussed in 13 out of 19 reports (68%).
   - Extreme storms were discussed in 12 out of 19 reports (63%).
   - Temperature extremes were discussed in 11 out of 19 reports (58%).
   - Heavy precipitation and pluvial floods were discussed in 11 out of 19 reports (58%).
   - Droughts were discussed in 10 out of 19 reports (53%).
   - Compound events were discussed in 6 out of 19 reports (32%).

     Ideally all reporting would cover all six IPCC weather and climate extremes.

5. Out of the six IPCC weather and climate extremes, the most frequently mentioned was other types of flooding (e.g. river floods and coastal floods), which was discussed in 13 out of 19 reports (68%).

6. The only ANZSIC division to discuss all of the six IPCC weather and climate extremes was Division A (agriculture, forestry and fishing). The Institute notes that although this division had a sample size of just one entity, this result sets a strong example of inclusive climate-risk reporting for other entities within this division. This is important to Division A as agriculture, forestry and fishing is likely to be considerably affected by all six IPCC weather and climate extremes.

7. Energy companies should be more concerned with droughts and compound events (particularly hot and dry events). Division D (electricity, gas, water and waste services) made fewer mentions of droughts (50%) and compound events (particularly hot and dry events) (30%) than events such as other types of flooding and extreme storms (83% each). This is concerning as meteorological and hydrological droughts will have an impact on the reservoirs used for hydroelectric power, as observed in the first half of 2021 due to La Niña conditions.[10]

Figure 2: Weather and climate extremes (IPCC steps 4–5): The IPCC first assess their confidence in the available data[11]

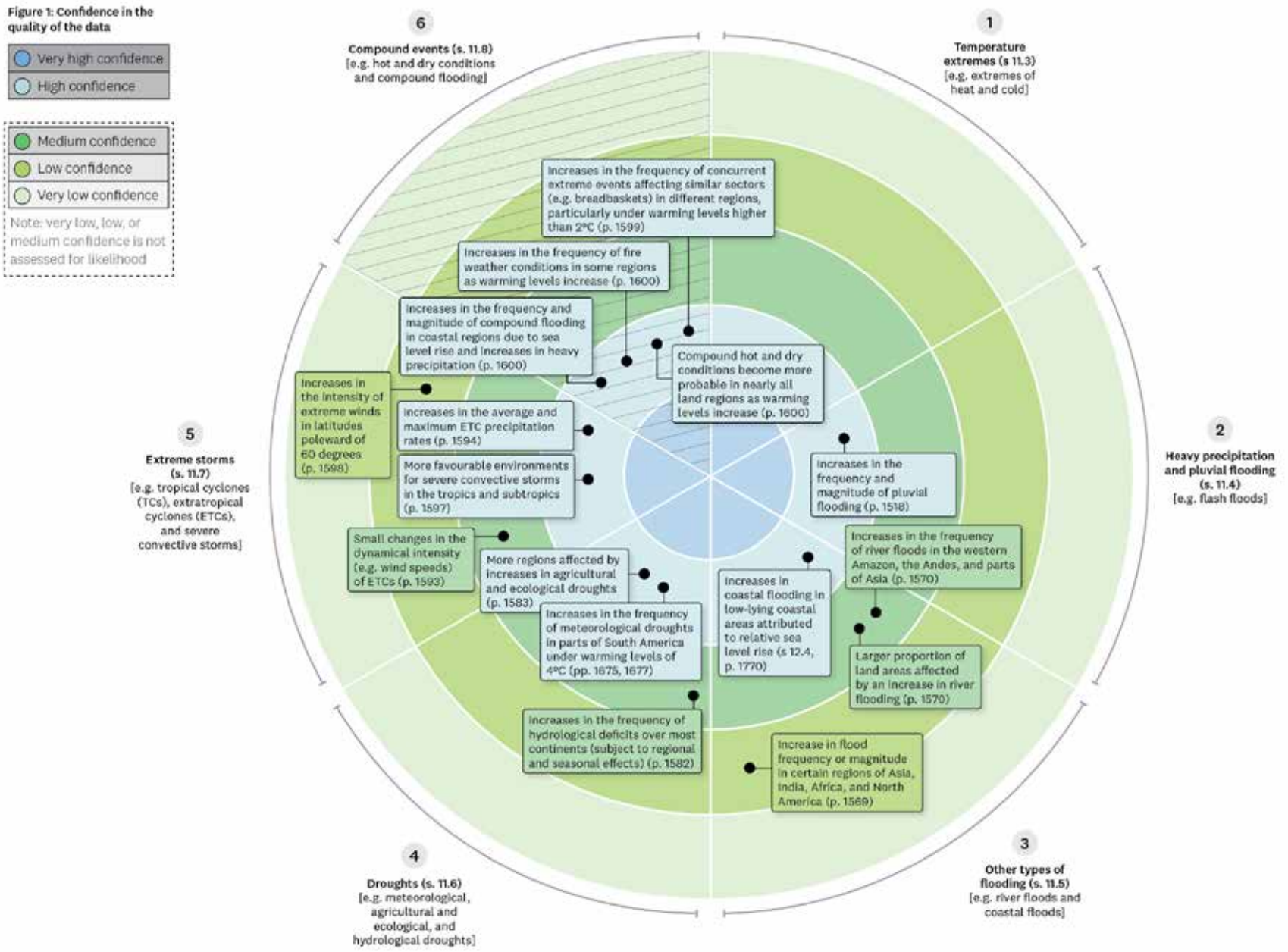


Figure 3: Weather and climate extremes (IPCC step 6): The IPCC then look more closely at any data they have high or very high confidence in, and assess the likelihood that the extreme event might occur[12]

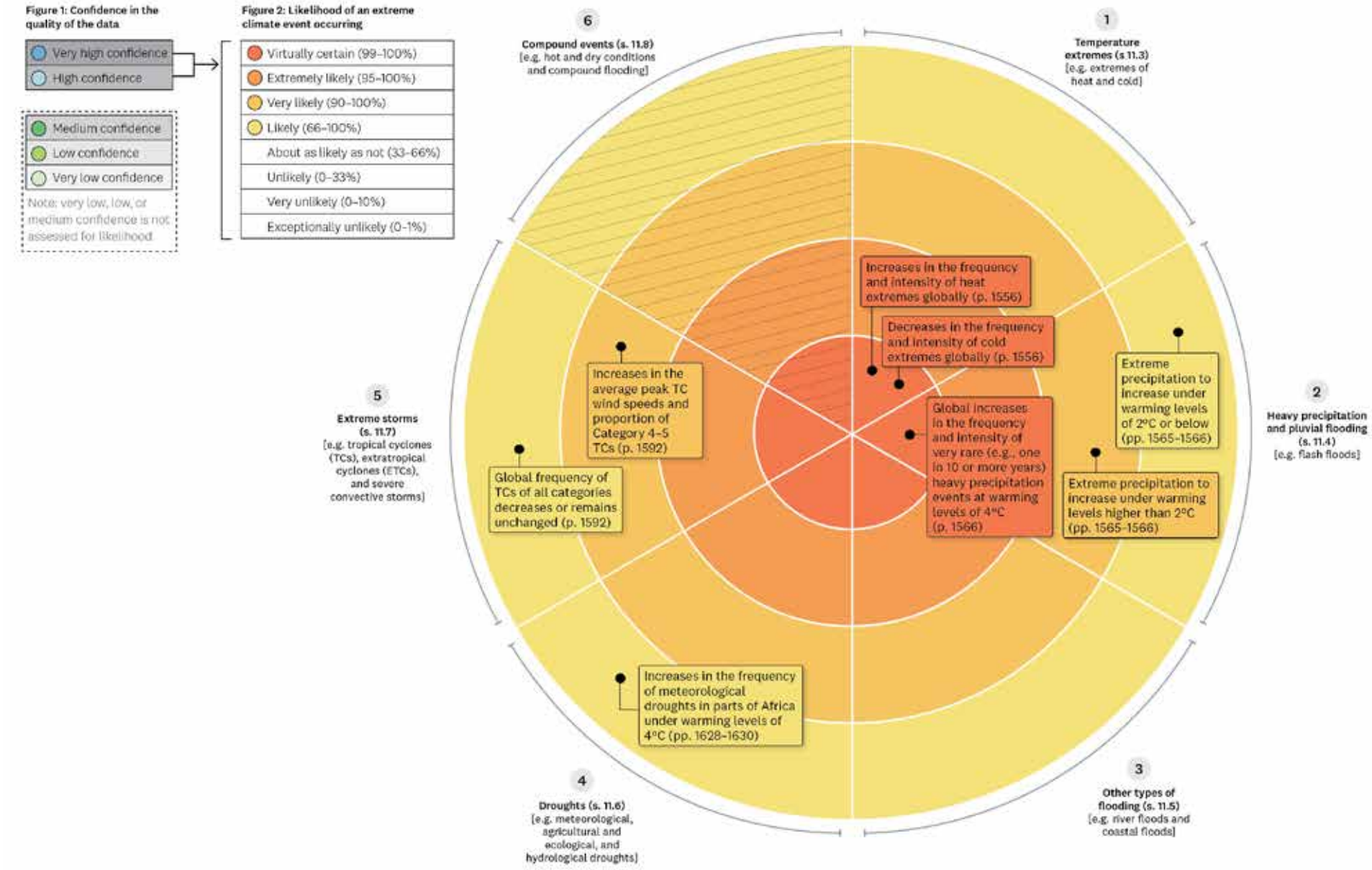
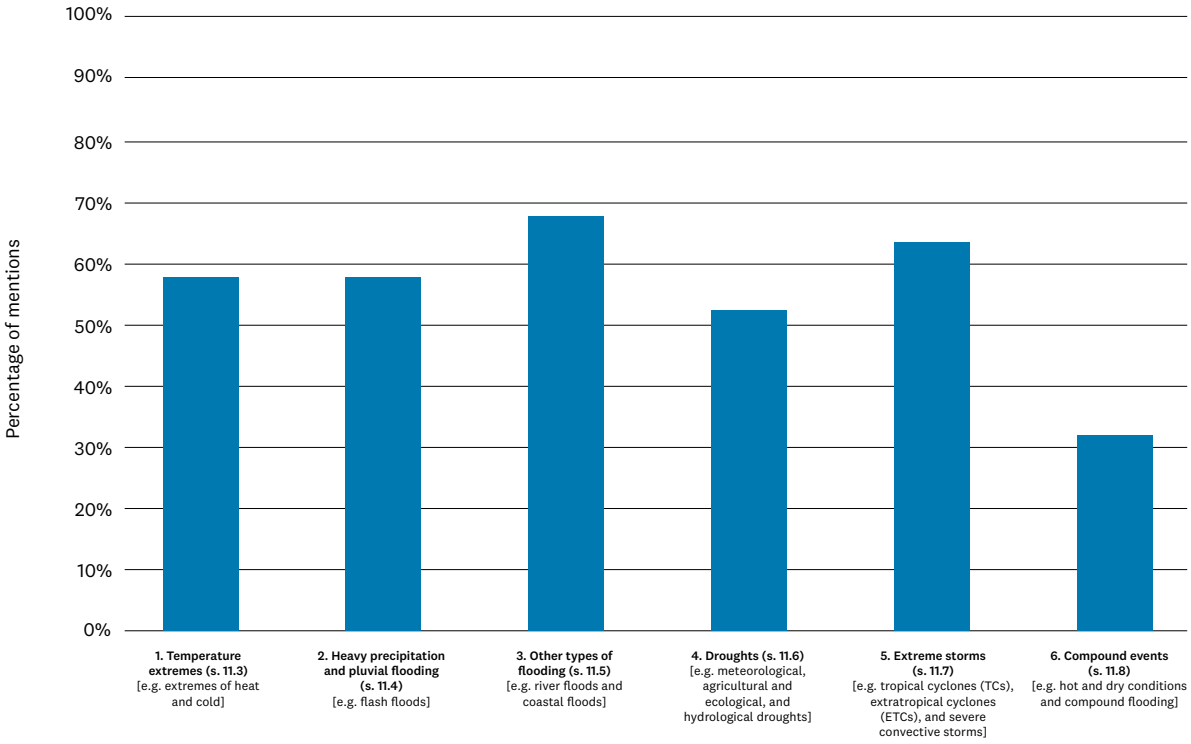
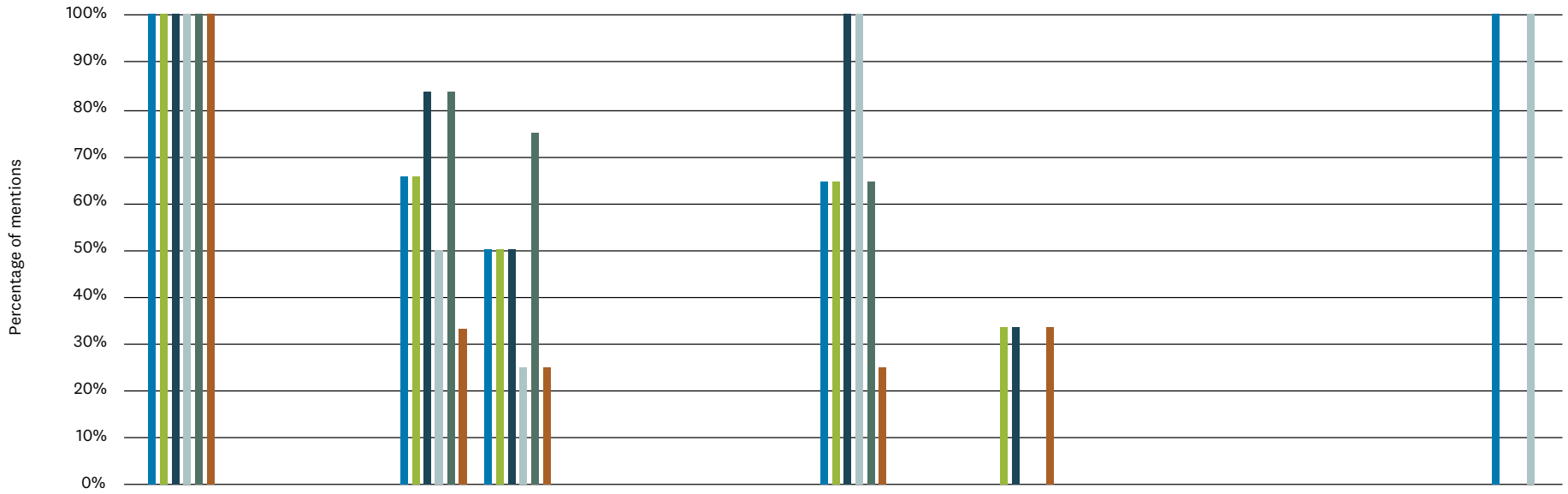


Figure 4: Types of IPCC weather and climate extremes mentioned in TCFD reporting of 19 NZSX-listed companies, 2021



Types of weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)

Figure 5: Types of IPCC weather and climate extremes mentioned in TCFD reporting of 19 NZSX-listed companies by industry type (ANZSIC 2006 divisions), 2021



	Division A: Agriculture, forestry and sishing (sample of 1)	Division B: Mining	Division C: Manufac-turing	Division D: Electricity, gas, water and waste services (sample of 6)	Division E: Construc-tion (sample of 4)	Division F: Wholesale trade	DIvision G: Retail trade	Division H: Accomo-dation and food services	Division I: Transport, postal and warehous-ing (sample of 4)	Division J: Information media and telecom-munica-tions	Division K: Financial and insurance services (sample of 3)	Division L: Rental, hiring and real estate services	Division M: Profes-sional, scientific and technical services	Division N: Adminis-trative and support services	Division O: Public adminis-tration and safety	Division P: Education and training	Division Q: Healthcare and social assistance (sample of 1)
1. Temperature extremes (s. 11.3) [e.g. extremes of heat and cold]	100%	0%	0%	67%	50%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	100%
2. Heavy precipitation and pluvial flooding (s. 11.4) [e.g. flash floods]	100%	0%	0%	67%	50%	0%	0%	0%	75%	0%	33%	0%	0%	0%	0%	0%	0%
3. Other types of flooding (s. 11.5) [e.g. river floods and coastal floods]	100%	0%	0%	83%	50%	0%	0%	0%	100%	0%	33%	0%	0%	0%	0%	0%	0%
4. Droughts (s. 11.6) [e.g. meteoro-logical, agricultural and ecological, and hydrological droughts]	100%	0%	0%	50%	25%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	100%
5. Extreme storms (s. 11.7) [e.g. tropical cyclones (TCs), extratropical cyclones (ETCs), and severe convective storms]	100%	0%	0%	83%	75%	0%	0%	0%	75%	0%	0%	0%	0%	0%	0%	0%	0%
6. Compound events (s. 11.8) [e.g. hot and dry conditions and compound flooding]	100%	0%	0%	83%	25%	0%	0%	0%	25%	0%	33%	0%	0%	0%	0%	0%	0%

Table 5: 19 NZSX–listed companies with TCFD reports by mentions of IPCC weather and climate extremes (1=yes, 0=no)

NZSX–listed company	2021	Analysed (yes or no)	Industry type (ANZSIC 2006 divisions) [See Note 1 below]	Weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)					
				1. Temperature extremes	2. Heavy precipitation and pluvial flooding	3. Other types of flooding	4. Droughts	5. Extreme storms	6. Compound events
Scales Corporation (SCL)	Dedicated section	Yes	Division A	1	1	1	1	1	1
			Percentage of mentions	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Contact Energy (CEN)	Indexed throughout	Yes	Division D	1	0	1	0	1	0
Genesis Energy (GNE)	Dedicated section	Yes	Division D	0	0	0	0	0	0
Mercury (MCY)	Dedicated section	Yes	Division D	1	1	1	1	1	1
Meridian Energy (MEL)	External link	Yes	Division D	1	1	1	1	1	0
NZ Oil and Gas (NZO)	Dedicated section	Yes	Division D	0	1	1	0	1	0
Z Energy (ZEL)	Dedicated section	Yes	Division D	1	1	1	1	1	1
			Percentage of mentions	**67%**	**67%**	**83%**	**50%**	**83%**	**33%**
Downer Group EDI (DOW)	External link	Yes	Division E	1	1	0	1	1	0
Precinct Properties NZ (PCT)	External link	Yes	Division E	1	0	1	0	1	1
Property for Industry (PFI)	Dedicated section	Yes	Division E	0	1	1	0	1	0
Ventia Services Group (VNT)	External link	Yes	Division E	0	0	0	0	0	0
			Percentage of mentions	**50%**	**50%**	**50%**	**25%**	**75%**	**25%**
Air New Zealand (AIR)	Dedicated section	Yes	Division I	0	0	1	1	1	0
Auckland International Airport (AIA)	External link	Yes	Division I	1	1	1	1	1	0
Freightways (FRE)	Dedicated section	Yes	Division I	1	1	1	1	1	0
Napier Port Holdings (NPH)	External link	Yes	Division I	1	1	1	1	0	1
			Percentage of mentions	**75%**	**75%**	**100%**	**100%**	**75%**	**25%**
AMP Limited (AMP)	External link	Yes	Division K	0	0	0	0	0	1
ANZ Bank (ANZ)	Dedicated section	Yes	Division K	0	1	1	0	0	0
Westpac (WBC)	Dedicated section	Yes	Division K	0	0	0	0	0	0
			Percentage of mentions	**0%**	**33%**	**33%**	**0%**	**0%**	**33%**
F&P Healthcare (FPH)	Indexed throughout	Yes	Division Q	1	0	0	1	0	0
			Percentage of mentions	**100%**	**0%**	**0%**	**100%**	**0%**	**0%**
Total percentage of mentions				**58%**	**58%**	**68%**	**53%**	**63%**	**32%**

Note 1: See Australian and New Zealand Standard Industrial Classification 2006: catalogue.data.govt.nz/dataset/industrial-classification-anzsic06. There is some subjectivity involved in categorising the companies under the Australian and New Zealand Standard Industrial Classification 2006.

Division A: Agriculture, forestry and fishing
Division B: Mining
Division C: Manufacturing
Division D: Electricity, gas, water and waste services
Division E: Construction
Division F: Wholesale trade
Division G: Retail trade
Division H: Accommodation and food services
Division I: Transport, postal and warehousing
Division J: Information media and telecommunications
Division K: Financial and insurance services
Division L: Rental, hiring and real estate services
Division M: Professional, scientific and technical services
Division N: Administrative and support services
Division O: Public Administration and safety
Division P: Education and training
Division Q: Health care and social assistance
Division R: Arts and recreation services
Division S: Other services

Appendix 1: NZSX-listed 2021 annual reports – Dedicated section

Row from Table 4	NZSX-listed company name	Page number
1	Air New Zealand (5 pages)	25
4	ANZ Bank (1 page)	30
13	Freightways (18 pages)	31
15	Genesis Energy (4 pages)	49
20	Mercury (11 pages)	53
23	New Zealand Oil and Gas (12 pages)	64
26	Property for Industry (7 pages)	76
30	Scales Corporation (2 pages)	83
41	Westpac (3 pages)	85
43	Z Energy (6 pages)	88

Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Air New Zealand
Annual Report 2021

CLIMATE-RELATED DISCLOSURES

Taskforce on Climate-related Financial Disclosures (TCFD)

Air New Zealand committed to supporting the TCFD in 2019. The following disclosures summarise how Air New Zealand aligns with the TCFD recommendations.

Governance of Climate-Related Risks and Opportunities

TCFD Recommendation: Board's oversight of climate-related risks and opportunities

The Board is ultimately responsible for the Company's response to the risks and opportunities presented by climate-related issues. Board oversight is through its Audit and Risk Committee, which oversees key strategic risks including climate change.

This Committee meets quarterly and, amongst other things, considers updates on management of strategic risks. The Board is updated following each Committee meeting. Matters meriting Board-level consideration are highlighted or dealt with as standalone Board agenda items.

Strategic climate-related risks are also considered by the Board as part of the Company's Group Risk Profile which is an output of the Air New Zealand's Enterprise Risk Management Framework (ERMF).

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

Management has day-to-day responsibility for identifying and managing climate-related risks and opportunities.

Climate-related workstreams are the responsibility of the full Executive team, operational management and the Sustainability Team. Management focus is given to risk identification, promoting consistency in approach, and that the climate-related activities are adequately resourced (for example, a programme of work relating to sustainable aviation fuel (SAF), zero emissions aircraft, carbon offsetting, regulatory compliance). Key issues are reported up to the Audit and Risk Committee as appropriate.

Sustainability is affirmed as a group policy and is reflected in the Company's Code of Conduct and its Supplier Code of Conduct, which set expectations of employees and of those the Company does business with.

Strategy

TCFD Recommendation:

1. Climate-related risks and opportunities identified over the short, medium, and long-term

2. Actual and potential impacts of climate-related risks and opportunities on the Company's strategy and financial planning

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

In 2020 Air New Zealand set a goal to achieve net zero emissions by 2050. Underlying this was the development, and subsequent implementation, of an updated decarbonisation strategy. This includes advocacy to accelerate the availability and commercial viability of SAF, investment in resource and capability to bring new aircraft technology to market (including hydrogen and battery technology), and ongoing engagement with stakeholders to achieve carbon emissions reductions across the network. The decarbonisation strategy was informed by the risks and opportunities which have been identified by Air New Zealand as part of its TCFD disclosure workstream.

Prior to the Covid-19 outbreak, Air New Zealand engaged third-party experts to undertake scenario modelling to quantify the impact of several physical and transitional climate-related risks, and to assess the resilience of the Air New Zealand's strategy. This engagement has been paused until greater certainty is known as to the recovery of the airline industry post the Covid-19 pandemic, and new regulatory requirements for mandatory climate-related reporting.

Transitional Risks

Transitional risks are risks 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. The transitional risks defined below were used to inform Air New Zealand's strategic response to climate change.

Air New Zealand
Annual Report 2021 (continued)

CLIMATE-RELATED DISCLOSURES (CONTINUED)

Strategy (continued)

Transitional Risks (continued)

Key Risk and Opportunity Timeframes: S Short-term (0-2 Years) M Medium-term (2-5 years) L Long-term (+5 years)

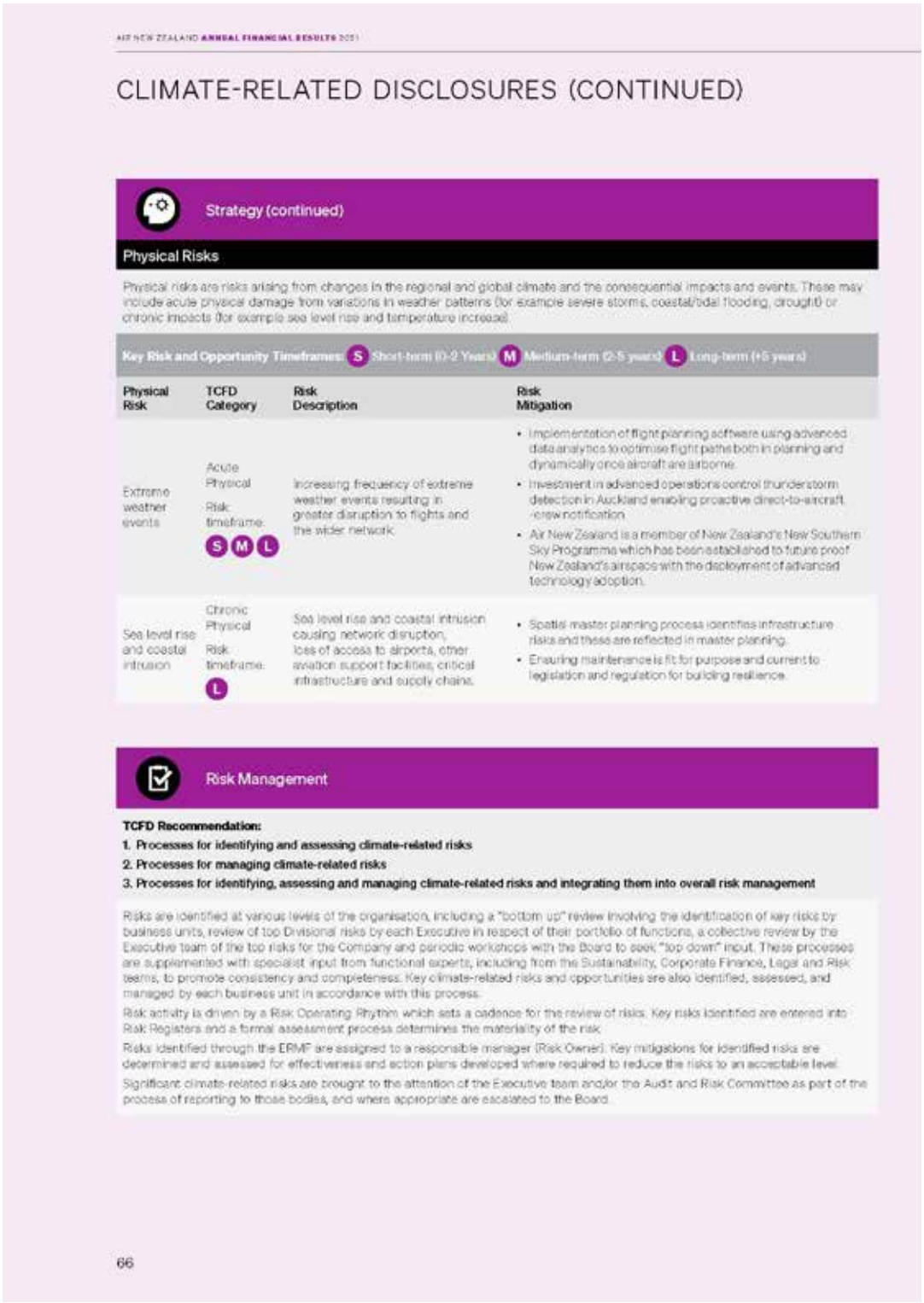
Transitional Risk	TCFD Category	Risk Description	Risk Mitigation
Government policy changes	Policy and legal Risk timeframe: S M L	Implementation or expansion of domestic and international policy regulating carbon emitting activities could increase operational and compliance costs. Examples include emissions trading schemes, carbon taxes, passenger levies, biofuel mandates or demand control measures. Differing international standards could also introduce compliance complexity, and risk distorting the competitive composition of the market.	• Air New Zealand 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 Air New Zealand website[1] • Implementation of the airline's decarbonisation strategy to achieve reductions in gross carbon emissions, including improvements to operational efficiency, ongoing fleet renewal, planning for zero emissions aircraft, and advocacy to accelerate the availability and commercial viability of SAF.
Carbon pricing and regulation	Policy and legal Risk timeframe: S M L	Rising costs associated with complying with carbon-related regulation. 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.	• 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, planning for zero emissions aircraft and advocacy to accelerate the availability and commercial viability of SAF. • Air New Zealand is advocating for NZETS auction proceeds to be ring fenced to accelerate the development and deployment of technologies to enable aviation decarbonisation. Air New Zealand's compliance costs for the NZETS were $14.5 million (calendar year 2020) and $14.6 million (calendar year 2019).
Changing customer/ market behaviour and preferences	Market/ Reputational Risk timeframe: S M	Changing sentiment amongst leisure and business travellers towards lower carbon alternatives to air travel. This could see customers choose to reduce travel, elect to travel on substitute modes of transport, or elect to avoid air travel.	• Development of, and communication and disclosure relating to Air New Zealand's decarbonisation strategy. • Air New Zealand's voluntary customer offsetting programme FlyNeutral allows customers to offset flight emissions with high quality carbon offsets. • Surveys to gain insights on customer and wider market sentiment regarding climate change to inform strategic decisions.

Transitional Opportunities

Transitional Opportunity	TCFD Category	Opportunity Description	Strategy to realise Opportunity
Future aircraft technology	Technology Opportunity timeframe: M L	The evolution of existing aircraft technology to improve fuel efficiency and the development of battery or hydrogen powered electric aircraft, will enable a reduction in operating costs, gross carbon emissions and lower Air New Zealand's exposure to carbon pricing and policy changes.	• Continued investment in fleet renewal programme. • Memorandum of Understanding (MOU) with ATR on hybrid and zero emissions aircraft technology. • MOU with Wisk Aero exploring how electric vertical takeoff and landing (eVTOL) aircraft could potentially enable zero emissions short range domestic flights.
Sustainable aviation fuel (SAF)	Technology Opportunity timeframe: S M L	SAF has the potential to reduce carbon emissions from Air New Zealand's existing fleet by between 70% and 90%. In addition to a reduction in gross carbon emissions, this will reduce Air New Zealand's exposure to carbon pricing and policy changes.	• Engagement with Government to advocate for new policies and investment required to enable SAF production and supply in New Zealand. • Air New Zealand is collaborating to advance SAF supply in New Zealand, including as a founding member of the SAF Consortium (Air New Zealand, Z Energy, Scion, LanzaTech and LanzaJet).

1. Air New Zealand Sustainability reporting and communications.

Air New Zealand
Annual Report 2021 (continued)



AIR NEW ZEALAND ANNUAL FINANCIAL RESULTS 2021

CLIMATE-RELATED DISCLOSURES (CONTINUED)

Strategy (continued)

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).

Key Risk and Opportunity Timeframes: S Short-term (0-2 Years) M Medium-term (2-5 years) L Long-term (+5 years)

Physical Risk	TCFD Category	Risk Description	Risk Mitigation
Extreme weather events	Acute Physical Risk timeframe: S M L	Increasing frequency of extreme weather events resulting in greater disruption to flights and the wider network.	• 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. • Air New Zealand 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.
Sea level rise and coastal intrusion	Chronic Physical Risk timeframe: L	Sea level rise and coastal intrusion causing network disruption, loss of access to airports, other aviation support facilities, critical infrastructure and supply chains.	• 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.

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, review of top Divisional risks by each Executive in respect of their portfolio of functions, a collective review by the Executive team of the top risks for the Company and periodic workshops with the Board to seek "top down" input. 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.

Risk activity is driven by a Risk Operating Rhythm which sets a cadence for the review of risks. Key risks identified are entered into Risk Registers and a formal assessment process determines the materiality of the risk.

Risks identified through the ERMF are assigned to a responsible manager (Risk Owner). 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 Executive team 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.

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Air New Zealand
Annual Report 2021 (continued)

CLIMATE-RELATED DISCLOSURES (CONTINUED)

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**

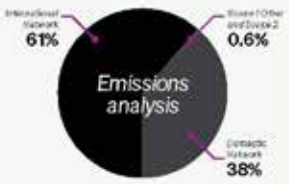
Air New Zealand uses a range of carbon metrics in its internal reporting, strategy formation and decision making. This includes metrics related to assessing the impact of gross carbon emissions, emissions intensity values and the value of New Zealand's carbon compliance obligations. Key metrics are reported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

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

Carbon Emissions Data[1]	2019	2020	2021
Scope 1 International Network Emissions (Tonnes of CO_2-e)[2] (Jet Fuel)	3,266,502	2,649,922	817,078
Scope 1 Domestic Network Emissions (Tonnes of CO_2-e) (Jet Fuel)	629,876	519,607	508,737
Scope 1 Other Emissions[3] (Tonnes of CO_2-e)	9,273	8,106	7,376
Scope 2 Emissions (Tonnes of CO_2-e) (Electricity)	3,098	2,932	2,720

Commentary on Carbon Emissions Data

Total Scope 1 and 2 emissions reduced by 56% in 2021.
This reduction is due to the reduction in Scope 1 emissions from the international network which reduced by 69%, compared to a 2% reduction in Scope 1 emissions from the domestic network.



Carbon Intensity Data

Carbon intensity data below provides a measure of emissions generated for each kilogram of payload flown.

This is the prominent metric for benchmarking airline carbon intensity. Air New Zealand aims to improve carbon intensity by reducing emissions and maximising total payload carriage (RTK)[4].

		2019	2020	2021
International Network	Grams of CO_2-e per Revenue Tonne Kilometre (RTK)	726	747	972
Domestic Network	Grams of CO_2-e per Revenue Tonne Kilometre (RTK)	1,028	1,112	1,168

1. Air New Zealand 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 2021 GHG Inventory report. Refer to the reporting and communications page on Air New Zealand's website for the full GHG Inventory and Assurance Report.
2. Gases included in the carbon dioxide equivalents (CO_2-e) factor are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).
3. Scope 1 other emissions include the combustion of jet fuel from ground operations, LPG, natural gas, diesel, petrol, and wood pellets.
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 Air New Zealand 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. CO_2-e emissions are from Air New Zealand's use of aviation fuel over the same time period.

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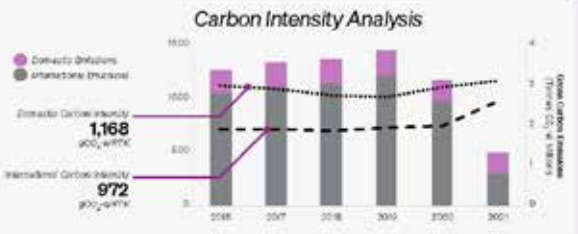
Air New Zealand
Annual Report 2021 (continued)

CLIMATE-RELATED DISCLOSURES (CONTINUED)

Metrics and Targets (continued)

Commentary on Carbon Intensity Data

Air New Zealand's carbon intensity (measured in gCO_2-e/RTK) increased 35% compared to 2020. This increase was largely due to New Zealand border restrictions leading to lower than usual load factors on the international network and multiple national lock downs impacting load factors on the domestic network.



Targets

Air New Zealand is a participant on a technical working group established by the Science Based Targets initiative (SBTi), to provide input on the development of a target-setting tool for the aviation sector. The tool will enable airline's to set a science-based carbon reduction target aligned to the ambition of limiting global warming in line with the ambitions of the Paris Climate Agreement.

Summary of Climate Targets

- Commitment to net zero emissions by 2050.
- A cap on net CO_2 emissions from international aviation from 2020 (carbon-neutral growth). Achieved through the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Air New Zealand is also committed to meeting the International Air Transport Association (IATA) carbon reduction targets.

Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

ANZ Bank
Annual Report 2021

OUR PROGRESS ON THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

	Our progress to date	Focus areas – 2022/23	Beyond 2022 vision
Governance	• Board Risk Committee oversees management of climate-related risks • Board Ethics, Environment, Social and Governance (EESG) Committee approves climate-related objectives, policy and targets • Ethics and Responsible Business Committee (executive management) oversees our approach to environment, social and governance (ESG) risks and opportunities, and reviews climate-related risks	• Align with regulatory guidance on climate-related risk governance, including stress-testing of selected portfolios	• An enhanced risk management framework that anticipates potential climate-related impacts, and associated regulatory requirements
Strategy	• ANZ's Climate Change Statement (available at **anz.com**) confirms support for the Paris Agreement goals and transition to a net zero carbon economy • Managing the net zero carbon transition focuses on an orderly transition that recognises and responds to social impacts • Participated in APRA's climate vulnerability assessment (CVA) to assess portfolio transition and physical risks • Low carbon products and services within our Institutional business focused on climate-related opportunities • Analysis of flood-related risks for our home loan portfolio in a major regional location of Australia and associated test-pilot of socio-economic indicators showing financial resilience of home loan customers with respect to flood risk	• Extending analysis of flood-related risks to incorporate bushfire and other risks relating to retail customers through the CVA • Include climate risk reference in lending guidance documents for relevant industry sectors used by our front line bankers	• ANZ business strategy to grow in a way that is more closely aligned to a resilient and sustainable economy that supports the Paris Agreement goals and Sustainable Development Goals (SDGs)
Risk management	• Climate change risk added to Group and Institutional Risk Appetite Statements • Climate change identified as a Principal Risk and Uncertainty in our UK Disclosure and Transparency Rules (DTR) Submission • Guidelines and training provided to over 1,000 of our Institutional bankers on customers' transition plan discussions • Enhanced financial analysis and stronger credit approval terms applied to agricultural property purchases in regions of low average rainfall or measured variability • New agribusiness customers assessed for financial resilience and understanding of rainfall and climate trends in their area, and water budgets considered if irrigating	• Encouraging and supporting 100 of our largest emitting business customers to implement and, where appropriate, strengthen their low carbon transition plans and enhance their efforts to protect biodiversity, by end 2024 • Customer engagement to identify customer or sector-specific transition or physical risks, focused on corporate and institutional customers • Further develop an enhanced climate risk management framework that strengthens our governance and anticipates potential climate-related impacts and associated regulatory requirements	• Further integrate assessment of climate-related risks into our Group risk management framework • Standard discussions with business customers include climate-related risks and opportunities • Assessment of customer transition plans part of standard lending decisions and portfolio analysis
Metrics and targets	• Support 100 of our largest emitting business customers to establish or strengthen low carbon transition plans by 2021, with metrics developed to track progress • Metrics to enable our progress to be tracked in reducing 'financed emissions', beginning with two key sectors: large-scale commercial property and power generation. Metrics are tailored to each sector (e.g. carbon emissions per square metre of net lettable space for commercial property) and disclosed every 12 months • $50 billion target to fund and facilitate sustainable solutions by 2025 • Target to procure 100% renewable electricity for ANZ's operations by 2025 • Ongoing emissions reduction targets for ANZ energy use aligned with the Paris Agreement goals	• Complete transition plan engagement with high emitting customers and consider how to integrate into our regular customer assessments • Implement targets to reduce metrics for 'financed emissions' in key sectors by 2030 towards a long-term net zero goal by 2050 • Consider expanding new metrics for measuring impact of our progress on environmental sustainability to other key sectors	• Continue to evolve our reporting with leading practices to measure the alignment of our lending with the Paris Agreement goals • Reduce ANZ's operational emissions in line with the decarbonisation trajectory of the Paris Agreement goals

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Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Freightways
Annual Report 2021

TCFD

1. 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 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, with Freightways joining in 2019.

The transport sector is responsible for 19.7% of New Zealand's total greenhouse gas emissions.[1] The New Zealand Climate Change Commission estimates that a 50% reduction in transport emissions is required by 2035 to achieve net zero emissions by 2050.[2]

As one of New Zealand's major transport services provider, the bulk of our GHGs 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 first Task Force on Climate-Related Financial Disclosures (TCFD) report 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 66.

[1] Ministry of Transport report: Transport Emissions: Pathways to Net Zero by 2050. May 2021.
[2] New Zealand Climate Change Commission Draft Advice. March 2021.

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Annual Report 2021 (continued)

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 mitigation is performed by each of Freightways' controlled businesses, and is consolidated at a corporate level. 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. 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.

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' 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 on a quarterly basis for board Audit & Risk Committee review.

Freightways
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TCFD

2. Risk Management

Climate-related risks are identified through multiple sources including:

Internal sources:

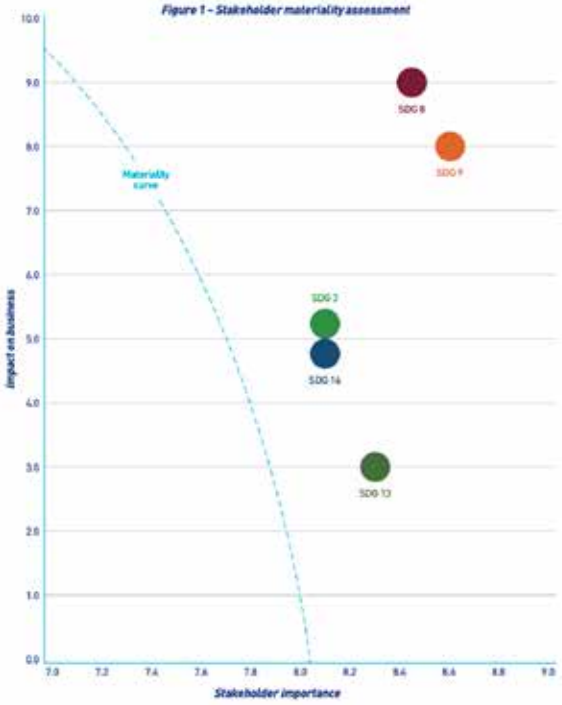
- Our disaster recovery and business continuity plans following acute impact events.
- Regular reviews of the critical risks facing our businesses.

External sources:

- Our involvement in the Climate Leaders Coalition[3] and other industry groups focused on addressing climate change.
- Briefings and advice from climate change specialists.
- Reports produced by government agencies 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 (SDG13).[4]

Figure 1 – Stakeholder materiality assessment



Collective action

Part of the process of identifying climate risks 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 with the Science-Based Targets Initiative to align its actions with the collective ambition of that group.[4]

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.

Transitional climate impacts

Transitional 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, transitional impacts may pose varying levels of financial and reputational risk or opportunity.

[3] Ministry of Transport report: Transport Emissions: Pathways to Net Zero by 2050. May 2021.
[4] https://www.climateleaderscoalition.org.nz/who/signatories/signatories/freightways
[4] https://www.un.org/sustainabledevelopment/climate-change/

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The impact of policy changes on our business model

Another aspect of identifying climate risks is understanding how policy changes align or could impact our business model. For example, the New Zealand 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[2]		Freightways initiatives
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.	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.
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.	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.

We currently address identified climate-related risks on an ad-hoc basis

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 below on page 66.

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

- Lease/purchase more fuel-efficient vehicles.
- Collaborate on airfreight 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.
- Collaboration between our separate courier business to gain further efficiencies.
- Offering a carbon neutral service through the Kiwi Express brand.
- Reducing use of virgin fossil-fuel based materials for packaging.
- Implementation of plastic courier satchels, that contain 80% recycled content, for customers use.
- Investing in our circular economy recycling business aiming to reduce waste to landfill.
- LED lighting and solar based energy in warehouses.

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TCFD

2. Risk Management

Likelihood and impact

Our overall risk management process takes into account 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.

Figure 2: Freightways' risk likelihood ratings

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

Figure 3: Freightways' risk likelihood impacts

Impact	Could reduce EBITA by...
Minor	<1%
Moderate	<5%
Significant	<10%
Major	<33%
Catastrophic	33%+

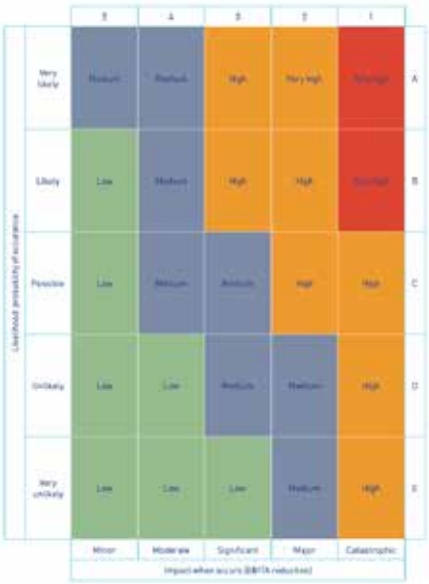
Risk register

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

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. Therefore, it is possible that these risks may not be rated sufficiently using our current risk framework. Given the uncertainty of future impacts of these risks on the company's earnings, 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



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Annual Report 2021 (continued)

3. Strategy

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

Freightways' climate-related risks and opportunities were qualitatively assessed considering a low and high emissions scenario, and their physical, policy, technology, markets and stakeholder impacts.

These scenarios, outlined in Table 2 below, are informed by Intergovernmental Panel on Climate Change (IPCC) reports and the International Energy Agency (IEA) energy scenarios.

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 page 63).

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 page 54). Understanding the full risk assessment rating will require quantitative modelling of the financial impact of each risk in the future.

The tables that follow 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/tCO2e (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 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

Freightways
Annual Report 2021 (continued)

3. 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 winds – 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 will lead to longer delivery times for customers and higher transport costs as freight is diverted on 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 varies.[1] 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.

We are currently in the beginning stages of understanding this risk to our business. Previous disruptions to the

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.	Extreme weather Sea level rise Increased temperature	Acute/Chronic	Temporary disruption to certain transport routes Delays in service delivery Higher costs for transportation Significant alteration to network design, routes and transport method.
Higher temperatures and extreme weather impair operating assets and disrupt utility services.	Extreme weather Sea level rise Increased temperature Heat Stress	Acute/Chronic	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

[1] https://environment.govt.nz/publications/national-climate-change-risk-assessment-for-new-zealand-main-report/

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transportation network, most notably the 2016 Kaikoura Earthquake, has 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 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 will become an issue, making it difficult for buildings' electrical systems to operate and hazardous for the health and safety of 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 2050.[1]

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.

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

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3. Strategy

Transitional climate risks

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

Lessons from Kaikoura:

In the early hours of 14 November 2016, a magnitude 7.8 earthquake struck 15km northeast of Culverden, North Canterbury, essentially "unzipping" an approximately 180km length of the northeast coast of the South Island.[1]

This included land slips and upheaval that put the main trunk highway and railway lines out of action for months. Alternative routes, modes, providers and other supporting infrastructure were needed to keep goods moving.

While climatic forces are not causing earthquakes, we understand that it is becoming increasingly likely that they will drive similar disruptions to the transportation network. We need to further investigate the areas of our network most at risk and use our experience in managing disruptions to develop strategies to mitigate this risk in the future.

→ ***This and other events make it clear that our most important strategic asset for building resilience to climate driven impacts is the wellbeing, dedication and ingenuity of our team.***

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Type of Risk Assessment	*Risk Assessment and timeframe*	*Risk Treatment*
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[1]
Qualitative (2050 assessment)	2050 Likelihood rating Low **emission** scenario: Unlikely High **emission** scenario: Possible	Continue ongoing optimisation and utilisation improvements to our routes and service offerings 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[14]
Qualitative	2035 Low **emission** scenario: Possible High **emission** scenario: Very Unlikely 2050 Likelihood rating Low **emission** scenario: Likely High **emission** scenario: Possible	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 Reviewing and adapting contractor renumeration rates to support them into low emission vehicle

[1] https://www.geonet.org.nz/earthquake/story/2016p858000
[2] https://sciencebasedtargets.org/ [3] https://www.geonet.org.nz/earthquake/story/2016p858000
[14] Freightways 2020 Sustainability Report

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TCFD

3. Strategy

Transitional risk description – Increasing fuel costs as a result of higher cost of carbon

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

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

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.

These scenarios took into consideration our 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 is a steady and clear reduction to net zero emissions by 2050.
- Presents a future where there is are fewer barriers to the uptake of new vehicle technology and widespread behaviour change amongst the population.
- Freightways is able to follow its planned transition to low emissions vehicles, beginning in 2024.

Headwinds

- The least optimistic emissions reductions scenario is 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 based on 2019 emissions was $1,266,000.

Cost of carbon exposure:

$1.26m

estimated based on 2019 emissions

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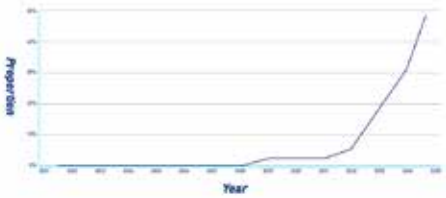
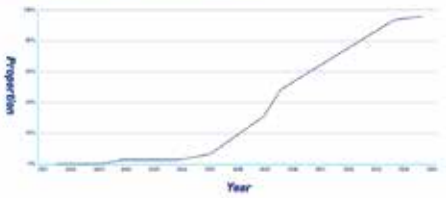
Low emission vehicle adoption rates

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.

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



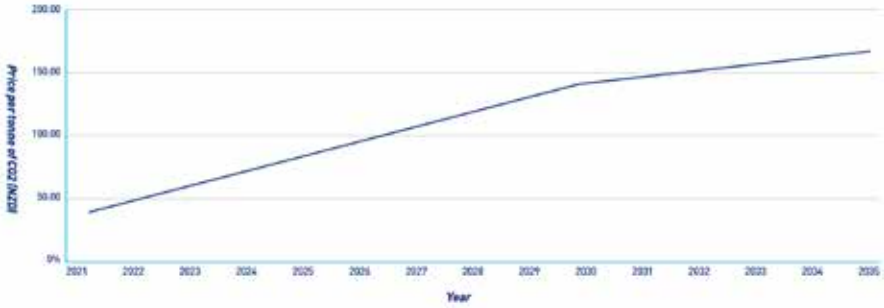
Low emissions vehicles as a proportion of total fleet (Tailwinds)



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)



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TCFD

3. Strategy

Assessment findings

Under a "Tailwinds" scenario, by 2035 all vehicles in the motorbike, passenger vehicle and van fleets are expected to be fully electric. The NPV of our financial exposure to the cost of carbon in transport fuels over the 2022 and 2035 period is approximately NZD $39.9m with a peak financial exposure of approximately $5.6m 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 in 2035 is 40% higher than 2022 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 $48,739,000 with a peak financial exposure of approximately $7,677,000 in 2031, 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 175% of 2022 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.

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 emissions, which allows us to understand the trajectory of our carbon exposure year on year. Secondly, Freightways is developing its emissions reduction plan using the Science Based Targets Initiative. 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 dollar cost amount represents only the carbon cost component of the cost of fuel. The remaining components embedded in the price per litre, such as other taxes and the cost of the fuel itself, are in addition to the amount show.

Freightways
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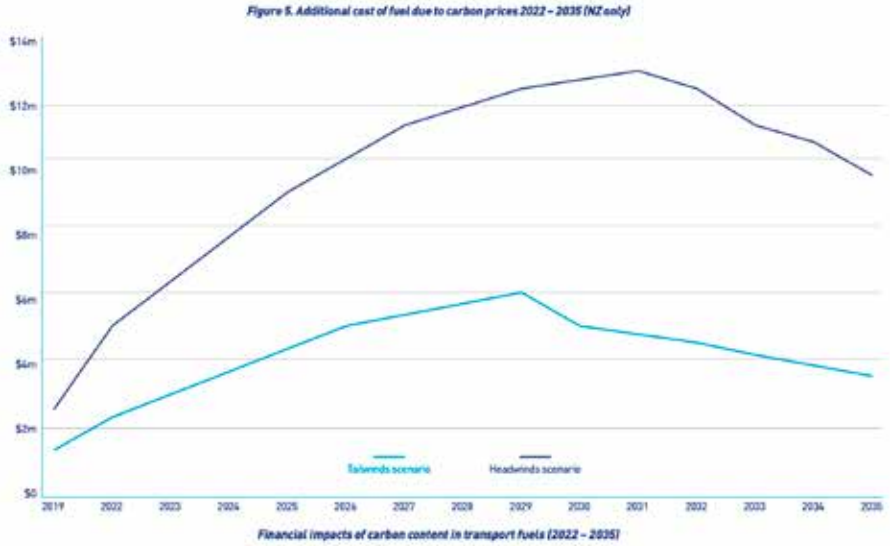

Figure 5. Additional cost of fuel due to carbon prices 2022 – 2035 (NZ only)

Financial impacts of carbon content in transport fuels (2022 – 2035)

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

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TCFD

3. Strategy

Transitional risk description – climate compliance requirements impact pool of contractor drivers

Freightways recognises the essential role that our contractor drivers play in the success of our business. 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 amongst 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. As part of our Science Based Targets initiative, we can signal to our contractors when we will require any new replacement vehicles to be low emissions. 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: ***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

Lessons from COVID-19

In March 2020, all of New Zealand was sent into a "Level 4" lockdown in an attempt to control the spread of the novel coronavirus, SARS-COV-2. The subsequent months of the COVID-19 pandemic saw unexpected changes to everyday life and the habits of businesses and consumers. These changes had a major impact on Freightways as we sought to handle the significant increase in use of delivery services across our portfolio of businesses.

The COVID-19 pandemic has shown us how rare but significant global events can shift the societal norms which underpin our business. Our experience from COVID-19 shows the benefits of having a resilient business.

→ ***We understand that preparing our business to take advantage of the climate-related opportunities that we have highlighted in this report, will put us in a good position as the impacts of climate change materialise over the coming decades.***

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TCFD Opportunity Type	Potential Benefits	Type of Opportunity Assessment	Opportunity materialisation timeframe
Markets Products and Services	Market growth Market share Improved fleet utilisation Greater breadth of revenue streams	Qualitative	5 to 10 years
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
Resilience	Improved reputation amongst both current and potential customers Overall business resilience against climate change	Qualitative	20 to 30 years

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.

Customer growth and improved relationships

Our customers are becoming increasingly aware of not just their own direct carbon emissions but the often much larger amount 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 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.

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.

Freightways Limited and its subsidiaries | 65

Freightways
Annual Report 2021 (continued)

TCFD

4. Metrics & Targets

Our key transition activities are the rate of uptake of low emission vehicles within our fleet and other steps to reduce 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

Freightways' emissions for FY20 were 50,624.57 tCO2e, shown in Figure 6. In the seventh year of reporting under the Toitū Carbonreduce, an absolute reduction in Scope 1 and 2 emissions of 14,748.30 tCO2e has been achieved against the 2013-14 base year.[11]

The total includes all New Zealand business units and brands, other than the recently acquired Big Chill business.

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.

We are currently performing an internal Science Based Targets Initiative[12] to update our GHG emissions inventory and targets, including business acquisitions and emissions from our Australian operations. This work will be concluded by November 2021.

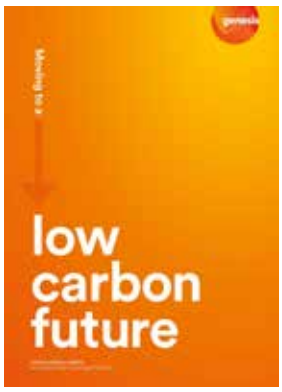
While the results of that work have not yet been audited, we are working toward a 2030 target of 30% reduced emissions and a 2035 target of 50% reduction in CO2e, from a 2019 baseline. These targets are science-based, aligning with what society needs to achieve globally to keep global warming to within 2°C.

Figure 6: Freightways' FY20 Emissions

Scope	tC02e
Scope 1	3,679.88
Scope 2	825.95
Scope 3 Mandatory	18,165.11
Scope 3 Additional	27,953.63
Scope 3 One Time	0.00
Total Gross Emissions	**50,624.57**

[11] https://www.toitu.co.nz/what-we-offer/carbon-management
[12] https://sciencebasedtargets.org/

Freightways
Annual Report 2021 (continued)



Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Genesis Energy
Annual Report 2021

The Task Force on Climate-related Financial Disclosures (TCFD)

Strategy
He rautaki

An extensive disclosure was made in the annual report for FY20 much of which remains valid for this financial year. This disclosure focuses on the elements of our climate risk assessment or framework that have changed since the previous disclosure.

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

An overview of our highest-rated climate-related risks and opportunities are included in the table below. Each category has been assessed according to the most relevant timeframe and level of potential impact.

Risk category	Risk/Opportunity	Type of risk	Timeframe	Impact rating*
Regulatory changes that impact thermal generation	Risk & some opportunity	Transitional	Short term (1-10 years)	Moderate
Environmental and physical changes that impact thermal generation	Risk	Physical	Short term (1-10 years)	Moderate
Consumer and investor preference, and perception of other stakeholders, impacting our operating landscape	Risk & some opportunity	Transitional	Short to Medium term (1-20 years)	Moderate – High
Technological disruption	Risk & opportunity	Transitional	Short to Medium term (1-20 years)	High
Long-term climate changes that impact hydro generation	Risk & opportunity	Physical	Long term (gradual increase in likelihood over next 20-30 years)	High
Acute climate events causing damage to critical infrastructure and assets	Risk	Risk	Long term (gradual increase in likelihood over next 20-30 years)	High

*Note: Impact rating corresponds to a defined Genesis risk management matrix. For example, 'High' impact risks or opportunities have the potential to materially impact the business and require significant action across multiple business units.

Regulatory changes that impact thermal generation: Changes to market mechanism or other regulatory interventions could have an adverse impact on the value of thermal generation assets. Mitigating this risk is our diverse range of generation assets and the Future-gen programme to actively transition the role of thermal generation in our portfolio. Also, regulatory changes that drive electrification increase demand in our main core market.

Environmental and physical changes that impact thermal generation: Operation of the Huntly Power Station could be impacted by physical changes in the environment both acute and chronic. An example of this is a potential reduction in cooling capacity due to heating events in the Waikato River. The shorter term rating of this risk recognises the changing role of thermal generation in our portfolio and the impact of the Future-gen programme.

Consumer and investor preference, and perception of other stakeholders, impacting our operating landscape: Potential shifts in investor, customer and stakeholder sentiment around carbon emissions could create brand and reputation risks with consumers and other stakeholders. The introduction of our science based target consistent with a 1.5°C climate outcome by 2025, supported by the delivery of the Future-gen programme, provides mitigation with a clear target, although failure to meet the target also represents risk to Genesis.

Technological disruption: The global energy transition is driving innovation and rapid changes in technology. The effects could potentially disrupt the energy industry, existing assets, and incumbent participants. Conversely, many of the key trends of the energy transition, in particular electrification as a means of decarbonisation, are potential opportunities to existing energy businesses.

Long-term climate changes that impact hydro generation: Long-term changes in the climate could alter the inflows or operations of hydroelectric generation assets, which are dependent on weather patterns and environmental factors for successful operation.

Genesis Energy
Annual Report 2021 (continued)

Strategy
He rautaki

Acute climate events causing damage to critical infrastructure and assets: Infrastructure assets and physical sites across the country are subject to potential impact from severe weather events, which may increase in frequency and intensity with climate change. Genesis maintains a thorough risk review and maintenance plan across all sites and facilities, however, this risk is noted as in the longer term the extremity of events may exceed current design limits.

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

Genesis' strategy is centred around the role that Genesis plays in the energy markets today and in New Zealand's transition to a low carbon future, encapsulated by our new company purpose of "Empowering New Zealand's Sustainable Future". This includes:

- the Future-gen programme to displace baseload thermal generation with renewable energy and increase portfolio flexibility;
- providing essential back up to New Zealand's renewable electricity system; and
- giving insights to our customers to help them make well informed energy choices.
- The outcome of the arbitration with Beach Energy has no impact on our climate related risks and opportunities.

Our assessment of climate risks highlights some of the key risks and opportunities faced by Genesis over the short-, medium-, and longer-term. Our strategy and plans are intended to minimise the risks and maximise the opportunities.

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

Scenario planning is an integral part of Genesis' strategic planning process. Our scenarios consider a range of different possible futures, including different climate transition pathways covering 1.5°C, 2°C, and 4°C scenarios. These scenarios are used when reviewing the overall strategy and when making major investments to ensure the resilience of the business across a range of different climate and market outcomes.

The timeframes used when considering climate risks are significantly longer than the normal planning horizon:

- Short Term: one to 10 years
- Medium Term: 10 to 20 years
- Long Term: 20+ years

Genesis Energy
Annual Report 2021 (continued)

The Task Force on Climate-related Financial Disclosures (TCFD)

Metrics and Targets
Ngā Whāinga

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

Genesis breaks out Scope 1 emissions into those attributable to supply contracts (swaptions) with other generators, further enhancing transparency about the carbon footprint of the New Zealand electricity market.

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

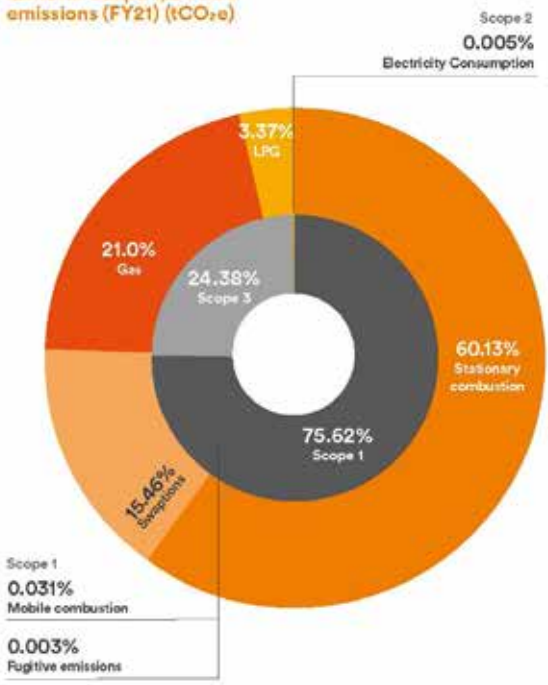
This is the second year as a publicly listed company that Genesis has reported its Scope 1, 2 and 3 emissions in the Annual Report. To ensure data accuracy, limited assurance has been provided by EY (see page 94).

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

Genesis uses targets verified by the Science Based Targets initiative (SBTi) and tied to the international benchmark of 1.5°C. Our target is to remove more than 1.2m tonnes of carbon over the next five years, we aim to reduce Scope 1 and 2 emissions by 36% and reduce absolute Scope 3 emissions from use of sold products 21% by 2025. These are explained on page 14 of the annual report.

We note that the unfavourable outcome of the Beach arbitration process in August 2021 does not impact the Company's carbon reduction targets or our ability to deliver against these targets. This is because the emissions under the gas supply agreement that was the subject of the dispute have always been included in our TCFD reporting.

Genesis' Scope 1, 2 and 3 emissions (FY21) (tCO_2e)



Scope 1, 2 and 3 emissions (tCO2e)

Scope	Category	FY21 tCO_2e
Direct emissions (Scope 1)	Stationary combustion attributable to thermal generation	3,132,879
	Attributable to supply contracts (swaptions)	805,398
	Subtotal Stationary Scope 1	3,938,277
	Mobile combustion	1,624
	Fugitive emissions	162
Scope 1	Subtotal Scope 1	3,940,063
Indirect emissions (Scope 2)	Electricity consumption (location based)	262
	Subtotal Scope 2	262
Scope 1 & 2	Subtotal Scope 1 & 2	3,940,325
Indirect emissions (Scope 3)	Waste generated in operations	26
	Business travel	215
	Use of sold products - LPG Retail[1]	128,665
	Use of sold products - LPG Wholesale[1]	46,838
	Use of sold products - Gas Retail	441,033
	Use of sold products - Gas Wholesale	653,421
	Subtotal Scope 3	1,270,198
Scope 1, 2 & 3	Total	5,210,523

1. Calculated using NZ Emissions Trading Scheme (ETS) emission factors, not the Ministry for the Environment's emission factors.

Genesis Energy
Annual Report 2021 (continued)

Governance
He mana whakahaere

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

Genesis' Board is ultimately accountable to shareholders for the long-term stewardship of the Company, including any long-term risks, including climate risk. As part of its core governance function, the Board takes an active role in the Company's executive oversight and sets the Company's overall strategic direction. All key risks and opportunities are considered by the Board as appropriate when reviewing and guiding strategy and the operations of the Company, including as part of its Risk Management Policy and Framework. This is additionally managed by delegation to the Audit and Risk Committee. This year as part of the regular review of policies, "climate risk" was explicitly added as a category of risk in the Genesis Risk Management Policy.

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

Climate-related risks are a key component of Genesis' long-term risk management and factor into all risk-based policies and frameworks. As New Zealand's largest energy retailer and owner of some of New Zealand's largest hydro and thermal generation assets, Genesis has a responsibility to be transparent about climate change and the related risks it poses to the business and the opportunities afforded by a decarbonised and electrified New Zealand. This affects almost every aspect of the business and these risks are managed from senior leadership down through the business.

Risk Management
Whakatūpato Tūraru

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

Climate-related risks are a subset of the Genesis' overall risk management process. Risks are identified and assessed by the Risk and Strategy teams, under the supervision of the Group Manager Strategy and Risk. The Group Manager Strategy and Risk reports to the Chief Financial Officer. Risk specialists are tasked with constant research and market analysis to monitor the Company's risk landscape to identify new, emerging or developing risks.

Using defined climate scenarios, the Risk and Strategy teams work with key experts from across the business to identify a wide range of climate-related risks and opportunities. These are then categorised and assessed using a form of the Risk Matrix adapted for use with longer-term climate risks. The results of the risk assessment are reviewed and approved by the Executive Team and incorporated into corporate risk management systems.

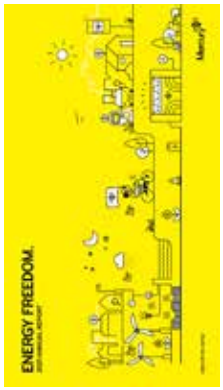
4.b. Describe the organisation's processes for managing climate-related risks.

The management of physical climate-related risks is similar to other event-driven risks, for example weather, seismic and volcanic risks. Management is primarily through mitigation. Although financial risks are transferred through insurance, the primary focus is ensuring the highest level of safety. Assets are proactively managed to ensure the continued resilience of these assets in the face of potential events.

The nature of transitional climate-risks is similar to other 'strategic risks' and as such are managed through existing strategic risk management processes. Genesis proactively manages these risks as part of its long-term strategy. This management includes regular monitoring against key risk indicators and scenarios, designed to proactively identify associated risks.

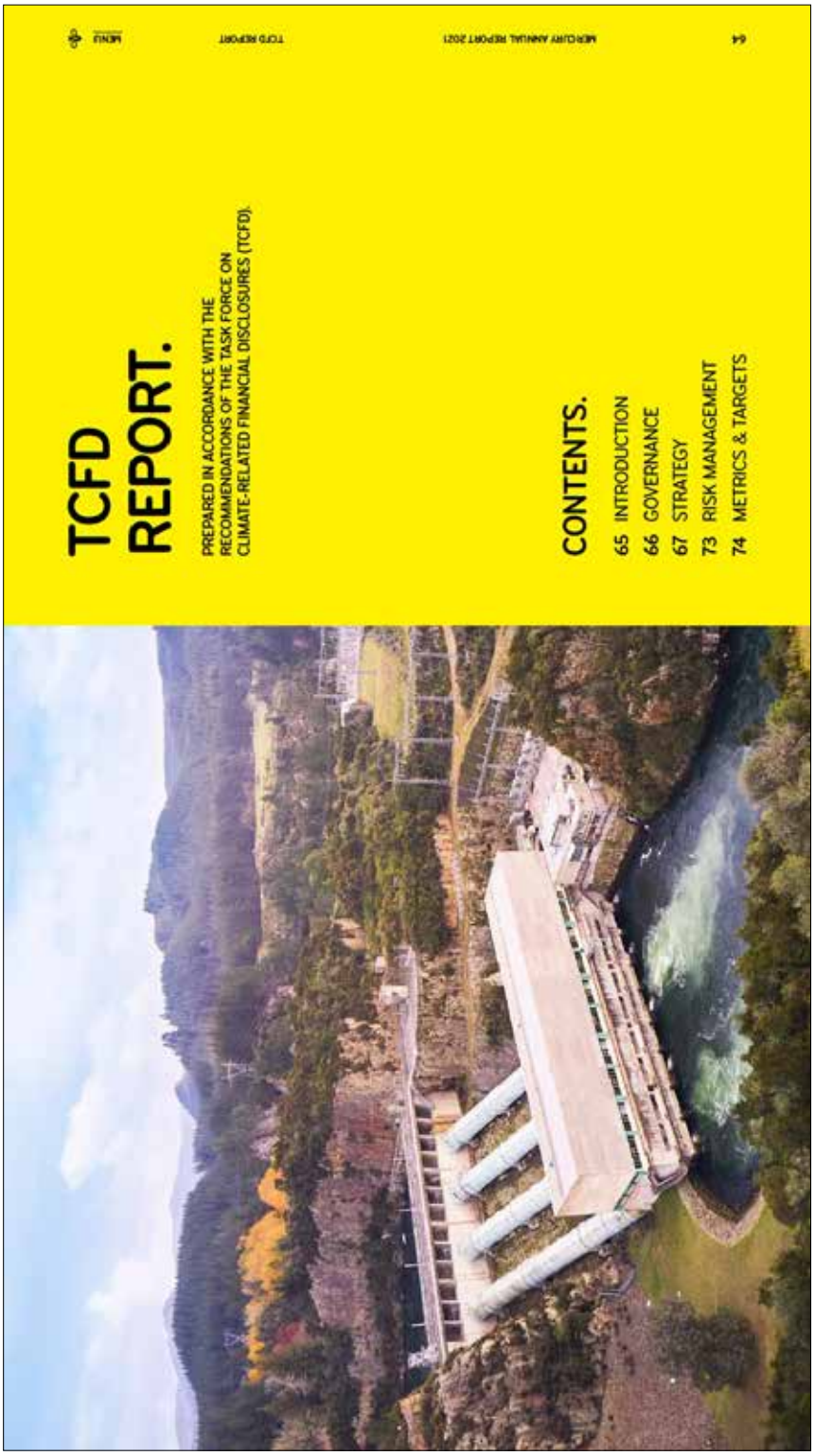
4.c. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

Climate-related risks are incorporated into Genesis' comprehensive risk identification and assessment framework and process as defined by the Risk Management Policy. These processes result in a comprehensive register of risks that are actively managed. Risks that are rated as "extreme" or "high" are reviewed six-monthly by the Audit and Risk Committee of the Board.

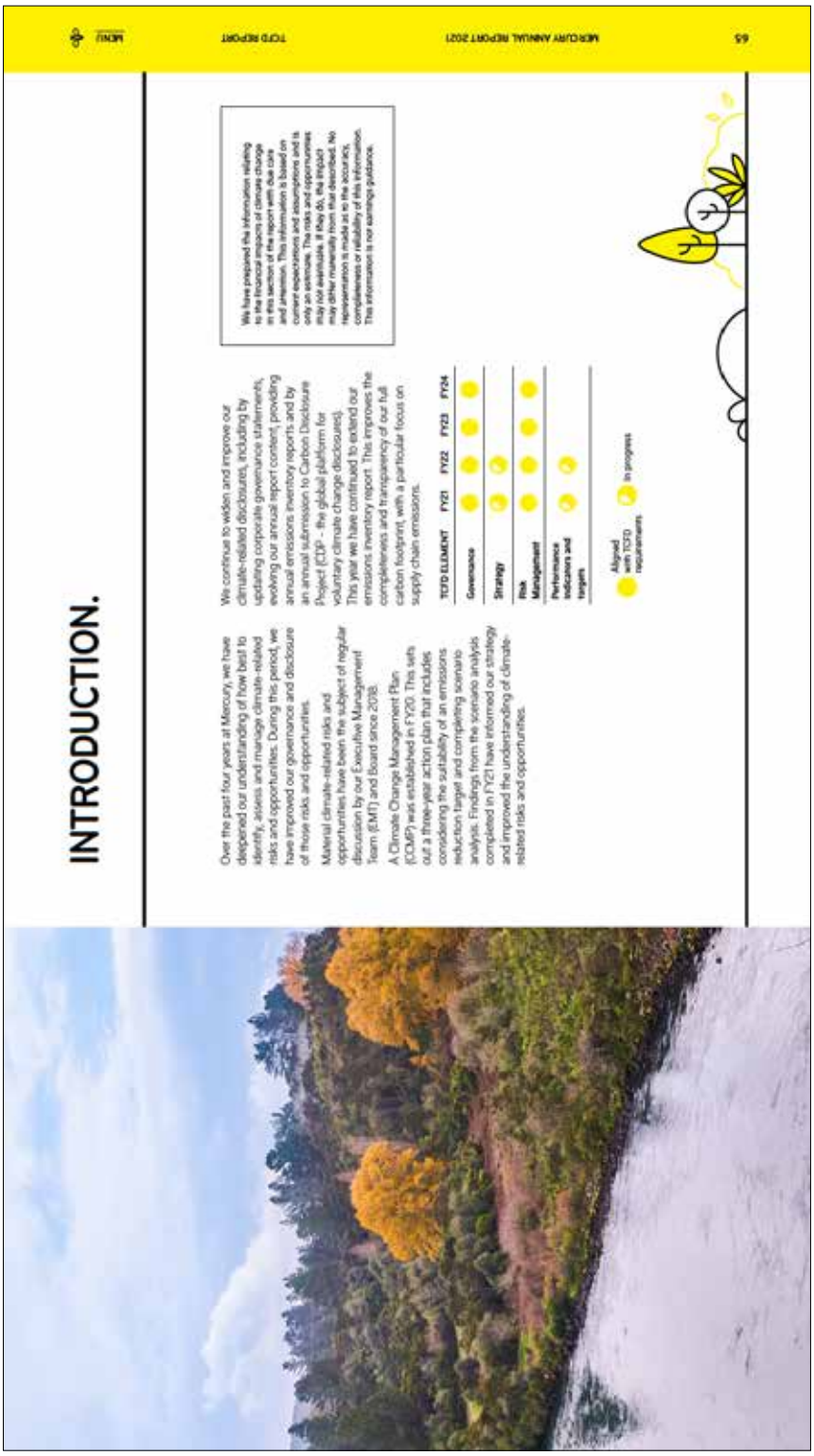


Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Mercury
Annual Report 2021



Mercury
Annual Report 2021 (continued)



INTRODUCTION.

Over the past four years at Mercury, we have deepened our understanding of how best to identify, assess and manage climate-related risks and opportunities. During this period, we have improved our governance and disclosure of those risks and opportunities.

Material climate-related risks and opportunities have been the subject of regular discussion by our Executive Management Team (EMT) and Board since 2018.

A Climate Change Management Plan (CCMP) was established in FY20. This sets out a three-year action plan that includes considering the suitability of an emissions reduction target and completing scenario analysis. Findings from the scenario analysis completed in FY21 have informed our strategy and improved the understanding of climate-related risks and opportunities.

We continue to widen and improve our climate-related disclosures, including by updating corporate governance statements, evolving our annual report content, providing annual emissions inventory reports and by an annual submission to Carbon Disclosure Project (CDP – the global platform for voluntary climate change disclosures). This year we have continued to extend our emissions inventory report. This improves the completeness and transparency of our full carbon footprint, with a particular focus on supply chain emissions.

We have prepared the information relating to the financial impacts of climate change in this section of the report with due care and prudence. This information is based on current expectations and assumptions and is only an estimate. The risks and opportunities may not materialise. If they do, the impact may differ materially from that described. No representation is made as to the accuracy, completeness or reliability of this information. This information is not earnings guidance.

TCFD ELEMENT	FY21	FY22	FY23	FY24
Governance	●	●	●	●
Strategy	◔	◔	◔	
Risk Management	●	●	●	●
Performance indicators and targets	◔	◔		

● Aligned with TCFD requirements ◔ In progress

Mercury
Annual Report 2021 (continued)

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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.

At Mercury, our Board has responsibility for the strategic direction and operation of the company. 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 has responsibility 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 – Principles and guidelines.

In FY20, our Board updated its skills matrix to specifically include climate change. We reviewed our risk management framework, and the importance of climate-related risks was amplified in 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.

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

One of the responsibilities of the Chief Executive and the Executive Management Team 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.

In FY21, the EMT delivered:

- the approach to, and findings from, the climate change scenario analysis, and reported to the RAAC
- the annual review of climate-related risks and opportunities
- endorsement of Mercury setting an emissions reduction target, which will be established in FY22

Our management operates a Risk Management Committee 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. 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. During FY21, two cross-functional teams were established to:

- improve the robustness of management systems around carbon footprinting and associated emissions reporting
- undertake a detailed scenario analysis to inform future climate change strategy

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.

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

To help improve our understanding of climate-related risks and opportunities in the short, medium and long-term and test the resilience of our strategy, we undertake scenario analysis. Our first scenario analysis was completed in FY21.

METHODOLOGY & ASSUMPTIONS.

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.

The development of this view of climate-related risks and opportunities that may impact Mercury, requires an analysis of both physical risks and transitional impacts (the impacts of our transition to a lower carbon economy as a result of strong climate action policy and regulation), using the following key scenarios:

+ PHYSICAL

- physical risks based on a 2°C future
- higher temperature scenarios, where modelling was available, to provide useful comparisons e.g. changes to precipitation and impact on hydro catchment inflows

+ TRANSITIONAL

- policy and regulatory risks based on the NetZero by 2050 future regulated by the Zero Carbon Act
- policy and regulatory risks based on New Zealand's obligations under the Paris Agreement (2030)
- policy and regulatory risks based on Mercury's participation in the New Zealand emissions trading scheme (ETS)

TIMEFRAMES

The focus of the scenario analysis was on mid-century. This aligns with New Zealand's regulatory aspirations for NetZero by 2050.

Risk and opportunities will be discussed across short 1-5 years (out to 2025), medium 5-10 years (out to 2030) and long-term 10-20 years (out to 2050). This aligns with Mercury's business planning timeframes and those required in ESG 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 impacts on the electricity sector, have informed this report.

The Government's work on climate change adaptation planning and associated risk screening methodologies was also reviewed and adopted, where appropriate, to increase understanding of the risks on generation assets and connected infrastructure from a changing climate.

The physical impacts of a changing climate on geothermal generation have been modelled using NIWA national climate change models, observed temperature data and in-house modelling software.

We have used the Climate Change Commission's 'Tailwind' modelling of future electricity demand for predicting EBITDAF opportunities from technology uptake in the transportation and food processing sectors.

We also have access to the Energy Efficiency and Conservation Authority (EECA) TIMES Model for predicting the combined impact of various risk categories. We are considering using this to develop specific future scenarios to add additional insight into certain risks e.g. electricity market risks.

Mercury
Annual Report 2021 (continued)

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USING THE TCFD CATEGORIES.

The TCFD framework suggests dividing climate change risks into the categories of Market and Technology Shifts, Reputation, Policy and Legal, and Physical Risks.

For this analysis, additional granularity has been introduced in the market and technology shift category. This is because we operate in both the electricity and carbon markets. Technological shifts also have the potential to provide both risks and opportunities for Mercury. Those risk areas have been separated out to enable a more focussed and valuable scenario analysis to be produced.

+ MARKET & TECHNOLOGY SHIFTS

Policies and investments to deliver a low carbon emissions economy

- reduced market demand for higher-carbon products/commodities
- increased demand for energy-efficient, lower-carbon products and services
- new technologies that disrupt markets

+ POLICY & LEGAL

An evolving patchwork of requirements at international, national and regional level

- increased input/operating costs for high carbon activities
- threats to securing licence to operate for high carbon activities
- emerging concern and liabilities

+ REPUTATION

Growing expectations for responsible conduct from stakeholders, including investors, lenders and consumers.

- enhanced reputation and brand value
- loss of trust and confidence in management

+ PHYSICAL RISKS

Chronic changes and more frequent and acute extremes of climate.

- increased business interruption and damage across operations and supply chains with consequences for input costs, revenues, asset values, and insurance claims

RISKS & OPPORTUNITIES.

THE TOP FIVE CLIMATE-RELATED RISKS & OPPORTUNITIES FOR MERCURY

A comprehensive list of risks and opportunities were identified through the 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.

	RISKS			OPPORTUNITIES	
	M REGULATION THAT DOES NOT BALANCE THE ENERGY TRILEMMA	M DECREASE IN ELECTRICITY DEMAND	M EXTREME WEATHER EVENTS	M INCREASE IN ELECTRICITY DEMAND	M INCREASED INFLOWS
DESCRIPTION	Regulation could be introduced that does not consider management of New Zealand's energy trilemma, negatively impacting some elements of the trilemma (e.g. security or affordability) for others (e.g. renewability).	Electricity demand could decrease due to de-industrialisation in the short to medium term as carbon prices increase. In the longer term there may be decreased winter demand due to warmer temperatures.	Physical damage to generation assets caused by flood or other extreme weather events.	Increase in electricity demand from significant electrification of transport (EVs, trucking and air), industrial process heat conversions to electricity, data centres, export hydrogen production and population growth.	Increases in average precipitation in the catchment provide the potential for increased generation.
LIKELIHOOD	Likely	Possible	Unlikely	Likely	Possible
IMPACTS	Increased costs and/or decreased revenue. Reduced ongoing investment. Reduced ability to attract investment.	Decreased revenues.	Decreased revenue and/or increased SIB capex.	Increased revenues.	Increased revenues.
TIME PERIOD	S M L	S M	M L	S M L	M L
FINANCIAL IMPLICATIONS	Not quantified.	Not yet quantified.	Not quantified.	$6m (S), $35m (M), $98m (L), p.a. EBITDAF uplift.	EBITDAF uplift of $8.5m p.a. (M) and $9m (L).
METHODOLOGY	Current high levels of regulatory reform present a very broad range of outcomes that are too uncertain to meaningfully quantify at this point in time.	We continue to work through the quantification of potential EBITDAF impacts of a decrease in demand in a way that takes into account the dynamic response.	We continue to increase the granularity of information we have on extreme weather events. This will help inform the quantification of any investment required to mitigate physical asset risk.	Using Climate Change Commission 'Tailwinds' scenario and our current 15% generation market share.	A small (circa 2%) increase in average precipitation within the catchment (assuming 2020 prices).
MANAGEMENT RESPONSE	Maintain engagement with government, regulators and media commentators. Maintain/lead the narrative on the positive contributions of renewable electricity to New Zealand. Continue to make submissions on legislation, regulation and planning instruments.	Continue to work closely with our large commercial and industrial customers. Active promotion of electrification of transport. Continue to work with industry to explore fossil fuel substitution to electricity opportunities. Explore potential business models for green hydrogen production and data centres.	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.	We are well-positioned to grow market share of generation in New Zealand with good prospects in wind and geothermal, investment in Tilt Renewables and the pipeline of wind generation development.	Continue to conduct scenario modelling and review outcomes to inform operating plans and any changes required to resource consent conditions and dispatch decisions.

TIMELINE: S Short M Medium L Long-term RISK RATING: H High M Medium

Mercury
Annual Report 2021 (continued)

RISKS & OPPORTUNITIES.

	SHORT-TERM 1-5 YEARS	MID-TERM 5-10 YEARS	LONG-TERM 10-20 YEARS
MARKETS (ELECTRICITY & CARBON) & TECHNOLOGY Physical and transitional climate-related risks could have significant impacts on our markets. Decarbonisation is likely to impact the relationship between supply and demand – 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. These are countervailing impacts on demand, including possible reduction in demand from major commercial and industrial users of electricity the closure of the New Zealand Aluminium Smelter (NZAS) would significantly impact demand. Technological disruption may create several risks and opportunities.	The increasing development and contribution to the electricity market of renewable generation has the potential to reduce electricity prices in the spot market. A further decrease could be experienced with the closure of the NZAS. Rising international aluminium and/or carbon prices could, however, improve the economics and competitiveness of the aluminium smelter making ongoing operations in New Zealand attractive. Price volatility may increase as thermal generation reduction reduces market reserve capacity causing higher wholesale prices. Increasing carbon costs could lift thermal generation costs and wholesale prices, particularly during dry hydro periods. The increasing reliance on wind generation to firm generation may increase price volatility, as a result of the inherent variability of wind. Our existing carbon forest credit surplus could deliver ETS compliance at below market prices, potentially reducing compliance costs by $4 million per annum. Carbon capture and injection pilots could prove successful and provide an opportunity to reduce ETS compliance costs by circa $2 million per annum.	Increasing renewable generation could lead to higher price/supply volatility and risk, increasing the economic premium of dispatchable demand. Notional demand could be significantly reduced by the closure or exit of the NZAS, or the reduction in output of major industrial electricity users. Increasing carbon costs could lift the competitiveness of renewable generation and improve the economic viability of combined intermittent generation and storage. Technology that provides large-scale storage is likely to become more economically viable, providing solar/battery development opportunities.	The increase in distributed and embedded generation, particularly rooftop and large-scale solar, could reduce demand for other renewable generation development. If gas reticulation becomes unsettainable, due to the loss of large thermal fuel users, then electricity demand could increase. Large-scale storage could become increasingly viable providing further solar/battery development opportunities. 3-5TWh of rooftop solar distributed generation could provide both a risk (reduce demand) and an opportunity (development)
REPUTATION Reputational risks and opportunities arise at an organisational and sectoral level.	Recognition that renewable electricity is the key to a just transition to NetZero for New Zealand could benefit the reputation of the electricity generation sector and Mercury. Our reputation could be enhanced through recognition as a thought leader on renewable energy and the electrification of transport as well as partnerships for action on climate change in the Waikato catchment.	Our reputation could be further enhanced as low carbon energy futures projects are developed and delivered and outcomes from geothermal emissions capture/use pilot projects prove positive. Mercury's reputation could be enhanced through partnerships for action on climate change in the Waikato catchment and electrification of industry with key commercial and industrial customers. Reliability of supply could be impacted by additional network infrastructure, at the lines level, increasing the risk of asset failure impacting customer experience and our reputation. There is a potential countervailing factor arising from an increased environmental focus on geothermal power station emissions, as higher carbon emitting activities are reduced or retired.	As emissions from thermal generation are removed and replaced by renewables there could be an increased focus on geothermal emissions. Reliability of supply could continue to be impacted by additional network infrastructure, at the lines level, increasing the risk of asset failure impacting customer experience and our reputation.

OTHER CLIMATE-RELATED RISKS ALSO IDENTIFIED AGAINST THE TCFD CATEGORIES

Mercury
Annual Report 2021 (continued)

Mercury
Annual Report 2021 (continued)

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 for 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

The Climate Change Commission highlighted that as Aotearoa has one of the lowest emissions electricity sectors in the world, this electricity can be used to reduce emissions through electrifying transport, process and space heating. As a fundamental element of strategy, we consider the role we can play in supporting the 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 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. There are multiple outlooks for the industry, with their divergence shown by way of two scenarios: (1) the transition to decarbonisation is fraught, resulting in stagnant demand and high spot prices and (2) rapid decarbonisation activities in New Zealand leads to a significant electricity demand increase over time and renewable electricity remains relatively cheap.

In relation to scenario 1 – New Zealand electricity demand has not increased since 2008, there are continued examples of de-industrialisation, the adoption of EVs has been slow mostly due to their price, and there is steadily improving energy efficiency. New Zealand Aluminium Smelter (NZAS) may or may not continue to operate beyond 2024.

In relation to scenario 2 – the Commission predicts strongly rising electricity demand (1% compounding growth to 2035).

We consider resilience to our strategy by ensuring that we are positioned for a range of different outcomes related to demand.

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. Thermal generation currently plays a significant role in responding to periods of reduced renewable supply such as dry periods in the hydro catchments. 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 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 energy security in 'dry years' (when hydro inflows are low for long periods of time). The Commission has noted that, while finding a solution to this challenge could enable a 100% renewable electricity sector, it could cost taxpayers billions of dollars. Other actions may have a larger impact on emissions reductions for the same cost as a solution to the dry year challenge.

We consider resilience to our strategy by considering implications of increasing electricity spot price volatility and participating in ongoing conversations/ 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 assumes 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 mitigants are appropriate. We continue to seek out additional information to ensure resilience of our strategy.

Mercury
Annual Report 2021 (continued)

METRICS & TARGETS.

TCFD 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.

We produce an annual emission 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 64% of the entire profile. Thermal emissions from the operation of a gas-fired power station reduced to zero in FY16 as the facility was mothballed.

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-in-business (SIB) capex spend.

Our emissions intensity for a six-year period is shown in the graph below. We've overlaid this with the New Zealand grid average intensity and the level consistent with a 1.5° future (as established by the Science Based Target Initiative). 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 EMISSIONS HAVE REDUCED BY 33% SINCE 2015.

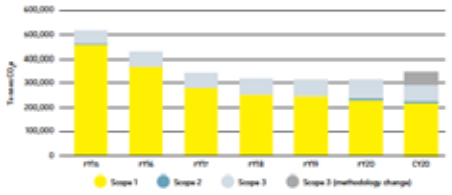
“ OUR GENERATION EMISSIONS INTENSITY IS CONSISTENT WITH A 1.5°C FUTURE.

CARBON FOOTPRINT FY15 TO CY20

Scope 1 Direct emissions – predominantly fugitive emissions from geothermal facilities.

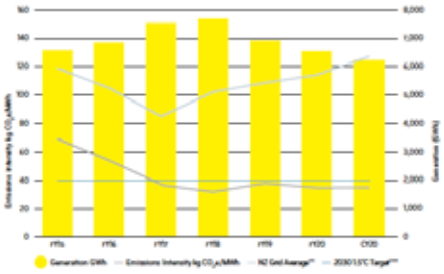
Scope 2 Indirect emissions – from electricity used at generation sites and in offices.

Scope 3 Other indirect emissions – 56% downstream from gas sales to dual fuel customers.



*From CY20, we have amended our methodology for calculating Scope 3 emissions. The grey area represents Scope 3 emissions such as SIB capex and general maintenance which were not previously calculated. These emissions represent 15% of the CY20 total.

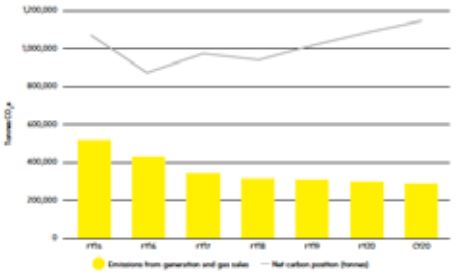
EMISSIONS INTENSITY OF GENERATION FY15 TO CY20



** NZ Grid Average as per MBIE data.

*** Science Based Target Initiative 2030 Sector Target for a 1.5°C future.

NET CARBON POSITION FY15 TO CY20



From FY21, Mercury will report these metrics on a calendar year basis to align with our global reporting obligations. CY20 covers the period 01 January 2020 to 31 December 2020 inclusive. Prior disclosures which aligned with financial year timelines have not been restated.

Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

New Zealand Oil and Gas
Annual Report 2021

Taskforce on Climate-related Financial Disclosures (TCFD) Statement

This section outlines the New Zealand Oil & Gas approach to climate change. It addresses themes recommended by the G20 Task Force on Climate-Related Financial Disclosures (TCFD).

Statement from the Managing Director on TCFD and sustainability

New Zealand Oil & Gas is delighted to present our updated Sustainability Report, including our TCFD (Taskforce on Climate-related Financial Disclosures) Statement.

The point of sustainability reporting is so that our stakeholders can understand two important dimensions of our activity – our impact on our community, economy and environment, and the risks associated with our business. TCFD reporting is focused specifically on climate-related financial risks.

On the first point, I am proud of the impact our business has on the wider community, and the environment, and the positive social difference we make. Our investors and financial stakeholders are contributing to the wonderful difference our industry makes, and I am delighted that they can be rewarded for doing so.

In respect of climate-related financial disclosure, this document records our risks in detail.

However, as I pointed out last year, relevant risks have been carefully considered as a normal part of our business for many years. The increasing social pressure to report under the specific heading of climate might be misunderstood by some readers to signify a change in the risks themselves. We have long considered that weather events may become more severe, that long term demand and prices could change structurally, that climate regulation may affect oil and gas investment, or that access to capital might be more expensive as financiers seek alternative sectors.

As a result of the TCFD process, we explicitly identified these risks as climate-related. Our risk management has assessed all types of risks for as long as I have been an oil and gas executive. We apply price sensitivity to investments, we model extreme weather events and future markets for our product as well as our likely access to capital.

The oil and gas business depends on shrewd capital allocation and we manage our risks accordingly.

We are very clear: We accept the science of climate change. We accept that the prudent and responsible course for those of us who can make a difference is to support decarbonisation. Prudence supports urgency in this global challenge.

New Zealand Oil and Gas
Annual Report 2021 (continued)

We all have a role to play, and oil and gas businesses need to be leaders because we have special knowledge about energy impacts.

No one believes that the world can de-carbonise overnight. There will be a transition. The starting point of our transition should be to allocate carbon emissions to their highest value uses. Any alternative course means more carbon will be emitted for a given amount of economic activity. The mathematical logic holds regardless of whether policy-makers choose to respond by reducing our economic (and human) activity, or to restrict responses to only some countries.

The only mechanism ever proven to allocate resources efficiently to their highest value uses is market price signals. Emissions pricing is an efficient, fair and transparent tool for reducing carbon emissions.

New Zealand Oil & Gas is making our own efforts regardless of the price signals sent our way. We pay for trees to be planted to offset our head office emissions. Our emissions are modest, however. Scope 3 emissions, those from the oil and gas products we produce, are best addressed through transparent regulatory tools that allow users to make their own decisions.

At New Zealand Oil & Gas, climate-related risks and opportunities are considered in a structured way. Board-level oversight is led by the board Operational Risk and Sustainability Committee (ORSC).

Climate risk and opportunities are a standing item on the ORSC agenda; Staff consider climate issues in monthly HSSE meetings. The corporate risk register clearly identifies climate-related risk.

A constant theme of our analysis is that natural gas and LNG are crucial to reducing carbon emissions.

Emerging economies are looking to substitute lower carbon alternatives like natural gas for higher emission coal. If we can produce more natural gas in Australia for activities such as electricity generation, then we help to reduce emissions and help the transition to renewable energy and electrification of industry and transport. Renewable energy requires back up generation. Renewable energy systems literally cannot meet modern energy needs without thermal energy. Natural gas is the best form of thermal back up available in New Zealand or Australia.

Plants such as Kupe in south Taranaki, New Zealand, and the Amadeus basin in Australia's Northern Territory, produce natural gas as ethically as just about anywhere on Earth. Labour standards and environmental performance compare favourably to third world coal mines, or the world's lithium and cobalt sources (key ingredients in batteries).

Our activities help to make the world a better place.

The following disclosures help to explain how.

Andrew Jefferies
Managing Director

New Zealand Oil and Gas
Annual Report 2021 (continued)

TCFD

Our action

WE WILL

Actively identify, manage and mitigate material climate risk to our business, and report our governance, strategy, risk management, and targets and metrics transparently.

Disclose our carbon emissions.

Actively promote the benefits of gas as a lower-emitting transition fuel that supports energy reliability and affordability, and is a strong companion for the uptake of renewables.

Minimise the carbon impact of our own operations.

Employ carbon capture and storage technology if it is viable.

Respond meaningfully to stakeholder views and expectations around climate change as it pertains to our activities.

WHAT WE HAVE DONE

Aligned risk management processes, governance and reporting with Taskforce for Climate Financial Disclosures framework.

Analysed investment prices using an internal price on carbon.

Developed and adopted a climate policy.

We planted trees to offset our Scope 1 emissions.

Disclosed our climate risks.

Supported carbon pricing through regulatory advocacy.

Produced ethical, low-emissions natural gas in Australia and New Zealand to support renewable generation and replace high carbon alternatives.

Our climate change policy is here:

www.nzog.com/climatedocument/405

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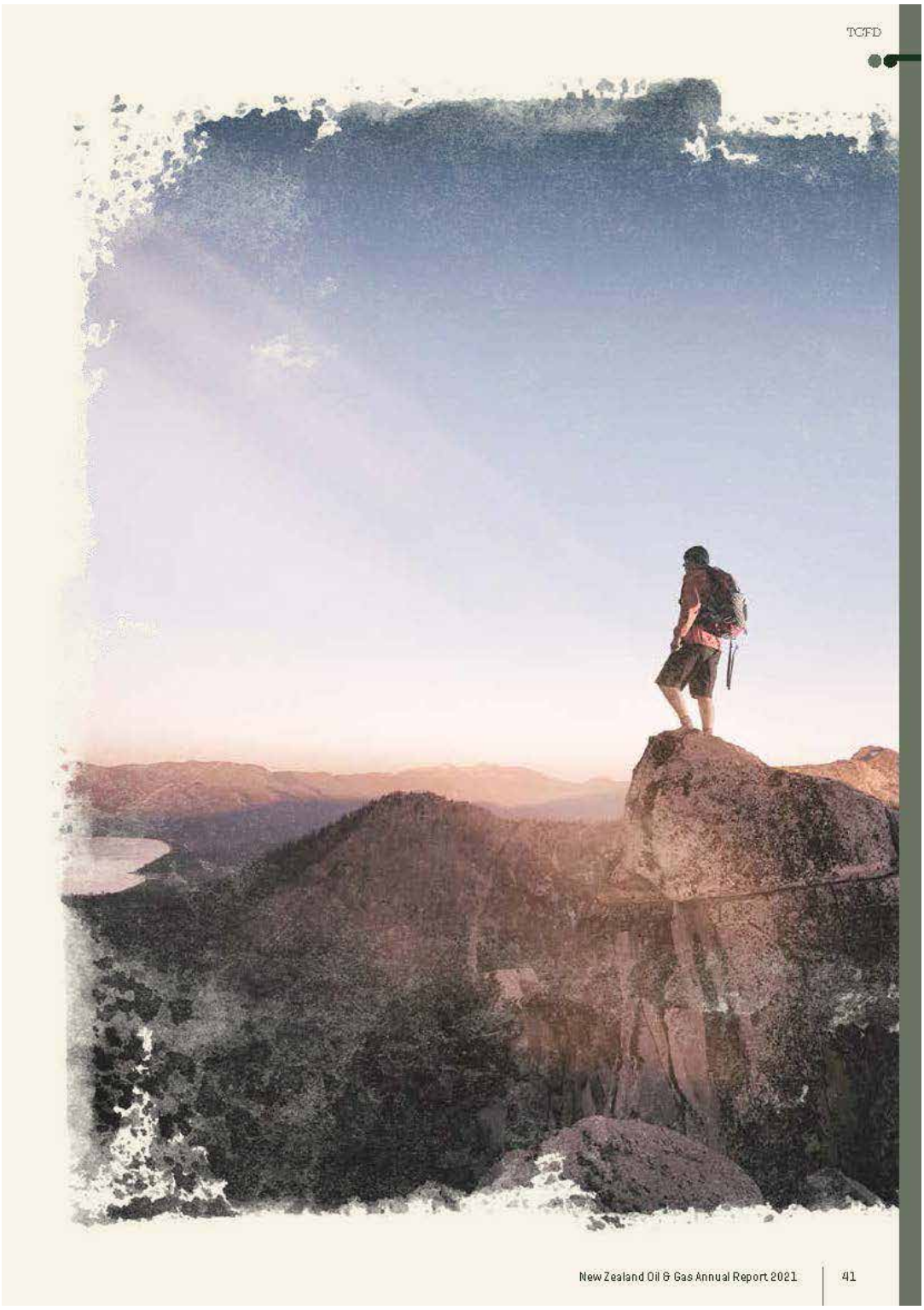

New Zealand Oil and Gas
Annual Report 2021 (continued)

TCFD

Climate risk governance

Compliance with NZX Code Recommendations

TCFD category	Recommendation	✓/X	Explanation for non-compliance
Governance	Disclose the organisation's governance around climate-related risks and opportunities	✓	
	Describe the board's oversight of climate related risks and opportunities	✓	
	Describe management's role in assessing and managing climate-related risks and opportunities	✓	

BOARD OF DIRECTORS

- Board Charter
- New Zealand Oil & Gas Risk Management System
- ISO 31000 Risk Management
- NZX Listing Rules and Corporate Governance Code eg. Principle 6: Risk Management
- ASX Corporate Governance Principles including Principle 7: Recognise and Manage Risk
- Reviews risk analysis received from ORSC and adjusts strategy accordingly.

BOARD OPERATIONAL RISK AND SUSTAINABILITY COMMITTEE (ORSC)

- Reviews risks annually including changes derived from Risk Owners and the management team
- Reports risk and opportunities to Board.

MANAGEMENT TEAM

- Regularly to review risks and update Risk Register
- Report Risk Register to ORSC

STAFF HEALTH SAFETY AND ENVIRONMENT COMMITTEE

- Meets weekly and monthly to identify and review HSE incidents (actual or potential) and where appropriate feed these into the Risk Register.

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New Zealand Oil and Gas
Annual Report 2021 (continued)

TCFD

This governance process

The board has responsibility for reviewing all risks, including climate-related risk and opportunities, and ensuring these are appropriately managed to support delivery of our business strategy.

THE BOARD'S CHARTER REQUIRES IT TO:

> "Understand the material risks faced by the Company and ensure the Company has appropriate risk management strategies and control measures in place and is actively managing these."

The process for considering risks is set out in the risk management system framework. The framework aligns with International Standard ISO 31000 Risk Management – Principles and Guidelines and meets the requirements of the ASX Corporate Governance Principles and Recommendations, Principle 7: Recognise and Manage Risk.

The board Operational Risk and Sustainability Committee committee monitors risk, including climate risk, and reviews the Company's policies, including its response to climate change, and climate-related risk.

A series of formal policies and risk management processes relate to climate issues, including the climate change policy, environment policy, risk management framework and sustainability framework.

The Company's risk register assesses climate impacts, both as stand-alone risks, and as risks embedded in individual management plans.

For example, asset management plans assess risks of increased severe weather impacts and coastal erosion effects that are forecast effects of climate change.

Specific measurable goals

- Make climate risks identifiable as climate-related risks in the corporate risk register.
- Assess the company's emissions and purchase trees that offset carbon emitted by the Company's activities.
- Assess investment opportunities using a shadow carbon price.

Management is responsible for identifying, assessing and managing risk and reporting this to the board through the ORSC. Management risk owners continuously identify and manage risks. Management reviews the corporate risk framework including the risk register, regularly. The ORSC receives a report on updates to the register.

The Health, Safety and Environment committee meets weekly and more formally monthly to identify and review actual or potential HSE incidents, including those at partner operated facilities. These reviews are integrated into the risk register, where appropriate. Climate-related risks may be raised in these processes.

Members of the Management Team, including the chief financial officer and general counsel, undertook TCFD training.

At an operational level, responsibility for day-to-day oversight of climate risk and opportunity (including managing climate objectives and targets that sit within the Sustainability Framework), rests with the general counsel.

All corporate charters and policies are available in the corporate governance section of the Company's website.

The Operational Risk and Sustainability Committee charter is here:

www.nzog.com/omsdocument/370

Environment policy is here:

www.nzog.com/omsdocument/991

The risk management system framework is here:

www.nzog.com/omsdocument/1-risk-management-procedure

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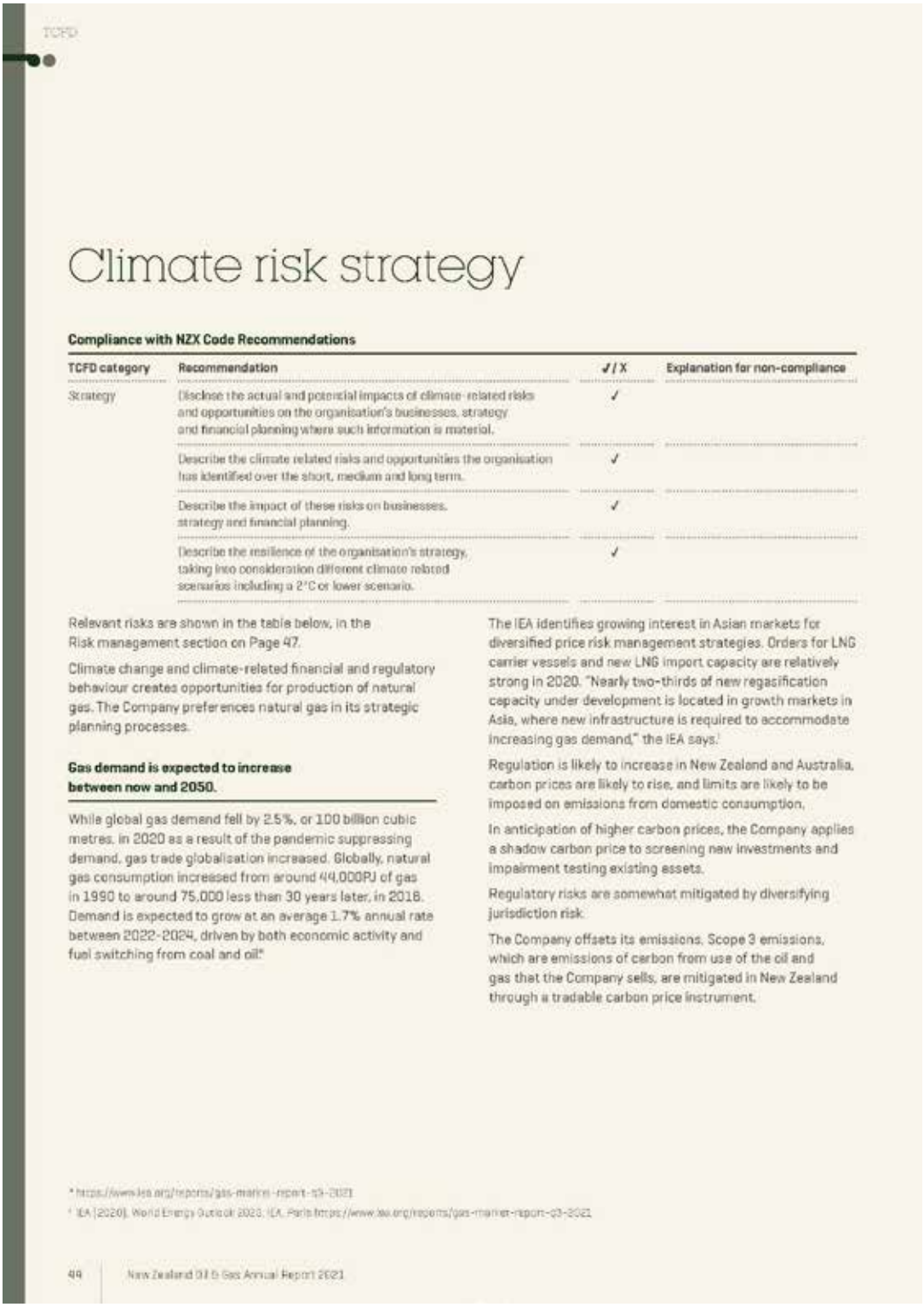

TCFD

Climate risk strategy

Compliance with NZX Code Recommendations

TCFD category	Recommendation	✓/X	Explanation for non-compliance
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.	✓	
	Describe the climate related risks and opportunities the organisation has identified over the short, medium and long term.	✓	
	Describe the impact of these risks on 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.	✓	

Relevant risks are shown in the table below, in the Risk management section on Page 47.

Climate change and climate-related financial and regulatory behaviour creates opportunities for production of natural gas. The Company prefer ences natural gas in its strategic planning processes.

Gas demand is expected to increase between now and 2050.

While global gas demand fell by 2.5%, or 100 billion cubic metres, in 2020 as a result of the pandemic suppressing demand, gas trade globalisation increased. Globally, natural gas consumption increased from around 44,000PJ of gas in 1990 to around 75,000 less than 30 years later, in 2018. Demand is expected to grow at an average 1.7% annual rate between 2022-2024, driven by both economic activity and fuel switching from coal and oil.*

The IEA identifies growing interest in Asian markets for diversified price risk management strategies. Orders for LNG carrier vessels and new LNG import capacity are relatively strong in 2020. "Nearly two-thirds of new regasification capacity under development is located in growth markets in Asia, where new infrastructure is required to accommodate increasing gas demand," the IEA says.†

Regulation is likely to increase in New Zealand and Australia, carbon prices are likely to rise, and limits are likely to be imposed on emissions from domestic consumption.

In anticipation of higher carbon prices, the Company applies a shadow carbon price to screening new investments and impairment testing existing assets.

Regulatory risks are somewhat mitigated by diversifying jurisdiction risk.

The Company offsets its emissions. Scope 3 emissions, which are emissions of carbon from use of the oil and gas that the Company sells, are mitigated in New Zealand through a tradable carbon price instrument.

* https://www.iea.org/reports/gas-market-report-q3-2021

† IEA (2020), World Energy Outlook 2020, IEA, Paris https://www.iea.org/reports/gas-market-report-q3-2021

New Zealand Oil and Gas
Annual Report 2021 (continued)

Resilience in alternative scenarios

In all scenarios, we expect to see swiftly increased demand for gas in Asian markets. A more rapid decarbonisation outlook implies a faster switch to gas in Asian markets, and reduced or stable use in Australia and New Zealand. In Indonesia we see a faster switch to natural gas from coal, and steady demand for oil as the economy develops.

Impairment testing is applied to all assets. Resilience to physical risks, such as weather events, is a normal part of engineering risk management.

The Company monitors the International Energy Agency's World Energy Outlook and forecasts such as the BP Energy Outlook.

To further support our modelling assumptions, we seek information from our JV partners, including scenario analysis where undertaken, following the structure of TCFD.

New Zealand Oil and Gas
Annual Report 2021 (continued)

TCFD

Climate risk management

Compliance with NZX Code Recommendations

TCFD category	Recommendation	✓/X	Explanation for non-compliance
Risk management	Disclose how the organisation identifies, assesses and manages climate-related risks	✓	
	Describe the process for identifying and assessing climate risks.	✓	
	Describe processes for managing climate risks.	✓	
	Describe how processes for identifying, assessing and managing are integrated into overall risk management.	✓	

How we identify, assess and manage climate-related risks

The Company's Risk Management System Framework applies consistent and comprehensive risk management practices. Climate risks are recorded in the central risk register, which considers the risks, reviews the controls, assigns ownership of risk and tracks treatment plans.

Climate risks are identified on an ongoing basis. Consideration is given to industry and peer information and expertise, shareholder and community feedback, regulatory changes, and analysis by our own staff and contractors.

Risk assurance and oversight of climate risk management is provided through internal review by the board Operation Risk and Sustainability committee.

The Risk Management System Framework is described in the corporate governance section on pages 76–77.

Responsibility for identifying, documenting and managing risks and opportunities is delegated to the appropriate level of management.

The general counsel has responsibility for climate risk. Asset managers are responsible for risks to individual assets. The chief financial officer has management responsibility for financial and investment risks associated with climate change.

Potential risks to New Zealand Oil & Gas from climate change are assessed under the following headings:

- Policy and Legal,
- Physical (acute and chronic),
- Financial and Market,
- Social/Political/Regulatory, and
- Technological.

All these risks have potential financial and operational implications due to lost profitability and increased delays.

How we model climate risk

For our New Zealand Kupe asset, New Zealand Oil & Gas uses the New Zealand ETS market pricing for carbon emissions. The Company has sufficient forward emissions credits for future demand. As these were purchased at much lower carbon prices, the emissions trading system carbon costs represent a positive opportunity for competitive advantage.

For impairment testing prices are based on forward market prices in July 2020, notwithstanding New Zealand Oil & Gas holding carbon credits.

For investment into Amadeus basin assets, New Zealand Oil & Gas uses an internal price to test economics of investments based on market prices in other comparable international regimes. Expectations of forward prices reflect the market consensus on the likelihood and level of future carbon charges and market demand. Potential increased carbon pricing or reduced prices are part of the Company's sensitivity testing.

For example the Californian-Quebec May auction prices were USD18.80 per tonne of carbon. Korean prices were around USD35 per tonne prior to COVID-19 effects, and the European ETS units were trading historically at around USD30 per tonne prior to COVID-19 effects (although after changes to the European scheme and a colder than normal winter heating season, carbon prices increased to ca. USD65 per tonne.)

Currently, New Zealand Oil & Gas tests Australian investment economics with a price of USD20 per tonne, with scenarios testing this price increasing to USD60 per tonne by 2040.

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TCFD

The table uses the following time horizon categories: Short (S): 0-5 years, Medium (M) 5-10 years, Long (L) 10+ years.

Risk type	Description	Time	Control
Non physical risks Policy and legal risks	Litigation against companies and/or directors on climate grounds (claiming causation or seeking greater action to mitigate effects) could have reputational, development and operating cost impacts. Changing regulations including bans and restrictive regulations, taxes and emissions limits across all jurisdictions risk viability of projects.	S M L	Board and management understand their fiduciary duties around climate change risk. Internal processes, including due diligence and joint venture processes, identify and manage climate risk. Monitor jurisdictions where we undertake activities. Look to diversity jurisdictions to mitigate changes to any individual regulatory environment. Participate in New Zealand's environmental regulation framework through reputable industry advocacy bodies, including Energy Resources Aotearoa, Business New Zealand and the Business Energy Council. Develop evidence for the role of natural gas in a net carbon zero future.
Reputational and social license risks	Stakeholder disengagement and oppositional activism. Loss of social license, leading to project delays or stoppages. Recruitment and retention risk. Risk of partner misalignment from divergent approaches to carbon management.	S M L	Manage environmental performance through sustainability framework. Promote corporate values, including our pride in our work. Due diligence screening of commercial opportunities and joint ventures.
Financial risks	Divestment movement increases, affecting availability and cost of capital.	S M L	Shadow price on carbon to sensitivity testing in investment decisions.
	Insurance premiums increase. Potential for classes of assets and locations to become uninsurable.	S M L	Due diligence screening of commercial opportunities and joint venture processes.
	Capital cost increases if new environmental standards require more expensive supplies relative to alternatives.	M L	Assurance relating to insurance forecasts. Access to a range of funding options.
	Carbon pricing adopted across jurisdictions, or inconsistently between them.	S M L	Reporting on ESG matters, including TCFD compliant reporting.
	Changes to price and cost forecasts result in stranded assets or reserves.	S M L	Jurisdictional diversification to avoid impact of sudden, unilateral changes, confiscation or value destruction by regulation.
Physical risks Acute & Chronic	Physical assets, especially our coastally-located gas production plant, may be subject to increased frequency and intensity of extreme weather events such as storms, flooding, coastal inundation, lack of water availability, or slips. Offshore drilling and production delayed or shut in by increased weather events.	M L	Engineering anticipates environmental conditions. Carbon policy provides for review of climate issues in strategic and operational decisions.
Opportunities Commercial	Global reduction in high carbon sources such as coal is increasing demand for natural gas as a lower carbon partner to renewables.	S M L	Strategic preference for natural gas. Support for our joint venture partners pursuing low carbon innovations on sites. Ongoing investigation of investment opportunities in lower emission technologies, including carbon capture and storage.
Reputational	Partnering with local communities to support low carbon initiatives.	S M L	Local relationships and discussions about contributing to socially desirable low carbon outcomes.

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Annual Report 2021 (continued)

TCFD

Climate related measurements and targets

Compliance with NZX Code Recommendations

TCFD category	Recommendation	✓/X	Explanation for non-compliance
Targets and Metrics	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	✓	
	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 emissions, and the related risks.	✓	The Company does not disclose Scope 3 emissions, as the information is not obtainable and the value is obviated by the existence of a carbon emissions price in New Zealand.
	Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	✓	

Scope 1 emissions relate to New Zealand Oil & Gas-operated activities. Currently these include corporate office activities only. These emissions are too small to be practical to precisely measure. New Zealand Oil & Gas prepares an annual estimate of carbon emissions from corporate activity, using inputs such as electricity bills, air travel and rental car use, waste disposal contracts, and government figures for average building carbon intensity. The company purchases trees through the Trees That Count marketplace to offset these emissions. Air travel is offset through purchases of carbon offsets with tickets.

Emissions from the Kupe gas fields and production station are reported below using data gathered by the operator for Emissions Trading Scheme reporting.

Cue Energy Resources separately compiles its own TCFD reporting, which is available at www.cuenrg.com.au.

Scope 1 and 2 CO2 emissions (metric tonnes).

FY18	FY19	FY20	FY21
6,160	5,670	5,529	5,728

Metrics

Total greenhouse gas emissions (Metric tonnes CO2e)

New Zealand Oil & Gas surrenders credits under the New Zealand Emissions Trading Scheme for its share of production emissions. The company also offsets emissions from its corporate head office by planting trees through the Trees That Count initiative.

Read more about how we offset our emissions through Trees That Count.

grow.treesthatcount.co.nz/landers/nzog/#plantings

New Zealand Oil and Gas
Annual Report 2021 (continued)

OUR RESULTS

TCFD Targets for 2020–21

2020-21 Targets	Status
Maintain TCFD statements and reporting online and in the 2021 Annual Report.	Complete.
Undertake analysis of an internal price on carbon to inform TCFD risk and commercial decisions by end FY 2021	
Offset emissions from corporate flights, annually.	Completed. Internal price applied to Kupe impairment testing and carbon price sensitivity testing applied to Australian investment. See above, How We Model Climate Risk, Page 46.
Offset emissions from corporate head office through Trees That Count	Completed and ongoing.
Initiate office sustainability improvement opportunities	Completed, including: · Project paperless · Keep cups. · Waste/recycling bins, including organics compost bin.

OUR INTENTIONS

TCFD Targets for 2021–22

Focus Area	Target	Impact	Measured by
Reporting	Maintain TCFD statements and reporting online and in the 2022 Annual Report.	Disclosure of risks, impacts and climate responsiveness	Publication. This report, and on the corporate website at https://www.nzog.com/sustainability/climate-change/
Emissions offsets	Continue to offset emissions from corporate flights and head office.	Makes the company close to net zero carbon on Scope 1 emissions	Emissions from flights are calculated by the airline. Contributions to Trees That Count are publicly reported.
Emissions reductions	Initiate ongoing office sustainability improvement opportunities.	Ongoing emissions reductions	Staff sustainability survey.
Emissions reductions	Investigate a carbon emission audit and reduction plan.	Potential reductions and detailed reporting.	Publicly reported.
Emissions reductions	Review of opportunities and projects to support or invest in R&D or other low-carbon commercial opportunities.	Potential reduction in overall Scope 2 emissions reductions	Any new investment segment is publicly reported.

Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Property for Industry
Annual Report 2021

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 2021 to further strengthen our understanding of, and response to, our climate-related risks and opportunities. In particular, PFI has undertaken an exercise to understand the resilience of individual assets in PFI's portfolio to climate change in different climate change transition pathways. We were pleased to find that PFI's portfolio overall has a low to moderate physical risk exposure. We have also taken steps during the year to strengthen how we integrate climate considerations into our due diligence processes for the acquisition of new properties.

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 second report in line with the TCFD recommended disclosures. We note that PFI will be required to provide mandatory disclosures in line with the TCFD recommendations from 2023. These voluntary disclosures position us well to comply with that mandate once it is in place.

Climate change is an evolving crisis 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 are committed to continue progressing our response to climate change over time and to report our progress to our stakeholders each year.

GOVERNANCE

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

PFI's Board has responsibility for our strategic direction along with oversight of our operations and risk management. PFI's Board receives quarterly reporting from Management on sustainability 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 ESG programme (which are set with oversight from the Board). The Board also receives information on climate-related issues 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 and opportunities are presented to the Board's Audit and Risk Committee annually.

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Property for Industry
Annual Report 2021 (continued)

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 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 coordinates our response as part of PFI's wider ESG programme.

A monthly ESG management meeting was established in 2020 that monitors sustainability market trends and regulatory change and makes decisions on PFI's responses to climate-related issues. This meeting is attended by the Chief Executive Officer and Chief Finance and Operating Officer. During 2020 and 2021, the Chief Executive Officer and Chief Finance and Operating Officer oversaw PFI's climate-related risk and opportunity assessments 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.

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
Transition – Policy (regulatory) risk: 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.	■ Short term ■ Medium term □ Long term	PFI is closely monitoring climate-related regulatory change and is working with industry bodies to provide feedback on proposed regulations where appropriate. We are also working to ensure that we are ready to respond to incoming legislative changes when they arise. Our Board receives quarterly reporting on how we are responding to upcoming regulatory change.	During 2021, PFI has begun to explore opportunities to create value by working with tenants on renewable energy and water efficiency initiatives.

Property for Industry
Annual Report 2021 (continued)

RISKS	EXPECTED TIME HORIZON	RISK RESPONSE	RELATED OPPORTUNITIES
Transition – Market (property) risk: With increasing scrutiny of organisations' impact on the climate, we may experience 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.	☐ Short term ■ Medium term ■ Long term	Green buildings have not traditionally been a focus for industrial properties. However, as outlined on pages 29–30, PFI has: ■ joined the New Zealand Green Building Council to build on our sustainable building capability; ■ registered our next major development at 30-32 Bowden Road for Green Star certification; and ■ created a sustainable refurbishment framework.	While this is a longer-term risk, shifting tenant demand has presented us with near-term opportunities to: ■ work with our tenants to help them meet their climate or environmental commitments; and ■ create value by developing Green Star certified buildings. We will continue to progress these initiatives during 2022.
Transition - Reputation and Market (capital) risk: Failure to meet stakeholder expectations regarding ESG performance could in turn lead to difficulty in obtaining capital from: ■ shareholders due to increasing preference to invest in demonstrably sustainable companies; or ■ funders due to increased scrutiny over climate risks and their management.	■ Short term ■ Medium term ■ Long term	PFI sees successful execution of its ESG programme as being critical to managing this risk. PFI's climate-related risk and opportunity assessments have been considered in the design of PFI's ESG programme. This includes: ■ reducing our greenhouse gas emissions; ■ improving the sustainable design of our buildings; and ■ investigating the resilience of individual assets in our portfolio to physical risk, which was completed during 2021. Transparency is also important, so our progress will continue to be disclosed through PFI's annual report, and through CDP.	Strong ESG performance could present an opportunity for PFI to increase our capital availability (for example, through green financing) and promote our reputation.

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Property for Industry
Annual Report 2021 (continued)

RISKS	EXPECTED TIME HORIZON	RISK RESPONSE	RELATED OPPORTUNITIES
Physical – Acute (damage) risk: We may experience damage or loss of access to PFI properties from climate-related events, such as storms or flooding.	☐ Short term ■ Medium term ■ Long term	In response to this risk, PFI has completed an exercise with the assistance of S&P Global 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 plan to repeat this exercise periodically as climate science and the global response evolve. PFI completes physical climate risk assessments as part of our due diligence checks for all new property purchases. To ensure that we are well placed to respond to a major climate event, we continue to retain a strong balance sheet. We also closely manage our insurance programme which provides cover in the event of damage from weather events.	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. We also have an opportunity to embed resilience to climate impacts (rain, wind, heat) into the design of new buildings.
Physical – Acute (insurance) risk: Due to increasing climate-related claims, insurance for climate events may become more difficult to obtain or increasingly expensive.	☐ Short term ■ Medium term ■ Long term	As PFI relies on insurance to remediate damage to its properties, changes in insurer preferences will be 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.	Due to PFI's size, PFI is in a position to be able to put in place tailored insurance structures.

Property for Industry
Annual Report 2021 (continued)

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 issues has influenced the following aspects of our business, strategy and financial planning:

- PFI has undertaken additional analysis of climate-related exposures for individual assets within our portfolio. This has in turn fed into our asset planning and portfolio management decisions.
- PFI has enhanced its due diligence processes to consider climate change-related risks. 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 its business.
- PFI has committed circa $2 million to reducing the greenhouse gas emissions from PFI's refrigerants between 2021 and 2023.
- PFI has sought to address its indirect emissions from its property maintenance and construction activities by investigating options for Green Star developments and sustainable refurbishments.

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): RCP 2.6 (low climate change scenario), RCP 4.5 (moderate scenario) and RCP 8.5 (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.

We have also engaged S&P Global to help us review the vulnerability of PFI's properties to a range of climate-related hazards across different time horizons and climate-related scenarios. S&P Global determined that PFI's portfolio has a low to moderate risk overall. Four properties were assessed as having a heightened exposure to a particular climate-related hazard. 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 considers when considering acquisitions and divestments. The exercise that PFI undertook during 2021 to understand the resilience of individual assets in our portfolio to climate change has given us a greater understanding of the types of climate hazards that are most relevant for PFI, and how these risks can be managed.

We maintain a strong balance sheet that, as demonstrated through the COVID-19 pandemic, helps us to remain resilient in difficult times. However, it is critical that we remain responsive to climate risks as they evolve. How we do this is outlined in the Risk Management section below.

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.

In 2021, this assessment was also informed by the analysis completed by S&P Global on the physical climate risk exposure of each PFI property. We intend to periodically refresh the analysis of physical climate risks for individual PFI properties, but this will not be required on an annual basis.

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Property for Industry
Annual Report 2021 (continued)

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 has 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 issues 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;
- growing our capabilities in sustainable building design for refurbishments and new developments;
- disclosure to stakeholders on our ESG progress;
- annual reviews of our insurance strategy;
- periodically assessing the vulnerability of individual PFI properties to climate impacts; and
- maintaining a strong balance sheet.

Many of these activities form part of PFI's ESG framework, which is overseen by the monthly ESG meetings. Quarterly reporting on sustainability and risk management is provided to the Board.

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 of climate change impacts. We have also introduced a new control 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 2021 (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.

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

METRIC	PURPOSE	2021 RESULT	2020 RESULT
Scope 1 emissions	To measure PFI's impact on the climate.	77.0 tCO_2e	116.8 tCO_2e
Scope 2 emissions	To measure PFI's impact on the climate.	14.2 tCO_2e	5.4 tCO_2e
Scope 3 emissions	To measure PFI's indirect impact on the climate.	2,760.1 tCO_2e	2,701.5 tCO_2e
CDP score	To understand how our climate performance compares to other corporations globally.	B-	C
Capital investment deployed towards removal of R22 gas	To measure progress on our commitment to phasing out R22 within PFI's operational control.	$688k	$0
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)	Not available

*This score was provided 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 2021 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. During 2021, PFI has:

- commenced work to replace all HVAC systems in our portfolio and within our operational control that use R22 refrigerant gas by the end of 2023; and
- taken positive steps to address our indirect carbon emissions associated with our supply chain, as outlined in our sustainability report on pages 29–30.

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

PFI is targeting replacement of all HVAC systems currently in our portfolio and within our operational control that use R22 refrigerant gas by 2023. We are also targeting an improvement in our CDP score from C (in 2020) to B by 2023.

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Appendix 1:
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Dedicated section

Scales Corporation
Annual Report 2021

Our TCFD Report

THEME 1

Governance

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

Climate change impacts are a key consideration for our management teams when reviewing long term strategy, assessing enterprise risk and when evaluating annual performance against plans for their respective businesses. These are also included as a key output in any due diligence when looking at new acquisitions.

Sources of information for strategy, Enterprise Risk Management (ERM) and Key Performance Indicator (KPI) setting comes from scenario modelling, materiality assessments, baseline analysis and industry consultation. The performance against KPI is measured via internal reporting and third-party assurance or certification programmes where applicable (e.g. Toitū).

These documents are escalated and reviewed by Scales' management, Health & Safety and Sustainability Committee, Audit and Risk Management Committee and presented to the Board where appropriate, with a specific focus on the key opportunities and material risks across our business units.

THEME 2

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

Scales' risks and opportunities have been prioritised based on:

- short, medium and long-term timelines and
- the impact on our businesses, environment, people and communities (low, medium and high).

Risk strategies range from contingency plans (risk acceptance), elimination, risk transfer and/or mitigation, while we look to leverage our competitive advantages to capitalise on climate change opportunities.

Most of the strategies outlined below focus on the elimination or mitigation of the physical impacts caused by climate change (under 2 degrees scenario[1]) and are viewed as medium or high risk. As in 2020, water availability and accessibility has been identified as a priority in the long term and, while we have good supply across our orchards, we are actively looking at initiatives to improve our water use efficiency and security.

In 2022 we intend to engage external consultants to deliver more granular spatial information over a range of climate change scenarios. This will then feed into our re-assessment of opportunities and risks across our businesses.

At this stage our focus remains on water security, energy management, increased use of technology and digitisation to improve efficiencies and traceability, selection of growing areas, soil management and improving our partnerships across the value chain. We will also undertake more analysis to better understand some of the transitional risks our businesses may face in the future, including increased regulation, policy changes and consumer preferences because of climate change.

[1] As outlined by NIWA at https://niwa.co.nz/our-science/climate/information-and-resources/clivar/scenarios#regional

Scales Corporation
Annual Report 2021 (continued)

THEME B

Risk Management

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

Identification of risks is completed via internal stakeholder input (staff and management), industry consultation and third-party analysis. These are imbedded within our existing ERM framework, which assesses risk at an operational and critical level.

The assessment looks at the effectiveness and strength of underlying controls and mitigations against the impact and likelihood of occurrence. The evaluation allows key risks to be prioritised through the ERM process, which allocates resources to deliver appropriate risk strategies and treatments.

Monitoring and reporting is done monthly via the ERM framework. However, the progress and outcomes of specific sustainability projects are reported to both the Health & Safety and Sustainability Committee and the Board.

THEME C

Metrics & Targets

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

As previously mentioned, our primary focus has been on Mr Apple and the organisational control we have over the growing, packing and exporting environment. Our focus in the future will be extended to the remaining Scales businesses. We now have baseline carbon emissions for Meateor NZ and this will allow us to set appropriate targets and metrics for this business in 2022.

The key metrics and timelines for Mr Apple across carbon emissions, waste, energy and fuel usage are outlined above.

Our key risks, opportunities and anticipated impacts can be summarised as follows:

	Risks	Current Strategies	Future Strategies	Opportunities
Water	• Reduced access to sufficient, quality, water	• Continued focus on water management, including maintenance of existing water rights • Continued focus on our effect on water sources • Active participation in water right negotiations and farm environmental plan development	• Investigation of water storage possibilities • Continued investment into more Sensortech and improved irrigation systems	
Increased frequency and severity of weather events	• Damage to crop and/or trees • Disruption to logistics chain	• Geographical spread of orchards • Investment in frost protection machines and optical grading technology • Crop insurance providing cover for severe crop losses • Use of canopy cover and planted shelter belts	• Analysis of canopy covers • Increased wind protection • Canopy structure review	
Rising average temperatures	• Change in growing/ ripening profile and orchard yields • Reduced crop quality due to sunburn and tree stress • Potential pest and disease profile change • Increased management costs e.g., additional sprays	• Continued management focus on minimising sunburn and tree stress • Continued targeted programme for pests and diseases • Active membership on industry bodies	• To understand extent of temperature change • Review new growing regions for ideal climatic conditions	• Reduced frosts • Increased dry days improving pollination and potentially reducing pest and disease risk
Reduced minimum / maximum temperature differences	• Availability of overseas workers if climate-changes in their homelands impact their ability to travel • Less fruit colour if nights are warmer	• Continued engagement with the Government regarding the RSE scheme, and other work schemes • Use of reflective cloth to increase fruit colour	• To understand the extent of temperature differences and the impact on the crop	

Appendix 1:
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Dedicated section

Westpac
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Directors' report

5. Environmental disclosure

The Westpac Group's environmental framework is made up of:

- our Sustainability Strategy;
- our Westpac Group Environment Policy and targets;
- our Sustainability Risk Management Framework;
- our Climate Change Position Statement and 2023 Action Plan;
- our positions on certain sensitive sectors;
- our Responsible Sourcing Code of Conduct and Responsible Sourcing Program; and
- public reporting of our environmental performance.

We participate in a number of voluntary initiatives including the Dow Jones Sustainability Index, CDP (formerly known as the Climate Disclosure Project), the Equator Principles, the Principles for Responsible Banking, the Principles for Responsible Investment, the United Nations Global Compact, the RE100 and the Australian Government Climate Active Carbon Neutral Standard. We also review our performance against a number of Environmental, Social and Governance (ESG) benchmarks, including Sustainalytics, MSCI ESG and ISS. We report in line with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD).

The National Greenhouse and Energy Reporting Act 2007 (NGER) came into effect in September 2007. The Group reports on greenhouse gas emissions, energy consumption and production under the NGER for the period 1 July through 30 June each year.

Our operations are not subject to any other significant environmental regulation under any law of the Commonwealth of Australia or of any state or territory of Australia. We may, however, become subject to environmental regulation as a result of our lending activities in the ordinary course of business and we have policies in place to ensure that this potential risk is addressed as part of our normal processes.

We are not aware of the Group incurring any material liability (including for rectification costs) under any environmental legislation.

Westpac has reported its performance against its 2021 Sustainability Strategy and provides an update in the section titled 'climate change' in Section 1 of this Annual Report. Our Sustainability Supplement provides disclosures aligned to the recommendations of the TCFD (see pages 28 to 29).

Additional information about our environmental performance, including information on our climate change approach, details of our greenhouse gas emissions profile and environmental footprint, and progress against our environmental targets and carbon neutral program are available on our website at https://www.westpac.com.au/about-westpac/sustainability/.

6. Human rights disclosure

Westpac's overall approach to human rights is set out in our Human Rights Position Statement and 2023 Action Plan. This lays out the principles and actions that guide our approach and commitment to respecting human rights in our role as a financial services provider, lender, purchaser of goods and services, employer, and supporter of communities.

For example, our Responsible Sourcing Program, including the Responsible Sourcing Code of Conduct and risk assessment methodology is the primary framework for identifying and addressing human rights in our supply chain.

The Group is subject to the Commonwealth of Australia's Modern Slavery Act 2018 (Cth) and the United Kingdom's Transparency in Supply Chains provisions under the Modern Slavery Act 2015.

As required under the Australian and UK legislation, Westpac publishes an annual statement to disclose the steps taken during the year to help prevent modern slavery from occurring within the Group's operations and supply chain. Westpac published its statement for the 2020 financial year in March 2021.

7. Rounding of amounts

Westpac is an entity to which ASIC Corporations Instrument 2016/191 dated 24 March 2016, relating to the rounding of amounts in directors' reports and financial reports, applies. Pursuant to this Instrument, amounts in this Directors' report and the accompanying financial report have been rounded to the nearest million dollars, unless indicated to the contrary.

8. Political engagement

In line with Westpac policy, no cash donations were made to political parties during the financial year ended 30 September 2021.

In Australia, political expenditure for the financial year ended 30 September 2021 was $137,151. This relates to payment for participation in legitimate political engagement activities where they were assessed to be of direct business relevance to Westpac. Such activities include business observer programs attached to annual party conferences, policy dialogue forums and other political engagement activities, such as speeches and events with industry participants.

In New Zealand, political expenditure for the financial year ended 30 September 2021 was NZD$10,321.

Westpac
Annual Report 2021 (continued)

Climate change

Climate change is one of the most significant issues that will impact the long-term prosperity of the global economy and our way of life.

We are committed to managing our business in alignment with the Paris Agreement and the need to transition to a net zero emissions economy by 2050.

As a major financial institution, we recognise that we have an important role to play in supporting customers and communities in transition, through providing products and services.

This year, we continued to deliver on our Climate Change Position Statement and 2023 Action Plan (Climate Action Plan) while recognising the significant increase in the importance of climate change to our business and stakeholders. This includes:

- **Helping customers and communities respond to climate change**
- **$15 billion target in new lending to climate change solutions by 2030[1]**
- **Aiming to reduce our exposure to thermal coal mining to zero by 2030**
- **Financing of electricity generation sector to support Paris-aligned transition pathways to a net zero emissions economy by 2050**
- **Sourcing equivalent of 100% of Westpac's electricity consumption through renewable energy sources by 2025.**

Below is a summary of major developments this year, and further detail can be found in the Climate Change section of our 2021 Sustainability Supplement.

Developments on governance and oversight of sustainability matters

- Established a CEO-led Group ESG and Reputation Committee that will oversee our Climate Action Plan and wider ESG agenda. The Committee meets at least four times a year
- During the year the Board:
  - attended a workshop led by industry experts on climate change risks, and related Directors' responsibilities
  - reviewed our Climate Action Plan progress as part of its six-monthly sustainability strategy update
  - endorsed extra resources to support our Climate Action Plan.

Strategy

Progress on our Climate Action Plan and how we are helping our customers transition, included:

$1.9bn IN NEW LENDING TO CLIMATE CHANGE SOLUTIONS

LARGEST BANK LENDER TO GREENFIELD RENEWABLE ENERGY PROJECTS IN AUSTRALIA FOR PAST FIVE YEARS[2]

ELEVATED CLIMATE CHANGE RESPONSE TO A COMPANY-WIDE STRATEGIC PRIORITY

CONTINUED TO DEVELOP PARIS-ALIGNED FINANCING STRATEGIES AND PORTFOLIO TARGETS FOR SECTORS REPRESENTING THE MAJORITY OF OUR FINANCED EMISSIONS, WITH A FOCUS DURING THE YEAR ON OIL AND GAS, METALS AND MINING SECTORS

ADVANCED WORK TO UNDERSTAND HOW BEST TO SUPPORT AGRIBUSINESS CUSTOMERS TO MANAGE CLIMATE RISK

REDUCED SCOPE 1 & 2 EMISSIONS[3] BY 58% AGAINST A 2016 BASE YEAR AND 43% AGAINST 2020

PARTICIPATED IN A RANGE OF INDUSTRY FORUMS INCLUDING THE UNITED NATIONS ENVIRONMENT PROGRAMME FINANCE INITIATIVE PRINCIPLES FOR RESPONSIBLE BANKING AND THE AUSTRALIAN SUSTAINABLE FINANCE INITIATIVE

1 Over time period 2020 to 2030.
2 IJGlobal and Westpac Research data.
3 Includes Westpac Group operations in Australia, New Zealand, United Kingdom and Pacific. 2021 is the first year Westpac is reporting market based emissions to account for renewable energy investment. The base year of our Scope 1 & 2 and Scope 3 Supply Chain GHG reduction targets is calculated applying the location-based accounting method. Historic location-based data is used as a proxy for a market-based method, as electricity supplier emission factors or residual emission factors for some international operations are not available.

Westpac
Annual Report 2021 (continued)

BUILDING OUR UNDERSTANDING OF TRANSITION CLIMATE RISKS

We seek to engage customers, particularly those in the most emissions intensive and climate-vulnerable sectors, to develop financing strategies to support their response to climate change impacts. We seek to provide our business customers[1] with a range of innovative sustainable finance structures including green deposits, green bonds and sustainability-linked loans.

This year, we undertook further analysis to understand our Scope 3 financed emissions, which estimates that:

- **manufacturing, utilities and mining are the sectors[2] with the highest emissions intensity per dollar lent**
- **the majority of our lending is to relatively low-emissions intensity sectors such as property and residential mortgages.**

Developments on Risk Management

- Continued to embed sustainability and climate risk management in the Group's Risk Management Framework, and aligned with the Three Lines of Defence model
- Worked to manage transition and physical risks across key loan portfolios – overseen by the Climate Change Financial Risk Committee
- Continued to support our existing thermal coal mining customers, managing our portfolio in line with a commitment to reduce our exposure to zero by 2030
- Continued to participate in APRA's Climate Vulnerability Assessment
- Continued to build our understanding of physical risk in agribusiness and residential mortgage portfolios.

Metrics and targets

Further detail on climate metrics and targets is in our Sustainability Supplement.

Looking ahead

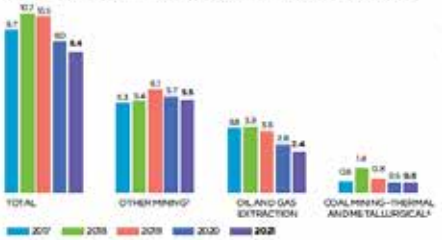
In 2022, we will continue developing Paris-aligned financing strategies and portfolio targets, particularly for sectors representing the majority of our financed emissions. We will work with customers and industry experts. The analysis will consider a range of factors, including the IPCC Sixth Assessment Report, the IEA's Net Zero by 2050, A Roadmap for the Global Energy Sector Report, as well as the impact on the bank and customers, including in hard-to-abate sectors.

ENERGY SECTOR VALUE CHAIN

Lending to the energy sector value chain[3] can be described in the categories below. Overall, we saw a decrease in exposures to non-renewable energy sectors and an increase in exposures to renewable energy over the year.

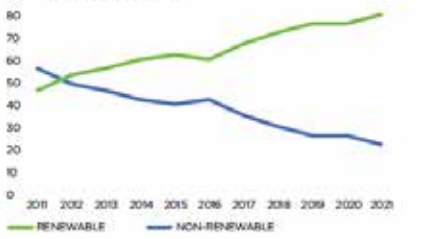
MINING EXPOSURE ($bn)

Total mining is 0.75% of Group TCE, lending to coal mining is 0.05% and lending to oil and gas extraction is 0.21% of Group TCE.



LENDING TO ELECTRICITY GENERATION AUS & NZ (%)

The share of renewables in our lending to the electricity sector has increased to 79%.



1 Customers from our Institutional, Corporate and Commercial segments.
2 Manufacturing includes primary metal production and petroleum refining. Utilities includes electricity generation. Mining includes coal, oil and gas extraction.
3 All figures are Total Committed Exposures (TCE) at 30 September 2021 for WIB only.
4 For oil and gas extraction customers with LNG terminal operations, the exposures to LNG terminals is reported in the Transport category.
5 Coal exposures within diversified miners are apportioned by the percentage EBITDA contribution of coal in their latest annual financial statements. Thermal coal exposures in diversified miners is immaterial.
6 Australia and New Zealand only. Customers with operations across several sectors are attributed across those activities based on business segment contribution.
7 Other mining includes iron ore, metal ore, construction material, exploration and services.
8 Thermal coal mining is 43% of coal mining exposure (WIB only).

Appendix 1:
NZSX-listed 2021 annual reports –
Dedicated section

Z Energy
Annual Report 2021

Pūrongo TCFD tau tuarua

TCFD Report year two

Climate change presents many risks to businesses around the world, including financial risks related to future earnings and the value of assets. It is a material issue for Z.

The products that Z sells represent approximately 10 percent of New Zealand's emissions and Z has been in existence during a decade in which New Zealand's emissions from the transport sector have increased.

In line with our integrated reporting approach, last year Z adopted the TCFD Framework to begin to further assess the business's climate-related risks and opportunities. Climate-related financial risks require an integrated business approach to mitigate and manage now and into the future.

A four-year roadmap (see page 33) set Z on a path towards fully understanding and disclosing our climate-related risks and opportunities to provide transparency of the most material climate-related financial impacts. This approach aligns Z with the Government's recommendation to introduce mandatory climate-related financial disclosures by 2023. It also enables Z to incorporate the Climate Change Commission's carbon budget advice to set New Zealand on a path to net-zero by 2050.

Z's focus in FY21 was to assess and understand the business's material climate change risks and opportunities so that guidance can be provided on how to control for, mitigate or adapt to these risks.

A series of cross-functional internal workshops and analysis supported by external advisors informed this work. The outcome is a better understanding of Z's physical and transitional risks and opportunities based on two different climate scenarios. The workshops considered the risks and opportunities in the short term (2020–2025), medium term (2025–2040) and long term (2040–2060).

Z Energy
Annual Report 2021 (continued)

Our four-year TCFD roadmap

	FY20	FY21	FY22	FY23
Governance	• Gap analysis completed • Internal alignment achieved • Board approval			
Strategy	• BEC Scenarios used to inform strategy	• Scenarios expanded to include a 2 degrees Celsius and one other comparison scenario	• Climate scenario analyses integrated into financial modelling and informs strategy	• Climate-related risks and opportunities quantified, and financial impacts identified
Risk Management	• Approach to climate risk management documented	• Qualitative risk assessments identified physical and transitional climate-related risks • Climate risks integrated into risk management processes	• Climate-related risks and management process reviewed for effectiveness • Quality assurance of climate risk management and financial disclosures	
Metrics and Targets	• Carbon targets integrated into business planning	• Climate-metrics and targets under review and agreed		

Key
Complete
In progress
Planned

Note: TCFD Index can be found on pages 127–128.

Z Energy
Annual Report 2021 (continued)

TCFD Report year two, continued

Climate scenarios

Last year, Z started to use the Business Energy Council (BEC) 2060 scenarios (Kea and Tūī) for long-term planning. These scenarios, combined with the latest climate projections provided by the Intergovernmental Panel on Climate Change (IPCC) and local New Zealand data, were used to assess Z's climate-related risks and opportunities in line with different temperature scenarios, including a below 2 degrees Celsius scenario.

In the 'Rapid Transition' scenario, climate change is recognised by society as the most important priority and New Zealand transforms itself rapidly into a low-emissions economy to meet net-zero targets. In the 'Slow Transition' scenario, climate change is recognised as one of many competing social and environmental priorities and emissions peak by 2040 before beginning to decline.

Rapid transition

New Zealand aggressively transforms itself into a low-emissions economy to meet net-zero targets. There has been a global transition to a low-emissions economy and the Paris Agreement has been implemented.

Global warming is well below 2 degrees Celsius over the next century.

Reference scenarios include:

- **BEC2060 Kea scenario**
- **IPCC RCP 2.6**
- **MfE Climate Change projections for New Zealand, 2nd edition and supporting regional documentation from NIWA**

Slow transition

Climate change is recognised as one of many priorities. New Zealand leverages its traditional comparative economic advantages to generate wealth and does not transform its economy. Emissions peak by 2040 and then begin to decline as the world begins to appreciate the impacts of climate change. Global economies have failed to curb emissions over the medium term, resulting in warming of 3 degrees Celsius or more by 2100.

Reference scenarios include:

- **BEC2060 Tūī scenario**
- **IPCC RCP 4.5**
- **MfE Climate Change projections for New Zealand, 2nd edition and supporting regional documentation from NIWA**

BEC scenarios

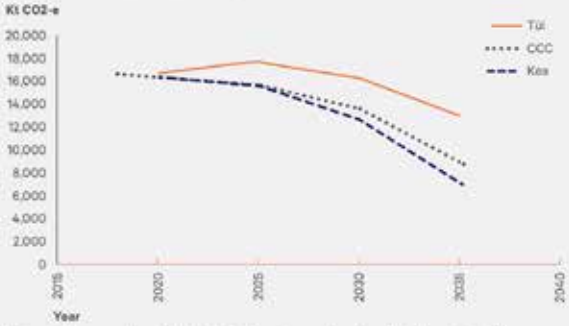
On 31 January 2021, the Climate Change Commission (CCC) released their Draft Advice to put New Zealand on the path to meeting its 2050 targets under the Climate Change Response (Zero Carbon) Act. The CCC's advice calls for a rapid decline in emissions from transport, with a fall of 47 percent from 2018 to 2035. This includes an import ban on internal combustion engines for light vehicles in the early 2030s, continued tax increases on fossil fuels combined with encouragement for active transport and mode shift. This would result in very steep declines in fossil fuel demand post 2030.

Z has since mapped the CCC 'Our path' forecasts (the grey line in the graph to the right) to the two BEC scenarios (Tūī and Kea) that Z has been using for long-term planning. Given the CCC's advice is still in draft stage, it is more indicative than exact, but clearly shows that the CCC's forecasts are consistent with the Kea scenario, and therefore within Z's previous long-term demand forecasts.

Z has commissioned further modelling to undertake sensitivity analysis and test the scenarios. Following this, Z will then complete the quantification of its own House View, with the expectation it will not materially differ from the CCC pathway.

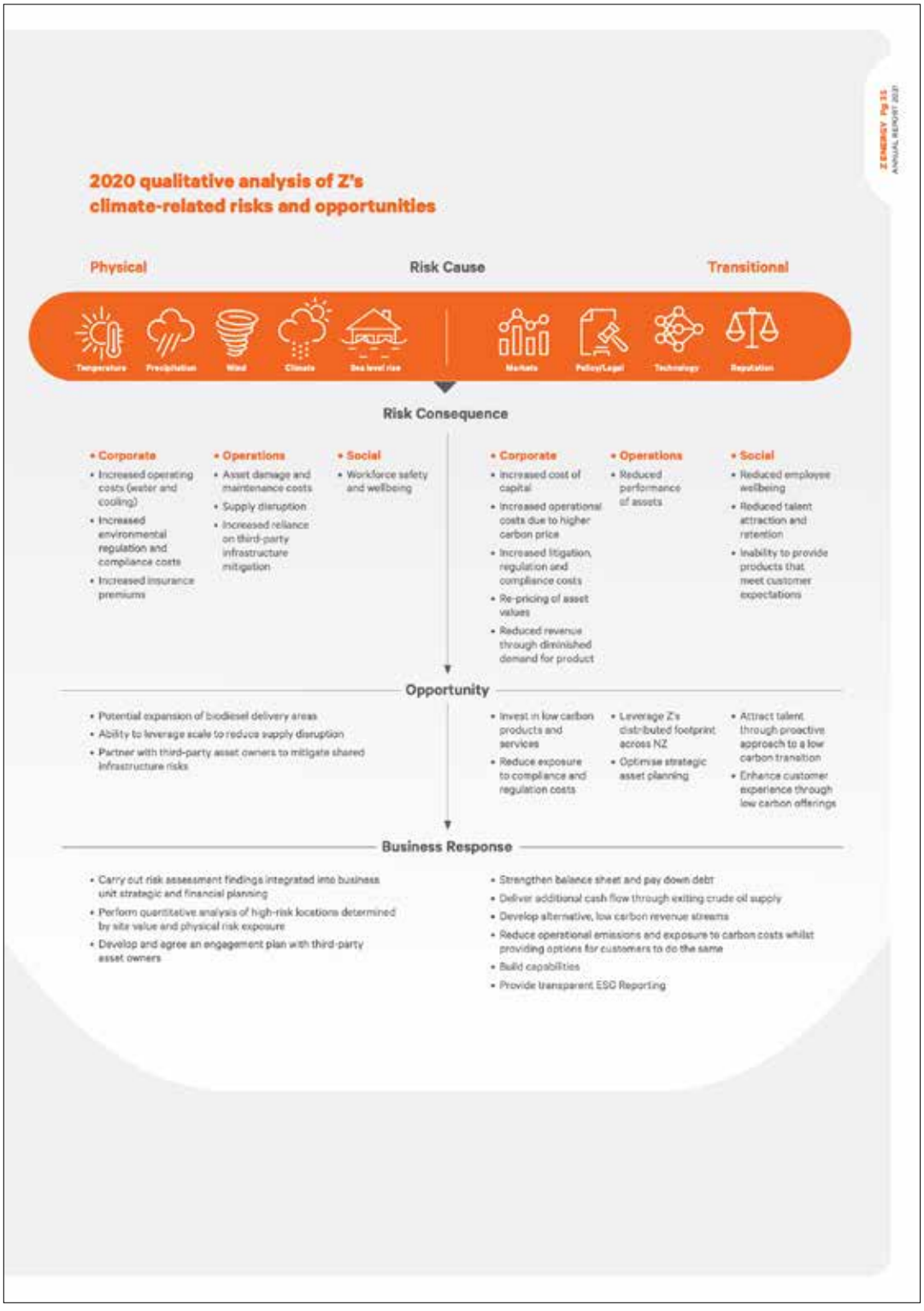
Like all scenario planning, these scenarios are not predictions of the future. Nor are they created as desirable or undesirable outcomes. The scenarios simply allow the testing of Z's plans and current positions. The likelihood is that the future may sit somewhere between the two scenarios, but they allow us to explore what is possible to help influence how we plan for the future and what we do now.

Transport fuel emissions Kt CO2-e



Projected transport fuel emissions (in kilo-tonnes of carbon dioxide equivalent) under Kea, Tūī and Climate Change Commission 'Our path' scenarios.

Z Energy
Annual Report 2021 (continued)



Z Energy
Annual Report 2021 (continued)

TCFD Report year two, continued

Physical risks and opportunities

Z's physical assets, including terminals, pipelines, truck stops and retail sites, were assessed against a range of projected changes to New Zealand's climate in the year 2040 (the mid-point in line with BEC's 2060 Energy Scenarios).

Both acute (floods, heatwaves) and chronic (changing rainfall patterns, rising sea level) physical impacts were considered. The key climate-related risk causes to Z's assets were identified as changing rainfall patterns, increased frequency and severity of droughts, and rising sea levels.

Z's Enterprise Risk Management framework was used to assess the materiality of each risk identified. Material risks are shown in the infographic on the preceding page.

Many of the risks identified are not new and now occur in the short term (for example, storm events causing shipping disruptions and increased demurrage costs). However, the likelihood of these events occurring are currently low. Increased likelihood of occurrence in the medium term (by 2040) and in the long term (by 2060) creates a need to integrate the risk assessment findings into long-term asset planning.

The next steps for Z are to integrate these findings with those of the value-based Natural Hazard Exposure Review completed in FY21. This review provided an analysis of Z's assets' exposure to climate-related hazards (wind, storm, lightning, floods, wildfire, hail, tornado and storm surge) and non-climate-related hazards (earthquake and tsunami) using Munich Re's Natural Hazard database 'Nathan' and Swiss Re CatNet for current climate conditions. The review was limited in its usefulness for predicting future climate risks, however it did identify flooding events as causing the highest climate-related risk of damage to Z's assets.

The underlying data from the physical scenario analysis and Natural Hazard Exposure Review will be used to determine those high-risk locations by site value and physical risk exposure in FY22. This will enable Z's long-term asset plans to be updated to account for climate risk.

Common to all of Z's supply chain elements was the increased reliance on third-party infrastructure being adequately maintained and mitigated against projected climate change impacts. The roading network, stormwater systems and port wharfs are the third-party-owned assets most critical to Z's operations, and highlight the need and opportunity to work in partnership with others to reduce the burden of long-term climate-related risks.

Transitional risks and opportunities

Transitional risks are caused by 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, transitional impacts may pose varying levels of corporate, operational and social risk or opportunity.

In contrast to the physical risks identified, the consequences of transitional risks and opportunities are much more likely to be seen in the short to medium term (2020–2040). Z's response therefore is to focus on how we manage the transitional risks in the short term. This provides an opportunity to successfully mitigate the transitional risks now, with a view on mitigation options to manage physical risks in the medium to long term (2040–2060).

Many of the transitional risks and opportunities identified from the scenario analysis are not new and have a corresponding business response. This is reflected both in Z's actions to reduce exposure to carbon costs from its own operations and to develop new, low carbon revenue streams, such as Z biodiesel (Z BioD), Mevo and Z Electric. However, the analysis did highlight the need to consider time horizons in prioritising our mitigation response whilst constantly reviewing the underlying context, such as the recent draft advice from the CCC. The draft advice brings clarity to the policy and market settings that must result if the transport sector is to play its large part in decarbonising to meeting net-zero by 2050. Z will continue its commitment to transition to a low carbon future and now has an enabling environment to deliver within.

Z Energy
Annual Report 2021 (continued)

Climate Strategy

How Z thinks about carbon and climate change has directly impacted our strategy, the decisions we make every day, and the choices we make around our own activities and customer offers. The biodiesel plant at Wiri Auckland has been part of the solution to providing New Zealanders with an immediate low carbon transport fuel alternative. Z regularly engages with government on the need for meaningful, tangible transport decarbonisation policies, particularly in relation to biodiesel.

On 28 January 2021, the Government announced a suite of transport decarbonisation policies, including the introduction of a biofuels mandate. The package of decarbonisation policies paves the way for future investments in low carbon fuel and transport energy, whether that is in sustainable aviation fuel, electric mobility or hydrogen.

Z's feedback on the draft CCC recommendations is that the right fuel for the right use case is the correct strategic approach to ensure broad consensus and get as many people as possible on the low carbon journey. To that end, Z's submission focused on two areas of the recommendations for the transport sector — be more ambitious on biofuels and further incentivise construction of electric vehicle charging infrastructure: https://z.co.nz/assets/Uploads/Z-Energy-submission-to-the-Climate-Change-Commission-March-2021-FINAL.pdf

Risk Management

For some time, climate change has been a risk for Z, identified and managed at an enterprise level through Z's Enterprise Risk Management processes and frameworks. This approach to climate risk management is necessarily evolving as climate change becomes ever more present and complex and infiltrates beyond the enterprise to business unit level. Over the past year, Z has focused on achieving more granularity by doing further work to identify, at a high level, physical and transitional climate-related risks across various time horizons and at all levels of the organisation. This approach has been informed by Z's existing Enterprise Risk Management System (ERMS) as well as TCFD guidance.

This more detailed risk identification process has followed the bottom-up and top-down approach set out in Z's ERMS. From a top-down perspective, key principle and emerging risks at an enterprise level have been identified through deliberate, focused discussions and analysis with members of Z's Executive team and Audit and Risk Committee. From a bottom-up perspective, both enterprise and business unit risks have been identified through workshops involving members of the Executive team and key representatives from each area of Z's business. This bottom-up work was specifically focused on climate change risk and utilised two scenarios (Tūī and Kea) to prompt the identification of transitional and physical risks across several time horizons, including those on page 35 of this report.

The risk identification process has determined that climate-related risks exist at both business unit and enterprise level; in addition, the process has illuminated how climate change impacts existing risks already identified and being managed. The Risk and Assurance team is now working with business units and Executives to guide them in conducting the next stage of work to assess and manage new risks or evolve risk assessments and controls already in place.

Climate metrics and targets

Z has further committed to adopting climate-related metrics and targets grounded in science. This includes the revised target to reduce its operational carbon emissions by 42 percent by 2030 in line with efforts to limit global warming to 1.5 degrees Celsius above pre-industrial levels. In light of the recent CCC draft carbon budgets, Z's review of climate-related metrics and targets associated with the fossil fuel products it sells is being re-modelled with a clear direction to be provided by 1HFY22.

Appendix 2: NZSX-listed 2021 annual reports – External link

Row from Table 4	NZSX-listed company name	Page number
3	AMP Limited (1 page)	95
6	Auckland International Airport (1 page)	96
12	Downer Group EDI (1 page)	97
21	Meridian Energy (1 page)	98
22	Napier Port Holdings (1 page)	99
25	Precinct Properties NZ (1 page)	100
39	Ventia Services Group (1 page)	101

Notes:

1. See actual TCFD reports in Appendix 5.

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

AMP Limited
Annual Report 2021

Key risks

Risk is inherent to our business and AMP takes measured risks within our risk appetite to achieve our strategic objectives. We have a clear strategic plan to drive our business forward and an Enterprise Risk Management framework to identify, measure, control and report risks.

Enterprise Risk Management framework

The Enterprise Risk Management (ERM) framework provides the foundation for how risks are managed across AMP. There are six key elements of the ERM framework including governance, risk strategy and risk appetite, risk culture and conduct risk, management information systems, risk management process (encompassing how AMP identifies, measures, responds to and reports risk) and the risk ecosystem.

The guiding principles in the framework assist with effective risk management practices and enable AMP to meet its legislative and regulatory requirements, codes and ethical standards, as well as internal policies and procedures.

AMP's ERM framework includes a risk management strategy which establishes the principles, requirements, roles and responsibilities for management of risk across AMP. It enables business leaders to make informed decisions and supports AMP in achieving its business strategy. The integrated framework details how risks are to be managed to fulfil the obligations to key stakeholders, clients, shareholders, policyholders and regulators to achieve financial and non-financial outcomes.

The Risk Appetite Statement articulates the nature and level of risk the board and management are willing to accept in the pursuit of delivering their strategic objectives. Alignment between AMP's corporate strategy and the risk appetite of the AMP Limited Board seeks to ensure that decisions are consistent with the nature and level of risk the board and management are willing to accept.

Further information can be found in AMP's Enterprise Risk Management Policy, available on our website at: amp.com.au/corporategovernance.

Key business challenges

Given the nature of the financial services industry, COVID-19 continues to have an adverse impact on the business but AMP remains focused to deliver its transformational strategy. Significant business challenges (in alphabetical order) include but are not limited to the following:

BUSINESS, EMPLOYEE AND BUSINESS PARTNER CONDUCT

The conduct of financial institutions continues to be an area of significant focus for the financial services industry both globally and in Australia and New Zealand. AMP devotes significant effort to ensure that our business practices, management, staff or business partner behaviours adequately meet the expectations of regulators, customers and the broader community, and do not result in an adverse impact on our reputation and value proposition to customers.

Our Code of Conduct outlines how AMP seeks to conduct its business and how it expects people to conduct themselves. The principles that define the high standards outline the behaviour and decision-making practices, including how we treat our employees, customers, business partners and shareholders. We are committed to ensuring the right culture is embedded in our everyday practices.

AMP embraces a safe and respectful work environment that encourages our people to report issues or concerns in the workplace. Directors, employees (current and former), contractors, service providers or any relative or dependants of any of these people can utilise the Whistleblowing program to report conduct or unethical behaviours.

CLIMATE CHANGE

AMP, its customers and its external suppliers may be adversely affected by physical and transition risks associated with climate change. These effects may directly impact AMP and its customers on a range of physical, financial and legal risks to our business, the investments we manage on behalf of our customers and the wider community.

Initiatives to mitigate or respond to adverse impacts of climate change may in turn impact market and asset prices, economic activity, and customer behaviour, particularly in geographic locations and industry sectors adversely affected by these changes.

AMP's approach to managing climate related risks and opportunities is outlined in AMP's Climate Position and Action Plan, available on the AMP website. It includes providing low carbon and green investment choices to customers, managing and disclosing investment risks, leveraging our influence as an investor, reducing our own operational impacts and supporting customers and communities where possible.

AMP provides annual performance disclosures aligned to key pillars of the Task Force on Climate-related Financial Disclosures (TCFD) framework, including through its Sustainability Report and through investor led disclosures such as the CDP (formerly Carbon Disclosure Project). In 2021, AMP retained an A- rating (second highest rating available) in the annual CDP investor disclosure program, indicating leadership in our management of climate related risks and opportunities. AMP has been carbon neutral across its operations since 2013 to address the direct impacts of our business activities.

COMPETITOR AND CUSTOMER ENVIRONMENT

The financial services industry continues to face challenges from the COVID-19 pandemic but AMP remains focused in supporting clients and employees during these unprecedented times. We have supported clients with banking and early release of super initiatives during COVID-19.

Customer expectations are evolving which is intensifying competition within wealth management as COVID-19 causes market volatility, affecting the performance of its assets under management across the industry. There is also strong competitive tension in asset management. AMP continues to adapt its capabilities and operating model in order to remain competitive and relevant to customers but an on-going pandemic may impact on new business and retention of existing business.

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Auckland International Airport
Annual Report 2021

Climate Change Disclosure

Auckland Airport recognises that the impacts of climate change, including rising sea levels and temperatures and unpredictable weather patterns, will impact our company, the local community, New Zealand and the planet. We also recognise that the travel industry contributes to climate change.

We are committed to reducing our carbon footprint, improving our operational resilience and adapting to the predicted impacts of a changing climate now and into the future. We are also committed to supporting others, particularly in the aviation sector, to reduce carbon emissions.

In the 2021 financial year, for the first time, we adopted the guidelines of the Taskforce on Climate-related Financial Disclosures (TCFD) to disclose the impact of climate change on our business and our impact on climate change. As we further identify, assess and manage climate change risks and new opportunities for our organisation, we will continue to increase our degree of disclosure. Auckland Airport expects to produce a disclosure fully aligned with the TCFD recommendations by 2023.

A copy of Auckland Airport's full Climate Change Disclosure Report is available on our website at www.aucklandairport.co.nz.

Governance and risk management

Auckland Airport has assessed physical and transitional risks for the business due to climate change and these risks are outlined in more detail in the full climate change disclosure report.

Our process for risk management is continuous and is designed to provide advanced warning of material risks before they eventuate.

Auckland Airport's Board of directors is responsible for reviewing and ratifying the risk management structure, processes and guidelines which are developed, maintained and implemented by management, including climate change. The Board receives an annual update on climate-related risks and opportunities and has delegated further risk oversight and monitoring to the Safety and Operational Risk Committee (SORC), which receives a quarterly update on enterprise-wide risks (including climate change), the controls in place to mitigate the risk and the planned actions to address them.

During the 2021 financial year, management also established a Sustainability Management Group, involving nine senior leaders from across the company, to oversee the implementation of our Sustainability Strategy including material climate change initiatives, ESG targets and our TCFD reporting.

Climate scenario analysis

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.

To date Auckland Airport has undertaken analysis of current and future flooding and inundation risk under a high emissions scenario representative of a 4.8°C warming pathway (RCP 8.5). This analysis identified that without planned intervention, the frequency and intensity of inundation and flooding events on the airport precinct is predicted to increase significantly, eventually resulting in frequent interruption to business activity in 2090. This potential impact is being addressed by regular monitoring, maintenance and upgrades to existing infrastructure as well as strategic planning of future infrastructure.

Core elements of recommended Climate-related Financial Disclosures

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

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Downer Group EDI
Annual Report 2021

Climate change and TCFD Update

Downer is committed to reducing its direct emissions profile and is well positioned to contribute to Australia and New Zealand's energy transition that is essential for the broader economy to decarbonise.

The Taskforce on Climate-related Financial Disclosures (TCFD) scenario analysis tested the resilience of Downer's strategy in relation to plausible climate futures that considered possible physical, socioeconomic and political changes. In each scenario Downer's strategy was found to be resilient and well positioned. It affirmed that Downer was well placed to provide products and services to its customers that will contribute to a low carbon future. It highlighted there are considerable opportunities for Downer which outweigh identified risks. These will assist in lower cost capital and increased margins.

Downer's Urban Services strategy delivers many environmental and social benefits including a move to lower capital intensive and lower carbon activities, which supports Downer's Climate Change Resilience and decarbonisation pathway.

Downer set an ambitious science-based target (aligned to a 1.5°C pathway) and committed to the decarbonisation of its absolute Scope 1 and 2 GHG emissions by 45-50% by 2035 from a FY18 base year and being Net Zero by 2050. In FY21, Downer became a signatory to the Science-Based Target initiative (SBTi) in line with the 1.5°C business ambition pathway. In addition, Downer linked its Science-Based GHG emissions reductions targets with financial incentives as part of the SLL facility.

Downer has expanded its commitment to decarbonisation to incorporate Scope 3 emissions, as Downer recognises that it has a key role to play in minimising emissions that occur throughout its value chain. As such Downer has signed up to the Carbon Disclosure Project (CDP) supply chain program.

Downer is focused on initiatives to ensure it meets its SBT commitment. Downer has a clear pathway to Net Zero by 2050 which aligns to its Urban Services Strategy. The six key focus areas include:

- Divesting from high capital, carbon intense industries to lower carbon activities (2020>)
- Continue to focus on energy efficiency and GHG emission reductions (2010>)
- Decarbonise our fixed assets with new technology and fuel switching (2025>)
- Decarbonise Downer's fleet through electric vehicles (EVs) and alternate fuel vehicles (2025>)
- Increase uptake of renewables both on and off-grid (2010>)
- Reduce Scope 3 emissions i.e. low carbon materials e.g. asphalt and work with suppliers to lower their emissions (2018>)

In FY22 and beyond Downer will:

- Revisit the TCFD risks and opportunities, in line with its Urban Services Strategy;
- Undertake climate related financial impact assessment of:
  - Downer's fleet, (light and heavy)
  - Fixed assets, e.g. asphalt plants
  - Physical climate impacts
- Develop a framework to integrate into Downer's capital allocation decision making process to consider carbon implications of investment over the short and longer terms.

Downer will track its progress towards its emissions reduction target and review its emission reduction approach in line with the Intergovernmental Panel on Climate Change (IPCC) updated scientific reports, whilst considering other developments in low-emissions technology, to ensure a practical and affordable transition towards this commitment.

Downer recognises the uncertainties, challenges and opportunities that climate change presents and despite the recent impacts of COVID-19, Downer remains committed to partnering with its customers and supply chain to achieve its long-term GHG emission reduction target.

Refer to Downer's Sustainability Report located at **www.downergroup.com/sustainability** for further disclosures on Downer's response to climate change and how it has specifically addressed the TCFD recommendations.

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Meridian Energy
Annual Report 2021

Authenticity in reporting

In FY20 we were assessed for and included in the Asia Pacific Dow Jones Sustainability Index (DJSI), which adopts a robust and structured Environmental, Social, and Governance framework to assess performance. We also were assessed in FY20 under the Carbon Disclosure Project (CDP), a global environmental disclosure system, and were proud to receive an increased rating of A- for climate change in FY20. We submitted again in FY21 for inclusion in the Asia Pacific DJSI and to be assessed under the CDP framework.

We've entered our third year of completing a voluntary Climate Change Disclosure report, in accordance with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD).

Our annual Climate Risk Disclosure report has again been prepared in accordance with the recommendations of the TCFD. This report describes the financial impacts of climate-related risks and opportunities – including how these 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 FY21 Climate Change Disclosure is available at www.meridianenergy.co.nz/who-we-are/sustainability/climate-disclosures.

We also prepare our annual report to meet integrated reporting standards to ensure we communicate concisely how our strategy, governance and performance, in the context of our external environment, seek to cause balanced, sustainable value creation.

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Napier Port Holdings
Annual Report 2021

CLIMATE CHANGE RELATED DISCLOSURE REPORT

In 2021 we published our inaugural Climate Change Related Disclosure Report, seeking to provide stakeholders with an understanding of the potential financial implications of climate change on the Napier Port business. The report was prepared in accordance with the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD).

We expect to continue to improve our climate-change-related disclosures as we gather more information and knowledge, and continue to deliver our sustainability goals and strategy. In particular we are prioritising the development of emission measurement and reduction pathways.

Following a 'whole of port' climate change risk assessment – looking at infrastructure resilience, trade forecasting, land levels, weather conditions, emergency preparedness and habitat modification – we identified 53 climate-related risks and opportunities. This year's report sets out our governance of climate-related risks and opportunities over a 50-year timeframe. It describes our processes for identifying, assessing and managing climate-related risks, and considers how those risks are integrated into our overall risk management. Climate-related risks are reviewed at least annually to ensure they reflect material changes in our knowledge, business strategy and operating environment.

The impacts of climate change considered most material to Napier Port are summarised below.

PHYSICAL RISKS
(in particular due to our coastal location and susceptibility to sea-level rise):

- Increase in sea level, leading to inundation
- Extreme rainfall events, affecting our stormwater system
- Erosion, particularly shingle movement during swell events
- Drought, particularly its impact on our meat and horticulture customers.

TRANSITION IMPACTS
(risks and opportunities from transitioning to a lower-emission global economy):

- Government regulation regarding a shift to the low-carbon economy resulting in higher fuel costs
- Government regulation to encourage shift to alternative fuels
- Shipping, particularly ship to shore power connecting to a 'green' grid
- Rail, as a material increase in use would require changes to our operations and infrastructure.

At this stage, we do not consider that the effects of climate change materially change our overall strategy. This is because sustainability is embedded into our ways of working as we continue to look after people, planet and place. Planning to address larger financial infrastructure improvements required over the medium to long-term will be embedded within our asset management plans and infrastructure master plan. In the short-term, we are completing more detailed investigations of physical climate-change effects, and will then include mitigation of these physical risks into our Master Planning and procurement processes.

During 2021, we conducted additional work on further defining our greenhouse gas emissions inventory to enable a better understanding of our emissions profile. This enables ongoing measuring and reporting and our setting of targets.

We have reported on our Scope 1, Scope 2 and limited Scope 3 emissions for a number of years on our website. We are currently improving our reporting systems, with 2022 being our first complete year of emissions measurements using expanded Scope 3 definitions.

In the year to 30 September 2021, our total carbon emissions were 10,221 tonnes or 0.00174 tonnes/ CO_2e per cargo tonne, up from 8,341 tonnes or 0.00165 tonnes/ CO_2e per cargo tonne in 2020. The increase in emissions correlates with an increase in annual cargo volumes, with the majority of the increase relating to increased fuel usage for generators to keep refrigerated containers cool while stored on port awaiting shipment. Our peak season extended longer, and refrigerated containers resided longer on port as a consequence of global shipping disruption. This disruption also required increased container handling movements, increasing heavy plant activity and fuel consumption. We expect infrastructure improvements over time combined with new technology to enable us to contain emissions as trade volumes increase.

Our Sustainability Strategy and the Climate Change Related Disclosure Report are available at www.napierport.co.nz

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Precinct Properties NZ
Annual Report 2021

Sustainability at Precinct.

Precinct has publicly reported annually on sustainability since 2015. Ensuring we are actively monitoring our performance and providing clear and accurate reporting underpins our managing of our ESG risks and opportunities.

This Annual Report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards (core option).

As the largest owner and developer of premium inner-city real estate in Auckland and Wellington, we continue to focus on understanding and responding to our material ESG issues. These include our material issues (noted on the next page) which provide a comprehensive response to all ESG factors material to the business.

We are very proud of the results we have achieved over the last year. They reflect the progress we are making through advancement of certain initiatives. We again improved our GRESB score from 77 to 83. We are trending well ahead of the global average of 70 and we rate a public disclosure level B against the global average C. Pleasingly, Precinct also received a score of B- following our participation in the CDP.

Our proactive approach in responding to our ESG risks and opportunities is strengthening how Precinct defines sustainability and we strive to further improve on our material ESG issues.

The growing awareness of buildings' environmental impacts, developing carbon legislation, and clients' increased expectations, make the environmental performance of our buildings a significant material issue. The risks and opportunities related to climate impacts resulting from the transition to a low-carbon economy can be divided into 2 major categories:

- Transition risks – risks related to the transition to a lower-carbon economy
- Physical risks – risks related to the physical impacts of climate change.

As part of Precinct's approach to climate-related risks and opportunities, we have identified both physical and transition climate-related risks. Risks have been identified through Precinct's climate-related risk register as part of its overall Risk Management Plan. We have evaluated risk based on the short term (< 2 years), medium term (2 –10 years) and long term (10+ years). All of Precinct's climate-related risks have been recorded in Precinct's Climate Risk Register. Risks are categorised by the risk type, risk driver, time horizon and potential financial impact. This register is reviewed at least annually. While the key transition and physical risks identified to Precinct are not currently impacting business growth, they must be monitored, evaluated, and mitigated. Precinct has identified 13 specific climate change risks. An overview of our highest rated physical and transition climate-related risks is presented in our Taskforce on Climate-related Financial Disclosures (TCFD) framework, which can be found on our website.

Our Sustainability framework

Precinct's materiality matrix [1]

1 *Precinct's materiality matrix presented above is based on the aggregation of Precinct's material topics (on the next page) and an assessment of their relative materiality and meets the requirements of the GRI Standards. It reflects Precinct's significant economic, environmental and social impacts where 'impact' refers to the effect Precinct has on the economy, the environment and/or society.*

Appendix 2:
NZSX-listed 2021 annual reports –
External link (see Working Paper 2022/15)

Ventia Services Group
Annual Report 2021

SUSTAINABILITY

Environment

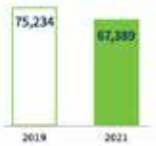
STRATEGY MEASURES

Pathway to net zero emissions defined with visible progress demonstrated

OUR TARGETS

- Committed to the Science Based Targets initiative (SBTi) to set emission reduction and net zero targets
- 100% renewable energy by 2030 (internal electricity usage)
- 100% EV and hybrid fleet by 2030

CARBON EMISSIONS (tCO_2-E)[1]

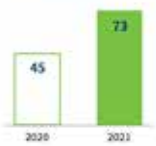


10.4%
Reduction from base year

ELECTRICITY USAGE (GJ)

4.9%
Reduction from base year

EV/HYBRIDS IN OUR FLEET



62%
Increase

2021 PERFORMANCE

In 2021, our total Scope 1 and Scope 2 emissions were 67,389 tCO2-e. We achieved a reduction in emissions of 10.4% compared to the 2019 baseline year, meeting our target of a 10% absolute reduction in 2021. Emissions intensity[2] in 2021 reduced from 15.7t/$m to 14.8t/$m, an overall 5.6% intensity reduction.

Our emissions progress this year has been largely achieved through reductions related to transport fuels, our largest category of emissions. Fleet reduction and transition initiatives have reduced the use of vehicle fuel, supported by a focus on driver behaviour, in-vehicle monitoring and reduced vehicle idling.

Task Force on Climate-related Financial Disclosures (TCFD)

Ventia aims to align our risk management and reporting with the recommendations of the TCFD. Consistent with this approach, we are in the process of undertaking a detailed risk assessment of the business. We completed this assessment for our Telecommunications sector in 2021 and aim to complete the assessment for our remaining sectors in 2022. The risk assessment for Telecommunications has highlighted the opportunities for Ventia in supporting our clients' transition and resilience efforts and in responding to climate-related weather events. Our progress aligned to the key pillars of the TCFD will be included our 2021 Sustainability Report.

Fleet reduction and transition initiatives

It is a high priority for Ventia to transition our fleet. In the short term, use of hybrids will be adopted, while we will also use fully electric vehicles (EVs) where feasible. We introduced 28 EV and hybrids to our light vehicle fleet in 2021, taking the total number to 73, an increase of 62%. We were pleased to welcome our first fully EV roads maintenance truck to our Western Roads Upgrade contract and order our first EV Truck Mounted Attenuator. A fleet of electric mowers will also arrive in 2022.

Driver behaviour and education

In 2021, we partnered with EROAD to install in-vehicle monitoring (IVMS) to our fleet. IVMS provides feedback and alerts to the driver, encouraging safe and efficient driving behaviour and improves tracking of vehicle performance. The EROAD rollout is complemented by driver awareness training, teaching the environmental benefits of reducing idling and turning engines off when possible. In the six months of the EROAD rollout, idling has been reduced by 8%.

Resource management

Resource reduction plans have been introduced across Ventia, a tool to identify and track specific management initiatives – from installing solar panels, to energy efficiency audits, waste reduction and recycled materials use.

FOCUS IN 2022

In 2022, we will drive our current climate emissions reduction and environment initiatives to deliver on our commitments, including setting our Science Based Targets to achieve emissions reductions and improvements in our environmental management and performance. We will also continue collecting and analysing data, building an inventory to inform and formalise the baselines that we will measure our sustainability performance against in the future.

1. Scope 1 & Scope 2 emissions.
2. Emissions intensity is total Scope 1 and Scope 2 emissions measured in tonnes, divided by total revenue in $ millions.

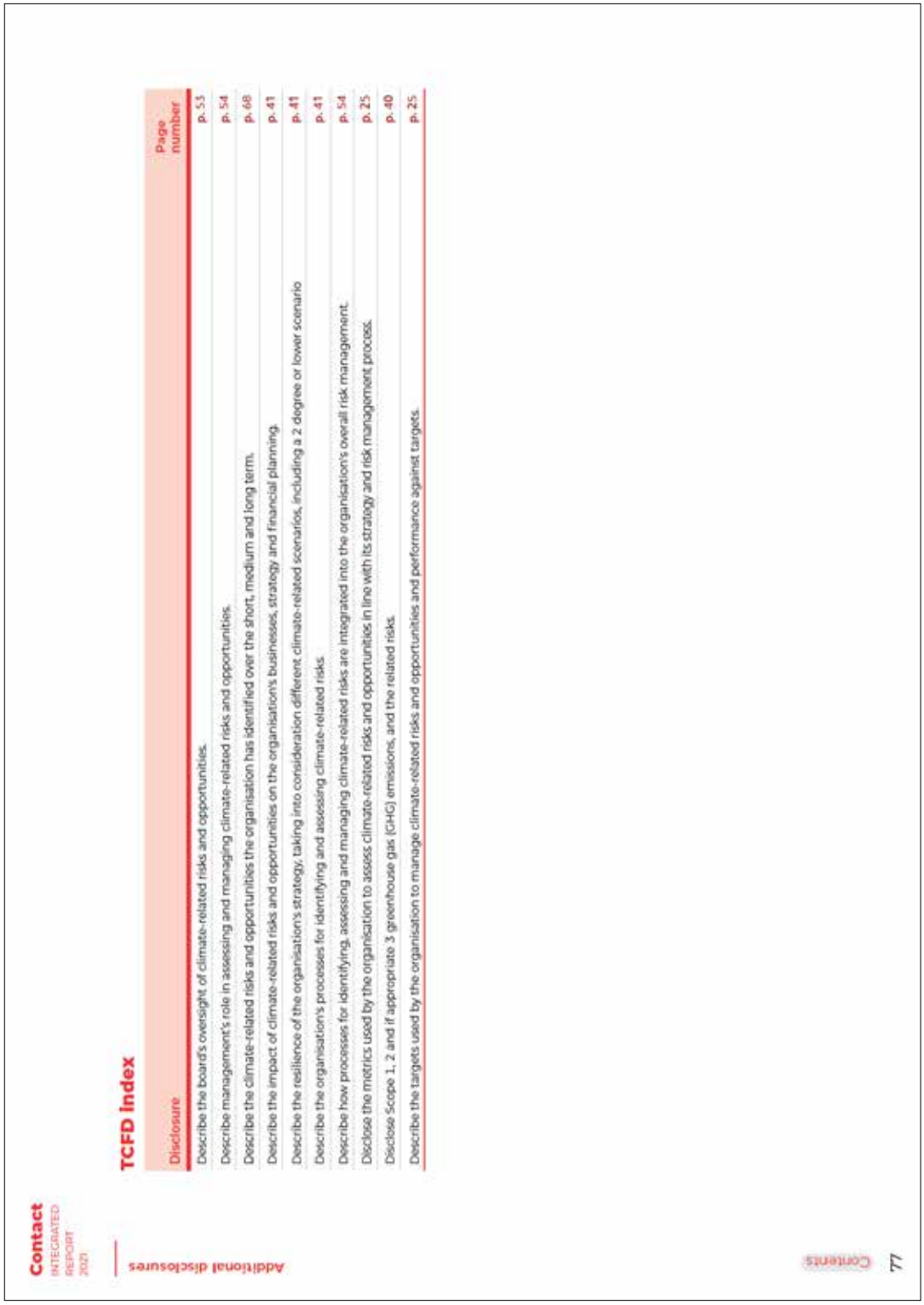
Appendix 3: NZSX-listed 2021 annual reports – Indexed throughout

Row from Table 4	NZSX-listed company name	Page number
10	Contact (1 page)	103
14	F&P Healthcare (1 page)	104

Growing. Investing. Leading.

Appendix 3:
NZSX-listed 2021 annual reports –
Indexed throughout

Contact
Annual Report 2021



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Additional disclosures

TCFD Index

Disclosure	Page number
Describe the board's oversight of climate-related risks and opportunities.	p. 53
Describe management's role in assessing and managing climate-related risks and opportunities.	p. 54
Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	p. 68
Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.	p. 41
Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2 degree or lower scenario	p. 41
Describe the organisation's processes for identifying and assessing climate-related risks.	p. 41
Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	p. 54
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	p. 25
Disclose Scope 1, 2 and if appropriate 3 greenhouse gas (GHG) emissions, and the related risks.	p. 40
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	p. 25

Contact INTEGRATED REPORT 2021

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
Disclose the organisation's governance around climate-related risks and opportunities.	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.	Disclose how the organisation identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
a) Describe the Board's oversight of climate-related risks and opportunities. pp. 72-73	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term. pp. 72-73	a) Describe the organisation's processes for identifying and assessing climate-related risks. pp. 72-73	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. 73
b) Describe management's role in assessing and managing climate-related risks and opportunities. pp. 72-73	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning. pp. 72-73	b) Describe the organisation's processes for managing climate-related risks. pp. 72-73	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. pp. 60-61
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario. p. 73	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management. pp. 72-73	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets. pp. 60-61

Appendix 3:
NZSX-listed 2021 annual reports –
Indexed throughout

F&P Healthcare
Annual Report 2021

Appendix 4: NZSX-listed 2021 annual reports – Partial mention

Row from Table 4	NZSX-listed company name	Page number
16	Investore Property (2 pages)	106
27	Port of Tauranga (2 pages)	108
32	Spark (2 pages)	110
33	Stride Property & Stride Investment Management (2 pages)	112
36	Trustpower (2 pages)	114

Note:

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

Appendix 4:
NZSX-listed 2021 annual reports – Partial mention

Investore Property
Annual Report 2021

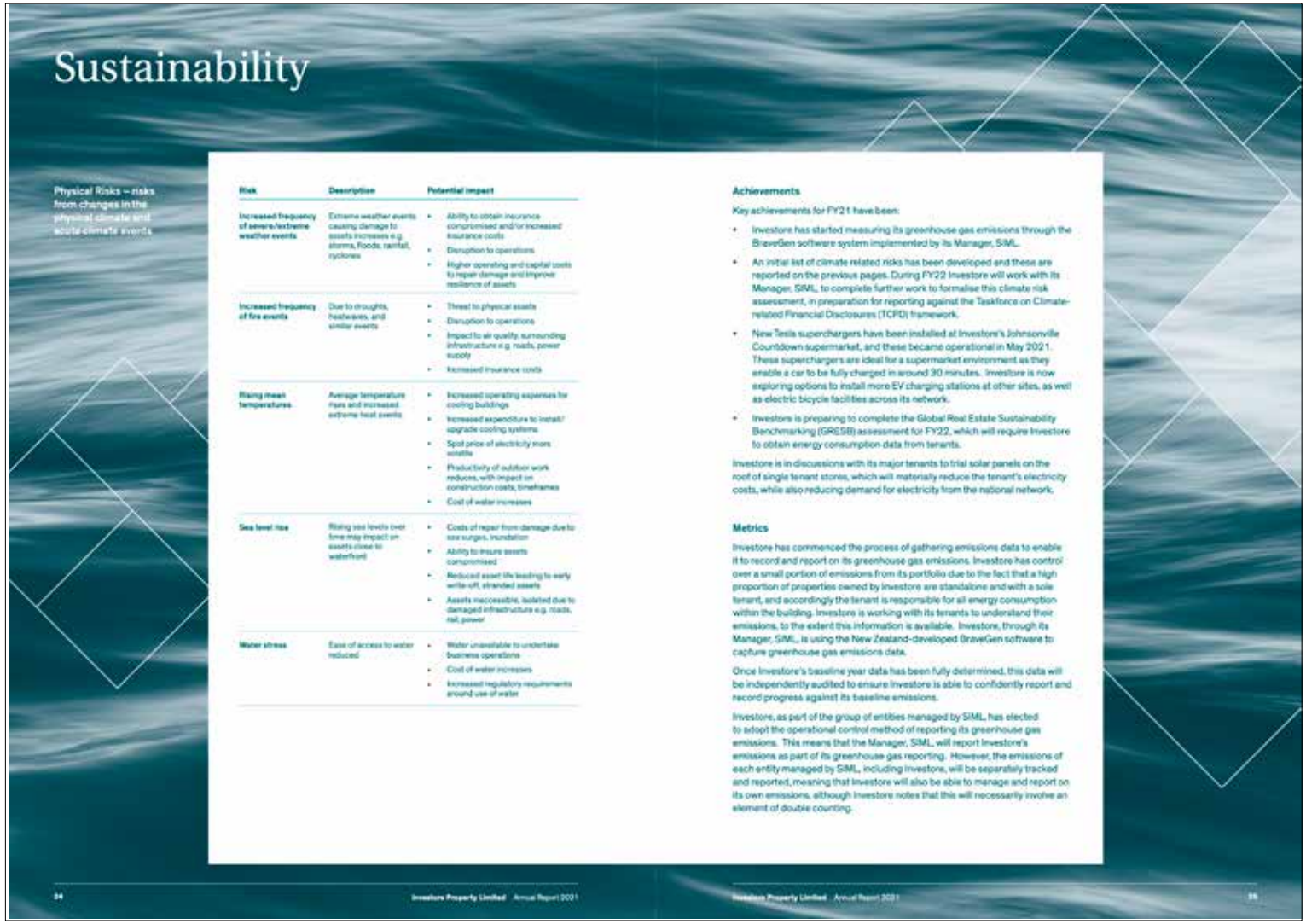
Sustainability

Investore works closely with its Manager, SIML, in its approach to sustainability. During FY21, SIML refreshed its approach to sustainability and established a Board Sustainability Committee to ensure a dedicated focus on the impact of climate related issues and the sustainability performance of SIML and its managed entities, including Investore.

Governance

Strategy

Risk Management



Sustainability

Physical Risks – risks from changes in the physical climate and acute climate events

Risk	Description	Potential impact
Increased frequency of severe/extreme weather events	Extreme weather events causing damage to assets increases e.g. storms, floods, rainfall, cyclones	• Ability to obtain insurance compromised and/or increased insurance costs • Disruption to operations • Higher operating and capital costs to repair damage and improve resilience of assets
Increased frequency of fire events	Due to droughts, heatwaves, and similar events	• Threat to physical assets • Disruption to operations • Impact to air quality, surrounding infrastructure e.g. roads, power supply • Increased insurance costs
Rising mean temperatures	Average temperature rises and increased extreme heat events	• Increased operating expenses for cooling buildings • Increased expenditure to install/ upgrade cooling systems • Spot price of electricity more volatile • Productivity of outdoor work reduces, with impact on construction costs, timeframes • Cost of water increases
Sea level rise	Rising sea levels over time may impact on assets close to waterfront	• Costs of repair from damage due to sea surges, inundation • Ability to insure assets compromised • Reduced asset life leading to early write-off, stranded assets • Assets inaccessible, isolated due to damaged infrastructure e.g. roads, rail, power
Water stress	Ease of access to water reduced	• Water unavailable to undertake business operations • Cost of water increases • Increased regulatory requirements around use of water

Achievements

Key achievements for FY21 have been:

- Investore has started measuring its greenhouse gas emissions through the BraveGen software system implemented by its Manager, SIML.
- An initial list of climate related risks has been developed and these are reported on the previous pages. During FY22 Investore will work with its Manager, SIML, to complete further work to formalise this climate risk assessment, in preparation for reporting against the Taskforce on Climate-related Financial Disclosures (TCFD) framework.
- New Tesla superchargers have been installed at Investore's Johnsonville Countdown supermarket, and these became operational in May 2021. These superchargers are ideal for a supermarket environment as they enable a car to be fully charged in around 30 minutes. Investore is now exploring options to install more EV charging stations at other sites, as well as electric bicycle facilities across its network.
- Investore is preparing to complete the Global Real Estate Sustainability Benchmarking (GRESB) assessment for FY22, which will require Investore to obtain energy consumption data from tenants.

Investore is in discussions with its major tenants to trial solar panels on the roof of single tenant stores, which will materially reduce the tenant's electricity costs, while also reducing demand for electricity from the national network.

Metrics

Investore has commenced the process of gathering emissions data to enable it to record and report on its greenhouse gas emissions. Investore has control over a small portion of emissions from its portfolio due to the fact that a high proportion of properties owned by Investore are standalone and with a sole tenant, and accordingly the tenant is responsible for all energy consumption within the building. Investore is working with its tenants to understand their emissions, to the extent this information is available. Investore, through its Manager, SIML, is using the New Zealand-developed BraveGen software to capture greenhouse gas emissions data.

Once Investore's baseline year data has been fully determined, this data will be independently audited to ensure Investore is able to confidently report and record progress against its baseline emissions.

Investore, as part of the group of entities managed by SIML, has elected to adopt the operational control method of reporting its greenhouse gas emissions. This means that the Manager, SIML, will report Investore's emissions as part of its greenhouse gas reporting. However, the emissions of each entity managed by SIML, including Investore, will be separately tracked and reported, meaning that Investore will also be able to manage and report on its own emissions, although Investore notes that this will necessarily involve an element of double counting.

APPENDIX 4

Appendix 4:
NZSX-listed 2021 annual reports –
Partial mention

Port of Tauranga
Annual Report 2021

Managing Risks and Opportunities

Port of Tauranga's Board of Directors oversees and monitors the risks to Port of Tauranga and its stakeholders, and ensures that the necessary mitigations have been put in place.

Risks are continuously evolving. Port of Tauranga's top strategic risks are:

- Maintaining the health, safety and wellbeing of our people
- Protecting our social licence to operate
- Legal and regulatory risk
- A natural disaster event
- Commercial and business risk due to global economic or geopolitical situations
- Malicious cyber attack
- A vessel foundering in the channel.

More detail on the potential consequences and how we mitigate these risks is outlined in the Corporate Governance Statement on our website www.port-tauranga.co.nz

The most likely natural disaster events in the Bay of Plenty would be a major storm or a seismic event. Tauranga City Council has undertaken extensive modelling based on a tsunami of up to 14 metres resulting from a magnitude 9 earthquake on the Kermadec fault line, which it estimates has a 1-4% chance of occurring in the next 100 years. It shows the effect on the inner harbour would be significantly lower than on the ocean side.

Climate-related financial disclosures

New reporting standards on climate-related financial disclosures are being developed by the New Zealand External Reporting Board, with help from the Ministry for the Environment[4]. These standards will closely follow the recommendations of the Taskforce for Climate-Related Financial Disclosures[5].

There are two major categories of climate-related impacts:

- The risks and opportunities related to New Zealand's transition to a lower-carbon economy
- The risks and opportunities related to the physical impacts of climate change.

Port of Tauranga relies on the projections of climate change from multiple agencies, including the Ministry for the Environment, the Ministry for Primary Industries and the National Institute of Water and Atmospheric Research (NIWA). We also consider scenario planning by the Bay of Plenty Regional Council and the Tauranga City Council.

The regional impacts from climate change include an increased likelihood of heatwaves, increased storm intensity, and droughts that are more frequent, longer and more intense. More frequent extreme rainfall events are also a possibility.

Current models show potential for flooding along wharf edges, on Port of Tauranga land at the southern end of the Mount Maunganui wharves, and to the south of the container terminal at Sulphur Point (potentially affecting road transport access). Sea level rise analysis shows there is likely to be minimal impacts to current wharf structures under most scenarios.

Our efforts to reduce greenhouse gas emissions are outlined in Our Environment on page 46.

[4] https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/
[5] https://environment.govt.nz/assets/climate-change/NIWA-2017-TCFD-Report-INR20118-2.pdf

Port of Tauranga
Annual Report 2021 (continued)

CLIMATE-RELATED IMPACTS

	Examples	Potential impacts
Risks from the transition to a lower-carbon economy	• Increased reporting requirements • Costs and implementation of new technology • Changing stakeholder expectations • Changes to Government and regulator policies	• Increased compliance costs • Increased capital expenditure and operating costs • Reduced demand from customers and/or investors
Transition opportunities	• Greater efficiencies • Increased recycling • Reduced energy use • Changing stakeholder expectations • Technological improvements and innovations	• Lower operating costs • Improved safety • New revenue sources • Increased demand from customers and/or investors
Physical risks from the impacts of climate change	• Increased severity and occurrence of extreme weather events • Rising sea levels • Biosecurity incursions due to warmer, wetter or drier conditions	• Increased costs and operational impact of damaged equipment and infrastructure • Increased insurance premiums • Loss of useable land • Impact on cargo volumes from decreased primary production • Reduction in health and lifestyle quality
Physical opportunities	• Investment in more resilient equipment, infrastructure and technologies	• Lower operating costs • New or increased revenue streams as a result of increased productivity or new cargoes.

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APPENDIX 4

Appendix 4:
NZSX-listed 2021 annual reports –
Partial mention

Spark
Annual Report 2021

Business continuity and crisis management

The Business Continuity and Crisis Management Policy protects customers from the impact of disruptive events and ensures value generating activities are resilient and comply with relevant external standards, for example Civil Defence and 111 obligations.

Spark's framework is benchmarked to ISO22301 and ISO 22313, which are acknowledged as leading practice standards for business continuity. It is overseen by the ARMC in a similar way to the Managing Risk Policy and Framework. Regular reviews of the framework are performed by the Risk and Internal Audit Teams. External reviews and testing of key elements of the framework such as the Level One Criss Management Plan and Team are also done to ensure that the framework remains effective.

Spark's business continuity framework performed well when called upon during the Covid-19 pandemic. Spark continues to navigate the pandemic's impacts such as unexpected lock-downs, supply chain issues, access to off-shore talent and resources.

Our continued investment in network resiliency, as outlined on page 30, also demonstrates application of the framework in practice.

Climate-related risk

Climate change poses a risk to our business due to potential disruption to our operations and our customers. The Financial Sector (Climate-related Disclosures and Other Matters) Amendment Bill proposes a requirement for all equity and debt issuers on the NZX to report based on requirements aligned to the Task Force on Climate-related Financial Disclosures (TCFD) framework.

We integrated elements of TCFD disclosure in our FY20 report. This year we completed a climate risk analysis against two scenarios, aligned to TCFD guidance. Our Leadership Squad and Board were 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.

Our initial scenario analysis did not identify any immediate or extreme risks. We do not intend to complete a full climate scenario analysis on an annual basis. However, we have identified a number of areas for future analysis, including evaluating climate risk in our supply chain, and reviewing physical adaptation risk alongside the development of the national Climate Change Adaptation Act.

Our 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.

Spark
Annual Report 2021 (continued)

Our scenario-based risk assessment

Impact rating

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:

Physical adaption risk	Includes impacts on network resilience and future investment, increased weather events, sea level rise, planning and Resource Management Act (RMA) requirements, and insurance costs.
Rated as high likelihood with low impact in the 3 year horizon, growing in impact over the 10 and 30 year time horizons.	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. 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 expect the introduction of the CCA will establish a coordinated, national approach to managing climate adaptation risk and tools for businesses to integrate climate adaptation risk into planning application processes. We will actively monitor RMA reform to inform our long-term adaptation work.
Supply chain risk	Includes increased supply lead times, increased air freight cost, increased supply cost, supply chain disruption, and increased inventory and working capital.
Rated as high likelihood with low impact in the 3 year horizon, growing in impact over the 10 and 30 year time horizons.	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. We have identified a need for further analysis of climate risk in our supply chain, which will be actioned alongside broader continual improvement processes to reduce risk and deliver our sustainability objectives.
Provision of climate related services	Includes provision of monitoring and control devices over Spark's IoT network plus other potential climate related services.
Rated as medium likelihood with low business impact in the 3 year horizon, growing to moderate impact in 3-10 years.	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. 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. In FY22 we will undertake further work to quantify current and potential Spark customer emissions reduction opportunities and inform future climate and sustainability related services.
SBTi science-based emissions reduction target	Includes the risk we will not meet our SBTi target.
Moderate risk.	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. 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 39 for information on our SBTi target and plan.
Social disruption	
Medium likelihood, low impact over the 30 year horizon	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 a just transition. See page 42 for our work in digital equity.
Risk to NZ economic activity	
Medium likelihood, low impact over the 30 year horizon	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.
Climate litigation	
Low likelihood, low impact, across all time horizons	Considered low risk as Spark is not linked to infrastructure or investments with heavy emissions.

HIGH RISK
MEDIUM RISK
LOW RISK

Appendix 4:
NZSX-listed 2021 annual reports –
Partial mention

Stride Property & Stride Investment Management
Annual Report 2021

Sustainability

Stride's approach to sustainability has developed during FY21 under the oversight of the Stride Board Sustainability Committee.

This section sets out Stride's approach to sustainability under the focus areas of governance, strategy, risk management and metrics.

Governance

Stride has established a Board Sustainability Committee to ensure a dedicated focus at the Board level on the impact of climate-related issues on Stride's business and other areas of Stride's sustainability performance. Given the increasing focus of the New Zealand Government, regulators, investors and tenants on sustainability matters, Stride has established a Board Sustainability Committee to ensure it is able to meet the demands of these interest groups while also delivering profitable performance for shareholders. The creation of this Committee demonstrates Stride's commitment to improving the sustainability of Stride's business and particularly its impact on the environment.

The Sustainability Committee is chaired by Director Jacqueline Cheyne, who has significant experience in sustainability issues. Jacqueline is currently the chair of the External Reporting Board Steering Group responsible for development of the climate reporting standards, a Director of New Zealand Green Investment Finance Limited and previously led Deloitte's Corporate Responsibility and Sustainability services function for Deloitte New Zealand for nine years. Other members of the Committee are Tim Storey, the Stride Board Chair, and Director Philip Ling.

The Sustainability Committee appreciates that Stride has work to do to demonstrate best practice in sustainability, but considers that important work has been undertaken in this area during FY21, as reported in this section of the Annual Report.

Strategy

Stride has refreshed its sustainability strategic plan, which is focused on three distinct goals. This plan sets the primary objectives that Stride considers in its decision-making.

Stride's Sustainability Strategic Plan

Objective	UN Sustainable Development Goals
Contribute to a resilient community We want to provide leading health and safety performance and support a connected and inclusive society	3, 5, 10
Develop shared prosperity We want to foster long-term prosperity by investing in and managing outstanding places that reward everyone connected with them	8, 11
Protect the planet We want to create efficient, climate-resilient places that deliver long term value and support a low carbon future	11, 12, 13

Stride Property & Stride Investment Management
Annual Report 2021 (continued)

Risk Management

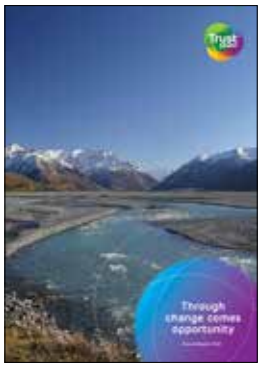
During FY21 Stride's Sustainability Committee considered the key risks, at a high level, that may be faced by Stride in relation to climate change, and, in accordance with the Taskforce on Climate-related Financial Disclosures (TCFD), categorised those risks into two categories – transition risks, being those associated with transitioning to a low-carbon economy, and physical risks, being risks arising as a result of changes in the physical climate and acute climate events.

A summary of the key climate change risks assessed by the business and reported to the Stride Sustainability Committee is set out on pages 50 and 51. During FY22 Stride intends to undertake further work to refine these risks and prepare a detailed and comprehensive climate risk assessment for Stride and the Stride Products, in preparation for reporting against the TCFD framework from FY22.

Metrics

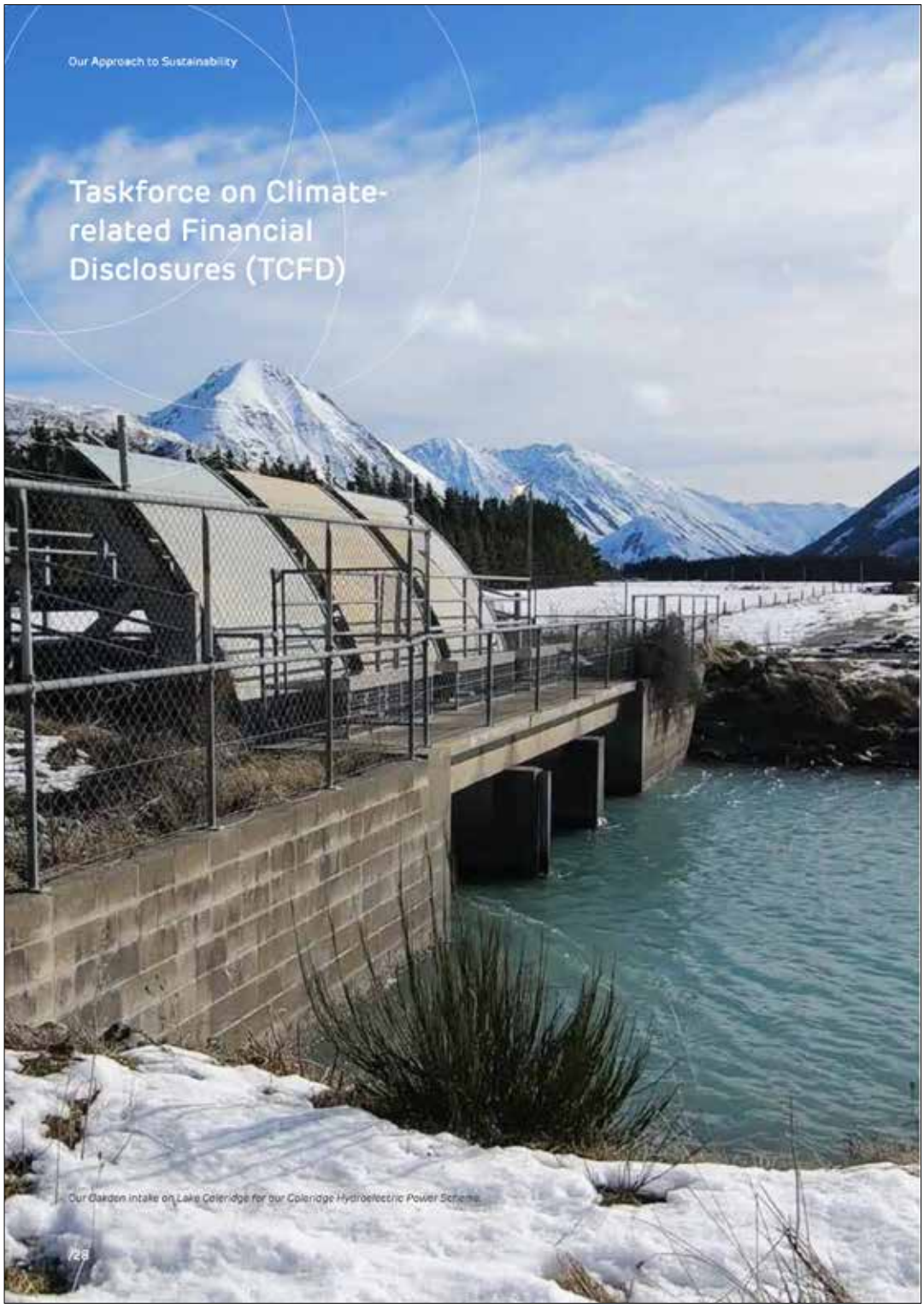
Stride has commenced the process of gathering emissions data to enable it to record and report on its greenhouse gas emissions. Stride has subscribed to the New Zealand-developed BraveGen software, which captures the greenhouse gas emissions data for Stride and each of its Products.

Once the baseline year data has been determined, Stride will commission an independent assurance of that data, to enable it to report confidently against its baseline emissions. Stride expects that this data will be available for reporting from FY22.



Appendix 4:
NZSX-listed 2021 annual reports –
Partial mention

Trustpower
Annual Report 2021



Trustpower
Annual Report 2021 (continued)

Climate change is happening. Investors and stakeholders are becoming increasingly interested in what companies are doing to mitigate and adapt to climate risks and opportunities. In 2020, the Government flagged an intent to make climate-related disclosures mandatory for publicly listed companies by 2023. It will require these businesses to report against their climate-related financial risks and opportunities using a framework known as the Taskforce on Climate-Related Financial Disclosures (TCFD).

With respect to our climate risk profile, this year we are voluntarily reporting on around 70 per cent of the TCFD Framework, with the intention to build on this year on year.

Climate Change Governance

In 2020, our major shareholder Infratil released a Climate Change Position Statement. We are strongly aligned with this position. We are working to understand what this means for our business and are committed to being transparent with our stakeholders about climate change risk and opportunity.

Our Governance is explained in Risk & Opportunity on page 34.

Metrics and Targets

To ensure Trustpower is abreast of changes and understands its climate-related risks and opportunities, we measure and monitor the following:

- Frequency and intensity of extreme rainfall events
- Electricity demand
- Price volatility
- Probable Maximum Flood (PMF) assessments
- Greenhouse gas (GHG) emissions

Target:

- Meet all TCFD mandatory requirements by FY23.

Task Force on Climate-related Financial Disclosures (TCFD) Framework

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organisation's governance around climate-related risks and opportunities. (Information found in *Our Board Committees*, page 19, and *Risk & Opportunity*, page 34)	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. (Information found in *Our Environment*, page 55)	Disclose how the organisation identifies, assesses, and manages climate-related risks. (Information found in *Risk & Opportunity*, page 34)	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.
Recommended Disclosures	**Recommended Disclosures**	**Recommended Disclosures**	**Recommended Disclosures**
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	a) Describe the organisation's processes for identifying and assessing climate-related risks.	a) Describe the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.
b) Describe the management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy, and financial planning.	b) Describe the organisation's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.
	c) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	c) Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	c) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

Appendix 5: Documents other than 2021 annual reports that contain TCFD information

Row from Table 4	NZSX-listed company name	Page number
3	AMP Limited (1 page)	117
6	Auckland International Airport (2 pages)	118
12	Downer Group EDI (1 page)	120
21	Meridian Energy (3 pages)	127
22	Napier Port Holdings (3 pages)	130
25	Precinct Properties NZ (1 page)	133
39	Ventia Services Group (2 pages)	134

Notes:

1. A few annual reports contain a link to another report (see Appendix 2). Excerpts that relate directly to TCFD information are included in this appendix.
2. Disclaimer: There may be a few cases where TCFD-related documents have been prepared. However, if no link is contained in the annual report, it will not be included in this appendix.

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

AMP Limited
2021 Sustainability report

Managing and disclosing climate-related risks

Transition risks

In AMP Capital, we have previously undertaken preliminary scenario analyses on our managed equity portfolios using a projected carbon price. Carbon pricing mechanisms currently operate in several countries globally to incentivise emissions reductions and can be applied to equity and fixed interest portfolios. Different carbon prices have been used to assess potential impacts, including $25/tonne CO2-e, $50/tonne CO2-e and $100/tonne CO2-e. Preliminary assessments have also been undertaken of value at risk from a gradual phasing out of fossil fuels for major equity benchmarks. Further information is available on the AMP Capital website.

In New Zealand, the business delivered an initial reduction of approximately 60% in exposure to carbon emissions across its entire investment portfolio and is finalising its framework to implement its Carbon Net Zero commitment as an investment manager.

Physical risks

AMP Capital has taken steps to understand the risks that a changing climate poses to our real estate assets, quantify those risks, and mitigate them where possible.

Previously, we conducted work on scenario analysis, which included considering the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCPs), the anticipated change in acute and chronic climate parameters, and asset level climate change risk assessments. In 2021, AMP Capital Real Estate built on this work, setting out a plan to review the current processes for determining asset resilience, and develop a framework to quantify the physical risk and cost implications using the climate value at risk (CVaR) methodology. We have started with two pilot sites, including 33 Alfred Street – AMP's Circular Quay headquarters.

AMP Bank monitors and assesses bushfire risks of mortgage assets in the portfolio to understand proximity of possible bushfires to buildings and support communication with customers who might be affected. AMP Bank engages with industry working groups to enhance approaches to identify and manage physical risks to the portfolio and expects to expand these capabilities in 2022.

AMP Capital Carbon footprint of managed equity and fixed income funds

Understanding the carbon footprint of a company is an essential first step in assessing the investment risks that can arise from climate change. We have been assessing the climate risks of our investments for over a decade and in 2016 created a methodology for calculating the greenhouse gas exposure of our equity investments. This was then expanded to include fixed income.

In 2021, AMP Capital continued to publish its latest carbon footprints of all managed equity and fixed income funds relative to their benchmarks to enhance our clients' understanding of climate-related investment risks.

APPENDIX 5

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Auckland International Airport
Climate Change Disclosure Report FY21

Strategy

Strategic planning

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 Auckland Airport precinct.

The Sustainability Strategy accounts for our impact on climate change. There is a significant focus on carbon reduction including reducing the reliance on natural gas for space heating, replacement of our corporate vehicle fleet with electric vehicles, and the sustainable design of new infrastructure including selection of low-carbon materials.

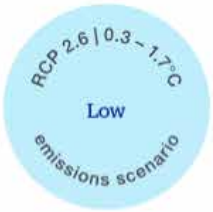
Resilience to climate change

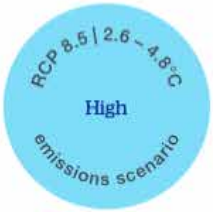
Because of Auckland Airport's unique location on the Manukau Harbour, physical inundation and flooding of assets due to sea-level rise and extreme weather events is one of our key climate-related risks.

Auckland Airport sees climate-scenario analysis as a key tool for identifying climate change risk, and therefore keeps abreast of emerging climate modelling and research. The intention is to use three climate scenarios based on Representative Concentration Pathways ("**RCPs**") outlined in the Intergovernmental Panel on Climate Change ("**IPCC**") Fifth Assessment Report.

These scenarios are not intended to predict the future but rather explore possible futures which enable Auckland Airport to understand our resilience as a business within these areas.

To date, Auckland Airport has undertaken analysis of current and future flooding and inundation under the high emissions scenario, representative of a 4.8°C warming pathway (RCP 8.5). This analysis identified that without intervention, the frequency and intensity of inundation and flooding events on the airport precinct will increase significantly, eventually resulting in frequent interruption to business activity in 2090. This potential impact is being addressed by regular monitoring, maintenance and upgrades to existing infrastructure as well as through strategic planning of future infrastructure requirements.





APPENDIX 5

Auckland International Airport
Climate Change Disclosure Report FY21 (continued)

Climate-related risks and opportunities

The impacts of climate change, including rising sea levels, higher temperatures and increasing frequency and severity of storm events and high winds, could have negative effects on the infrastructure and property assets of Auckland Airport. In addition, climate change policies enacted globally and domestically could affect aviation activities, which could have a negative impact on our financial performance.

We have assessed physical and transitional risks for our business due to climate change as illustrated in the table below.

Auckland Airport's contribution to climate change solutions will present new opportunities also. These include lowering operating costs by reducing energy consumption, as well as designing and building sustainable buildings to attract tenants.

Risk driver	Impact on Auckland Airport	Current and future controls
Physical		
Sea-level rise	Business interruption and operational delays due to inundation of areas that feature existing assets critical to airport operations	• Increased monitoring and maintenance of the seawall • Maintenance of existing (and development of new) infrastructure undertaken in consideration of climate change
	Constraints to future development	• Consideration of climate change in Auckland Airport's masterplan
	Saltwater intrusion into wetlands and ponds, loss of functionality of stormwater and wastewater systems and consequential impact on the surrounding marine environment	• Stormwater Masterplan and planned infrastructure upgrades • Ongoing monitoring of stormwater discharges
Increased frequency and intensity of storm and rainfall events	Damage to infrastructure, business interruption and operational delays due to flooding of areas that feature assets critical to airport operations	• Maintenance of existing (and development of new) infrastructure undertaken in consideration of climate change
	Changes to aircraft noise contours due to changing wind patterns	• Annual review of weather data to identify emerging trends that could impact the location of the aircraft noise contours
Decreased rainfall days	Water shortages due to drought resulting in increased potable water prices and the introduction of water restrictions	• Water efficiency initiatives • Secured access to non-potable water supplies • Further inclusion of non-potable water reticulation to increase non-potable water usage
	Increase in electricity price and introduction of restrictions on electricity use, particularly at times of peak demand, due to less generation capacity from 'dry' hydro-electric schemes	• Energy efficiency initiatives • Exploration of feasibility for onsite renewable energy generation
Rising mean temperatures	Increased risk of mosquitos and other exotic pests which pose a threat to New Zealand biodiversity and human health	• Ongoing biosecurity monitoring programme • Elimination of potential breeding grounds such as standing water
	Increase in operating costs for air cooling as the operating parameters will need to be expanded for the expected temperature and humidity range in the long term	• Factoring future requirements into long-term asset-management and replacement plans
Transitional		
Global and domestic legislative changes	Risk of global and domestic policies, regulation and pricing mechanisms being applied to reduce carbon emissions from aviation sector	• Policy engagement and advocacy
Changing public behaviours	Risk of moderation in passenger growth if public sentiment towards air travel changes due to the carbon footprint of aviation	• Effective monitoring of consumer perceptions in New Zealand and key inbound markets • Maintaining a diverse portfolio of markets and strengthening short-haul markets • Supporting airline partners to reduce their emissions at gate through the provision of ground power units ("**GPUs**") and pre-conditioned air ("**PCA**") • Maintenance of a precinct-wide masterplan that promotes an efficient airport design and layout

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Downer Group EDI
Climate change and Downer's TCFD response

Climate change and Downer's TCFD response

TCFD disclosure

The effects of climate change will be pervasive and felt in some way by every person, organisation and society as a whole. The effects will impact across environmental issues, economic performance, social behaviour, infrastructure and other aspects of human existence. Changes will generally develop gradually but could also be abrupt, as seen in recent times.

Downer accepts the Intergovernmental Panel on Climate Change's (IPCC) assessment of the science related to climate change and supports the Paris Agreement in transitioning to net-zero emissions by 2050 to limit global temperature increase to 1.5°C by the end of this century. Climate change has been identified as one Downer's material issues.

Downer recognises the uncertainties and risks posed by climate change on its long-term viability and to society. Downer's current exposure to thermal coal represents a medium-term risk and informs Downer's shift away from the Mining Services business. Other risks that Downer is exposed to need to be monitored and mitigated, or adapted to, dependent on the program of works affected.

Downer also recognises that there are significant opportunities to contribute to a lower carbon economy. Downer may leverage its already significant contribution to the renewable energy sector by providing further construction and maintenance services where these market opportunities arise. There are further opportunities within emerging technologies, such as Hydrogen and Carbon Capture and Underground Storage, where Downer has capability in each phase of its implementation. In addition to contributing to mitigation measures, adapting to climate change will be increasingly necessary over the coming years. To that end, Downer's existing Asset Services business, along with maintenance services we provide across a range of industries, will be increasingly called upon, particularly in the face of extreme weather events. These represent significant opportunities for Downer.

The diversity of Downer's portfolio strongly positions us to mitigate and manage our exposure to climate risks and to maximise the business opportunities it presents. For Downer, these opportunities outweigh the identified risks and will assist in accessing lower cost capital and providing increased margins. This materialised in FY21 when Downer finalised a $1.4 billion syndicated Sustainability Linked Loan (SLL). The SLL is underpinned by KPI metrics relating to Downer's greenhouse gas emission reductions (in line with Downer's Science-Based Target) and bespoke social metrics. If Downer achieves its KPI targets it will result in lower borrowing costs.

Over the past three years, Downer has progressed its implementation of the Taskforce on Climate-related Financial Disclosure (TCFD) recommendations. Downer remains committed to integrating the TCFD work into its overall strategy. This year's disclosure builds on the work completed over the past few years.

The scenario analysis performed in 2019/20 continues to inform strategic planning processes by looking longer-term to critically assess the products and services provided by the business in these changing markets. The outcomes of the scenario analysis contributed to Downer's Urban Services strategy, which focuses on capital light services and limits our exposure to the effects of climate change through fixed, long lived capital assets.

In February 2020, Downer announced it would shift investment in high capital intensive activities to lower intensive and lower carbon activities and advised the market that it would take steps to divest its Mining Services and Laundries businesses. This strategic shift will support Downer's decarbonisation pathway and market position as the global economy accelerates its transition to a low-carbon future. Downer is also well positioned to provide products and services to our customers that will enable them to decarbonise, contributing to a lower carbon future.

Downer intends to undertake a program of work during FY22 to refresh its understanding of key climate-related risks and opportunities and the further embed climate-related considerations into the capital allocation process. The outcomes of the analysis will be disclosed in future disclosures.

Downer Group EDI

Climate change and Downer's TCFD response (continued)

TCFD governance

The Downer Board, through its oversight functions, has ensured Downer appropriately considers Environmental, Social and Governance (ESG) risks, including those related to climate change. In fulfilling this function, the Downer Board also receives oversight from Downer's Board Zero Harm Committee and Audit and Risk Committee, Tender Risk Evaluation Committee and Disclosure Committee. Climate-related risks and opportunities are incorporated into Downer's broader corporate strategy, planning and risk management.

The Downer Board recognises that an integrated approach to managing climate-related risks and opportunities is essential. This has been reflected in the strengthening of Downer's governance structure and increased focus on climate change in both Board and Executive forums. Examples include:

- Board strategy session, which occurs annually and includes climate change risks (physical and transitional) identified through the TCFD and scenario analysis. These issues, along with Downer's decarbonisation strategy and management response, are presented by the Head of Sustainability.
- Investor meetings attended by CEO, CFO and Chairman of the Board. Discuss investor concerns associated with climate-related risk and opportunities, along with Downer's strategy and management response.
- Monthly updates to the Board through functional Top Down Reports (TDR) provided and presented by the Functional and Operational Heads. For example, Health, Safety and Environment including climate change is provided by the Head of Sustainability. The monthly TDR provides updates on strategic initiatives as well as performance against targets and objectives including Downer's GHG emissions intensity reported against its Science-Based Aligned Target.
- Reports provided to the Board Zero Harm Committee on quarterly basis. This committee is attended by the Head of Sustainability and the Group General Manager Environment, Sustainability and Reporting to discuss climate change related information, GHG emissions reporting and performance along with management response and strategy.
- Involvement through the Tender Review Evaluation Committee (TREC), established to assist the Board in approval of the submission of bids that exceed the delegated authority of the Group CEO or are referred to the committee by the Group CEO. This committee assesses the risks and opportunities in line with Downer's risk appetite. Climate-related risks and opportunities is one of the considerations.
- Direct Board engagement in Downer's sustainability materiality assessment process. As key internal stakeholders, Board members participate in the materiality survey and interviews, which are conducted by an independent expert. The Board, through the Zero Harm Committee, is involved in the validation of the materiality assessment results, which are disclosed in the annual Sustainability Report.
- Review and endorsement of the Annual Report and Sustainability Report, which disclose Downer's material ESG issues. This includes: climate change, along with Downer's TCFD disclosure; Downer's science-based GHG emissions reduction targets; and progress towards decarbonisation.
- Inclusion of climate-related risks and opportunities questions in the annual Financial and Corporate Governance Self-Assessment.
- Monthly updates and papers to the Executive and Strategic Committee meetings. The management committees are attended by the Head of Sustainability, who presents strategic updates and performance-related information on ESG matters, including climate change and decarbonisation.
- Tracking Downer's GHG emissions reductions in line with Downer's Science-Based Target. These results are reported through various management and Board forums, with the KPIs linked to Downer's Sustainability Liked Loan facility and Short Term Incentive performance, which is specifically reported to the Board Remuneration Committee each year.

The method for measuring the company's performance is set out in our governance framework, and short-term remuneration incentives are offered to senior managers in relation to the company's performance against environment and sustainability targets. These targets include the management of critical environmental risks, GHG emissions reduction and the development of improvement plans aligned to the top two UN Sustainable Development Goals that are material to that Business Unit.

Downer Group EDI

Climate change and Downer's TCFD response (continued)

TCFD risk assessment

Downer's climate-related risks and opportunities, including their potential impact, likelihood and management response, are reviewed on an annual basis (at minimum) to ensure ongoing relevancy both at the Group and Business Unit levels.

For the purposes of the FY21 period, the risk profile has remained largely consistent with previous years. The significant change was the reduced risk to energy prices and exposure to Mining contracts through the sale of the Laundries business and the Mining Services business, with the exception of Open Cut East. We are continuing to explore opportunities to divest Open Cut East. In the event Downer is unable to complete the sale, we will fulfill our contractual commitments. Once the terms of those contracts are complete, Downer will have no further participation in Mining services.

Climate-related risks continue to be governed as part of Downer's Group Risk and Opportunity Management framework and Project Risk Management framework. We identify, manage and disclose material climate-related risks as part of our standard business practices, which are aligned with our Group and Business Unit strategies. This framework applies to all employees, Directors and contractors.

Our Audit and Risk Committee and Tender Risk Evaluation Committee are responsible for providing oversight over Downer's risk profile, policies and management, and external reporting.

Climate-related risks

Risk	Description	TCFD risk type	Potential impact to business	Management response
Exposure to thermal coal contracts.	Transition to a low-carbon economy leads to reduced demand for thermal coal for power generation.	Transition: Policy, Legal, Technology changes, Market changes, Reputation.	Reputational risks arise from Downer's continual exposure to the coal sector. **Time horizon:** Medium-term.	• We exited our Mining Service business, with the exception of Open Cut East. Downer continues to explore opportunities to divest Open Cut East. In the event that a sale cannot be completed, Downer will fulfil its existing contractual commitments, after which it will have no ongoing participation in Mining services.
Changing design and construct requirements.	Increased climate-related risk requirements relevant to the construction of infrastructure driven by changing customer expectations and increased climate-related design requirements stipulated in EPCM contracts.	Physical and liability: Acute and chronic, Policy, Legal, Reputation.	Increased cost of EPCM services and challenges to the competitiveness of Downer's services. **Time horizon:** Medium to long-term.	• Continue to assess contractual arrangements with respect to design and construction events to ensure appropriate mitigation measures are in place. • Use sustainability rating tools and incorporate climate change adaptation and mitigation considerations into design.
Exposure to extreme weather events.	Severe weather events impacting the delivery of contractual obligations. For example, resource mobilisation, health and safety, and security.	Physical: Acute and chronic, Legal.	Inability to achieve contractual schedules due to adverse and severe weather events. **Time horizon:** Medium to long-term.	• Continue to assess contractual arrangements with respect to acute and chronic weather events to ensure appropriate mitigation measures are in place. • Use the scenario analysis as signposts for change.
Impacts of increasing energy costs.	Increased operational costs due to increase in electricity, gaseous and liquid fuel prices, materially impacting high energy consuming service lines.	Transition: Market, Policy.	Decreased profitability from contracts in energy intensive service lines. **Time horizon:** Medium to long-term.	• Continue identifying and implementing energy efficiency initiatives. • Use the scenario analysis as signposts for change.

APPENDIX 5

Downer Group EDI

Climate change and Downer's TCFD response (continued)

Response to climate-related opportunities

Opportunity	Description	TCFD opportunity type	Potential growth to business	Management response
Access to the sustainable/green finance markets.	Leveraging Downer's Urban Services strategy and ESG credentials to access lower cost capital.	Access to lower cost financial capital.	More attractive to investors and capital markets, enabling access to capital to grow service lines.	• Completed a $1.4 billion syndicated Sustainability Linked Loan facility. • Identify other opportunities for sustainable finance and/or frameworks. (e.g. green bonds and green loans).
Existing renewable energy capability and market presence.	Expertise in developing, implementing and maintaining renewable energy assets.	Resource efficiency, Products/services.	Transition to a low-carbon economy drives increased demand for renewable energy technology and infrastructure services, as well as broader smart city products and services.	• Strengthen existing and establish new relationships with key customers. • Leverage our capability and broaden our service offerings.
Leverage existing capabilities to service new and adjacent markets.	Transition to a low-carbon economy is driving demand for alternate fuels such as electrification and hydrogen for this transition.	Products/services, Markets.	Opportunity to leverage existing capabilities to service new and adjacent markets with alternate fuels essential for the transition to a low-carbon economy.	• Strengthen existing and establish new relationships with key customers. • Leverage our capability and broaden our service offerings.
Response services to extreme weather events.	Increased frequency and impacts of extreme weather events drives increased demand for disaster recovery and resilience services.	Products/services, Markets, Resilience.	Opportunity to further leverage Downer's existing expertise in responding to asset damage from extreme weather events. Opportunity to also leverage expertise to improve the resilience of existing assets.	• Continue to work with Government customers on emergency response to extreme weather events. • Strengthen and leverage existing capability. • Incorporate climate change and adaptation into the design of any infrastructure contract.

APPENDIX 5

Downer Group EDI

Climate change and Downer's TCFD response (continued)

TCFD strategy

Downer is leveraging its understanding of ESG mega-trends and key material sustainability issues to drive innovation, and to identify new sources of growth and revenue for the business. This includes the way Downer has pivoted its portfolio through its Urban Services businesses to position itself as the provider of choice to customers with services that are set to thrive in a low-carbon future.

Our existing Group and Business Unit strategy process considers key external drivers, as stated above. We have also enhanced our strategy process to incorporate more explicitly climate-related risks and opportunities on an ongoing basis. We have embedded this process in the annual Group strategy session and a similar process into the Business Unit strategy sessions.

Outlined above are Downer's key climate-related risks and opportunities. These risks and opportunities are not listed in order of significance and are not intended to be exhaustive. They represent the most significant risks identified and are informed by a combination of review of Group and Business Unit strategic documents and risk registers, interviews with senior management, and workshops with Business Unit leadership teams.

This process confirmed that, at present, there were no material short-term climate-related risks for the Group. As indicated above, the majority of Downer's climate-related risks have been deemed to impact the business in the medium-term to longer-term. However, there were signals to closely monitor Downer's exposure to thermal coal as this risk could materialise earlier than anticipated. Downer's opportunities identified relate primarily to leveraging Downer's existing capabilities and business model as a service provider to service new and adjacent markets that will continue to emerge as a result of the transition to a low-carbon economy.

Downer Group EDI

Climate change and Downer's TCFD response (continued)

TCFD scenario analysis

In FY19, Downer performed scenario analysis to test the resilience of its business strategy and the assumptions underpinning the strategic focus areas in relation to the relevant climate futures, both physical and transitional. While this analysis was completed a couple of years ago, it continues to inform Downer's business strategy and focus on Urban Services.

The scenario analysis acknowledged the significant degree of uncertainty associated with how these climate futures will manifest, and explores four different yet inter-related potential futures with varying degrees of climate change severity and alternate socio-economic and political landscapes.

In deciding on the three key issues (and their respective areas of the business) upon which to frame the scenario analysis, Downer undertook a process to identify the future risks and opportunities arising from the transition to a low-carbon economy and physical changes and overlay Downer's strategic priorities, current risks and future changes.

Key issue	Area of business focus
Physical impacts of climate change (weather)	Road Services, Rollingstock Services, Transport Projects, Utilities and New Zealand
Energy transition (thermal coal transition)	Mining and Asset Services
Changing carbon/energy policy	Group

These key areas informed the selection of four divergent, internally consistent and plausible scenarios, based upon the best available literature and modelling. Two of the four selected scenarios explore the minimum plausible global-warming trajectory (holding the world to approximately two degrees of global warming) and to explore the upper limit (approximately four degrees of global warming), with these pairs separated based on the degree to which adaptation is available and practicable in the given future.

The degrees warming is informed by the Representative Concentration Pathways (RCPs) (RCP 2.6 for under two degrees and RCP 8.5 for four degrees), while the transition pathways, including broader energy and socio-economic conditions, are informed by the Shared Socio-economic Pathways (SSPs).

Category	Scenario
Sustainability	~2 degrees global warming (SSP 1 - RCP 2.6)
Follower	~2 degrees global warming (SSP 4 - RCP 2.6)
Fossil fuel development	~4 degrees global warming (SSP 5 - RCP 8.5)
Global decline	~4 degrees global warming (SSP 3 - RCP 8.5)

Each of these scenarios provide numeric and qualitative outcomes under which to explore the risks and opportunities. The development of these future scenarios was tailored to Downer's business strategy by identifying the key risks and opportunities that arose in each of the three selected priority areas. Once these were understood, a key driving climate or transition variable was mapped, enabling consistent exploration of the potential impact or outcome for Downer in each of the four futures.

Key findings include:

- Downer's strategy was found to be resilient and well positioned in all scenarios used due to the diversification of services across multiple sectors, existing market presence and capabilities.
- A <2°C world provides considerable opportunities which outweigh identified risks and will assist with lower cost of capital and increased margins.
- Aligning to a <2°C world will require decarbonisation by the second half of the century, with a substantial decrease by 2035.

The scenario analysis work is used as signposts to inform Downer's strategy and help Downer to manage some of the uncertainty and complexities associated with these futures. Monitoring government policy (eg. carbon price), consumer sentiment on climate change, the levelised cost of energy across major energy sources, and the global emissions trajectory provides key insights to best inform Downer's business strategies.

Downer will continue to focus on its decarbonisation strategy, which consists of:

1. Divesting high capital, carbon intense businesses and focusing on lower carbon activities.
2. Continuing to focus on energy efficiency and GHG emissions reductions.
3. Decarbonising our fixed assets with new technology and fuel switching.
4. Decarbonising Downer's fleet through Electric Vehicles (EV) and Alternate Fuel Vehicles.
5. Increasing uptake of renewables, both on and off-grid.
6. Reducing Scope 3 emissions through the use of low-carbon materials, and working with suppliers to lower their emissions.

For more information, refer to the 'Progress on decarbonisation pathway' section of this report.

APPENDIX 5

Downer Group EDI

Climate change and Downer's TCFD response (continued)

Physical Impacts ↑

In all scenarios, weather conditions will become more extreme than today, with extreme rainfall, heatwaves and storms all resulting in potential unsafe work conditions and leading to delays or disruptions in project delivery or operations. More chronic conditions, such as gradual heat rise and longer time in drought, will create a higher risk of dust inhalation and the linked detrimental consequences to employee health.

In the immediate to short-term, these extremes will start to impact the way we perform our activities. Those on the frontline will be our outdoor workforce, who will be at higher risk of both injury and illness in a warming world.

Downer has the opportunity to adapt workplace policies and practices to reduce these risks before they result in consequences to our workforce. These changes will need to be strategically planned to manage the impact on margins. For example, shifting work hours away from daylight hours or implementing policies to stop work on days exceeding extreme temperatures may reduce the amount of time available to complete a project. These factors will therefore need to be a consideration when executing new contracts. For example, due to the impacts of COVID-19, Downer's road maintenance customers brought forward programs of work and shifted the working hours to complete these works. As a result, our Road Services business achieved increased revenue in the later part of FY20.

Limiting global warming to under two degrees has relatively more positive outcomes for workforce health, safety and productivity due to a reduction in lost time, project delays or efficiencies gained, compared to higher warming scenarios.

The transition pathway will also provide opportunities to improve employee safety, with transition away from fossil fuels and internal combustion engines providing opportunities to improve air quality and productivity gains. In each case, financial implications will arise due to consequences of lost time, project delays or efficiencies gained.

In all scenarios, resilient infrastructure or adaptation to existing infrastructure will be needed. However, customers are willing to pay a premium for quality sustainable infrastructure, which may be contracted at higher margins. Points of difference arise across the scenarios in GDP, which will change the focus on critical infrastructure projects and achievable margins.

Downer designs and constructs infrastructure to withstand Australia and New Zealand's climate. As the climate changes and, in particular, extremes heighten we will need to adjust the design factors and the way we construct infrastructure. Although Downer is already proactively responding to these changes, it will be important to remain aware of the changing future extremes in order to protect our reputation and standing, compared to competitors.

Adapting design and build methods may impact Downer's margins, so these considerations will need to be carefully priced to assess the merits. For example, while there is still uncertainty around whether the world will limit global warming to less than two degrees, versus a four-degrees or higher warming, decisions need to be made as to the cost/benefits of incorporating worst-case versus best-case changes into planning. In any event, the climate will change, and the plausible minimum warming will be used as a baseline for decisions.

The sectors in which Downer's Transport businesses operate will look to protect the resilience of cities as we move towards a warmer world. This provides Downer with opportunities to capitalise on new and emerging markets, particularly in sustainable infrastructure, sea walls, resilient roads and trains, and protection from urban heat islands. The direction of this demand, whether it be sustainable or purely cost-effective adaptation, is still uncertain. However, Downer has the ability to position itself to deliver on these emerging trends based on signposts.

3. Strategy

TCFD requirements

- *Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.*
- *Describe the impact of climate-related risks and opportunities on the organisation'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.*

Climate impact definitions

Physical 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 and changes to hydro lake inflows).

These changes may result in financial risks or opportunities due to the direct and indirect impacts they can have on business operations, assets, markets or supply chains.

Transition impacts

Transitional 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.

Source: Based on Recommendations of the Taskforce on Climate-related Financial Disclosures

It is clear that the impacts of climate change in New Zealand and globally will be devastating without strong climate action by both government, business and society more broadly. The recent Intergovernmental Panel on Climate Change (IPCC) report "Climate Change 2021: the Physical Science Basis" reinforces the need for strong, rapid and sustained greenhouse gas reductions reductions if limiting global temperature rise to 1.5°C is to stay within reach. Our analysis of climate change impacts on our business is undertaken out to 2050, as this is the time horizon we use for making decisions on new investments. Within this time horizon, the physical impacts of climate change on our business in a 2°C or 4°C world are not significantly different. However, a 4°C warmer world in 2100 would present significant challenges, both in terms of the potential physical impacts on our dam structures, but also in terms of the uncertainties as to how our society will function in those circumstances, and what an electricity business may look like as a result.

We have utilised two central scenarios to explore the strategic and operational implications of climate change for our business:

Evolution: This is a "business as usual" scenario in which the world is on track to warm by more than 4°C this century. Under this scenario, no major policy changes have been enacted, no disruptive regulatory constraints have been placed on New Zealand's electricity market, and there have been no significant industry disruptions. It describes moderate improvements in energy efficiency, a moderate increase in demand due to population growth, and a moderate increase in demand from the electrification of transport and industrial heat conversion.

Revolution: In contrast, our 2°C scenario assumes substantial regulatory intervention to rapidly decarbonise transport and process heat in New Zealand. Under this scenario, demand grows at an unprecedented and potentially disruptive rate but may be offset by contractions in agriculture and international tourism.

We also have supporting scenarios to both test our strategic choices, support the identification of climate-related risks and opportunities, and enable financial quantification where relevant. The scenarios include:

Lower electricity demand: This version of our Evolution scenario is intended to explore the potential impact on electricity demand should there be a significant disruption to industry as a result of physical or transition-related impacts of climate change (for example, the dairy industry phasing out in New Zealand over a 10 year period).

No climate change: This version of our Evolution scenario removes the physical impacts of climate change on both supply and demand.

Thermal counterfactual: This scenario imagines a New Zealand where energy security is prioritised above the other factors, affordability and sustainability, in the energy trilemma. Here, gas remains in the electricity generation mix to provide some flexibility and energy security. An underpinning principle is that a 100% renewable electricity target is deprioritised with a new focus on an economy wide renewable energy target, allowing gas to remain in the electricity generation mix.

All scenarios above assume the same level of temperature increase between now and 2050, as the physical impacts of climate change (including the availability of water and wind energy) are much the same within this time horizon regardless of which temperature increase scenario is chosen from the Intergovernmental Panel on Climate Change (the IPCC). However, the market and regulatory contexts and assumptions between each scenario are notably different, for example electric vehicle demand outlooks under Evolution and Revolution scenarios are markedly different and we believe more consistent with 4°C and 2°C pathways respectively.

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Meridian Energy
Climate Change Related Disclosure FY21

Meridian Energy

Climate Change Related Disclosure FY21 (continued)

Physical risks

As an electricity generator from natural resources, the physical impacts of climate change present risks and opportunities. Our modelling indicates that we are likely to get more water in our hydro catchments, with a change in seasonality to better match demand, and that demand is likely to increase with higher temperatures. However, higher temperatures will also increase the likelihood of extreme rainfall events.

We continue to consider the physical impacts from climate change on our business more broadly, such as those on the local electricity system as a whole, and those on our global supply chain and how those would then impact our business.

For example, locally higher temperatures may impact the carrying capacity of the transmission and distribution networks, and those networks may also be disrupted by increased frequency and severity of extreme weather events. There may also be increasing competition for water, for example from increasingly frequent East Coast droughts (particularly in the Canterbury region). In our supply chain, the sourcing of goods and services internationally, may impact us locally via supply chain disruptions.

The identified physical impacts of climate change most material to Meridian are described below:

Extreme rainfall in hydro catchments - risk

Climate change is likely to increase the severity of extreme rainfall events, and consequent flood events, across New Zealand, which then poses a potential increased risk of physical damage to our dam and hydro assets in the Waiau and Manapōuri catchments and risks to surrounding communities. Meridian's 2021 Corporate Governance Statement captures the catastrophic events risk including flooding and current mitigations in place to reduce the impact of such an event.

The safety criteria for extreme flood events is defined in the NZSOLD Dam Safety Guidelines as "Probable Maximum Flood (PMF) – an estimate of a hypothetical flood (peak flow, volume and hydrograph shape) that is considered to be the most severe "reasonably possible" scenario for a particular catchment". The PMF values for our hydro systems were updated in 2016 for Waitaki catchment and 2017 for the Waiau catchment, and are subject to expert independent review. These PMFs then inform our dam safety approach, which follows best practice in that all of Meridian's high potential impact category dams are required to be assessed, maintained, and managed to remain safe even under extreme flood and seismic loads.

The assessment of PMF is highly conservative. While we consider it to be highly unlikely that an extreme flood larger than the PMF event would occur in the short-term, there is a possibility that the PMF may need to be raised in the next several decades, as a result of increases in global and regional atmospheric temperatures and changes to atmospheric circulation leading to increases in the severity of extreme rainfall events.

This leads us to consider two risk impact scenarios:

Firstly, it is foreseeable that the PMF values that we are required to manage to assure the safety of our dams could rise which could potentially have a substantive financial impact on our business, as an increased PMF would require us to increase the flood capacity of our dams, starting at some point in the next 30 years. This could be achieved through either modification of dam structures, spill outlets, or by reducing the maximum operating water level to allow for more flood storage capacity, or a combination of these measures. The most likely options currently considered include reducing the maximum control level in Lake Pukaki in the Waitaki system, which could have an ongoing earnings cost of up between $4m–8m per annum by 2050, and for the Waiau catchment, physical changes to lake control structures with a one off cost of up to $30m, which we have considered on an annualised basis to be $3m/yr. Taken together, the ongoing earnings cost and lake control structure cost, combine to an annualised indicative financial impact of ~$7 to~$11m per annum.

To manage this risk we plan to re-evaluate the PMFs every decade.

We are also advocating to independent external consultants responsible for PMF calculations that they take into account the ongoing scientific research in relation to how extreme rainfall events affect our catchments, and the extent to which climate change will contribute to that going forward. And we are likely to invest in future rainfall–runoff modelling to ensure the risk is better understood. The cost of this management approach is considered business-as-usual and not related to any additional risk of extreme rainfall events due to climate change, and therefore this cost is not included.

Secondly, if an extreme rainfall event of a scale sufficient to damage our structures were to occur in the shorter term, the potential consequence to Meridian includes damage to the dam and/or hydro structures and business interruption (restrictions on our generation operations for a period of time) but not dam failure. We're exposed to this risk in both our catchments but not both simultaneously, as it is exceptionally unlikely that an extreme flood would occur in both catchments in the same timeframe. The impact in the Waitaki system may be in the order of $60m to $80m and in the Waiau catchment between $55m and $80m. In the event of material damage and business interruption losses, Meridian holds insurance for both physical damage and lost generation after 30 days resulting from damage to generation assets which would reduce the financial impact by potentially up to $35m. We consider this risk very unlikely to occur due to our extensive dam safety management approach, and as such have not included this potential financial impact in our summarised financial impact estimate (table 1).

Changes to hydro inflow profile – opportunity

Projected changes to Meridian's hydro inflow profiles in the Waiau and Waitaki catchment areas are likely to better match anticipated changes in New Zealand's electricity demand profile.

There is not likely to be any increase in drought risk to our hydro catchments under 2° or 4°C scenarios. To the contrary, average annual rainfall is projected to increase by approximately 5-15% by 2055[2]. This would have a positive impact on our revenues through increased production of hydroelectricity. Meridian's 2021 Corporate Governance Statement captures the risk – Adverse hydrological conditions. Should hydro inflows profile change as modelled, this risk will reduce somewhat.

Changes in seasonal rainfall are projected, with winter rainfall in Meridian's hydro catchments predicted to increase more than summer rainfall over the next few decades. Approximately half of the Waitaki summer inflows come from snow melt[3]. Rising snowlines and the resulting reduction in summer snow melt is projected to contribute to increased winter inflows and decreased summer inflows.

These seasonal changes in inflow profile are likely to improve alignment between our generating capacity and electricity demand. Current demand peaks in winter, whereas current hydro lake inflows peak in summer, requiring significant storage use planning. In the future these two variables are expected to align more. In addition, rising annual average temperatures are likely to have a direct impact on heating and air conditioning, with less electricity required in winter for heating and more in summer for cooling, also improving the correlation between electricity demand and supply.

Increased correlation between inflows and seasonal demand will allow Meridian to increase production of hydroelectricity on an annual average basis. The potential annualised financial impact ranges $12-$58m. This is calculated assuming an increase in Meridian's price participation[4] in future years of the order 2-10% by 2050, aligned with Revolution and Evolution scenario outlooks respectively. The price participation improvement would be a result of Meridian's electricity supply and demand better aligning during wholesale market trading – largely hydroelectricity assets would be expected to achieve higher returns as a result of the changes to hydro inflow profile from climate change. Note that there is significant uncertainty to this calculation.

2 NIWA 2020. Our future climate New Zealand website: https://altcnz.niwa.co.nz/

3 Kerr, T. 2013. The contribution of snowmelt to the rivers of the South Island, New Zealand. Journal of Hydrology (NZ) 52 (2): 61-82 201

4 Price participation = Generation Weighted Average Price / Time Weighted Average Price (GWAP/TWAP)

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Napier Port Holdings
Climate Change Related Disclosure Report 2021

2. RISK MANAGEMENT

TCFD REQUIREMENTS:

- **DESCRIBE THE ORGANISATION'S PROCESSES FOR IDENTIFYING AND ASSESSING CLIMATE-RELATED RISKS**
- **DESCRIBE THE ORGANISATION'S PROCESSES FOR MANAGING CLIMATE-RELATED RISKS**
- **DESCRIBE HOW PROCESSES FOR IDENTIFYING, ASSESSING AND MANAGING CLIMATE-RELATED RISKS ARE INTEGRATED INTO THE ORGANISATION'S OVERALL RISK MANAGEMENT**

Napier Port's Risk Management Policy provides the overarching framework for identifying, assessing, managing and monitoring risk at Napier Port, including climate-related risks. Each Napier Port business unit is responsible for establishing and maintaining risk documentation to monitor and report risks that threaten achievement of business objectives. The Chief Executive and senior management team are responsible for ensuring that risks to the business are identified and evaluated, that effective responses and control activities are developed, and appropriate monitoring and timely re-evaluation is conducted. The Chief Financial Officer, working with senior management, updates the Napier Port enterprise risk register, drawing on business units' documentation, and reports this register to the Audit and Risk Management Committee at least on a six monthly basis.

In addition to this process, for climate-related risks Napier Port has benchmarked against recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) for identifying and assessing climate-related risks. The Napier Port infrastructure team, supported by others as required, are tasked with staying up-to-date with the latest climate-related research, conducting regular risk assessments and performing detailed climate change analysis. The Board and Management are also continually monitoring developments to existing and emerging regulatory requirements related to climate change as part of their risk assessment processes.

Envirolink, Gisborne District Council and Hawke's Bay Regional Council commissioned National Institute of Water and Atmospheric Research (NIWA) to undertake a review of climate change projections and impacts for the Tairawhiti (Gisborne) and Hawke's Bay regions. Napier Port has relied on the resulting report[1] for projected changes in sea levels, wind, temperature and extreme events, which have been used as inputs for our risk assessments. The outputs allow us to analyse a range of potential future scenarios and explore the implications for Napier Port's assets, operations, financial plans and business model.

This report notes that future climate projections strongly depend on estimates for future greenhouse gas concentrations. In turn, those concentrations depend on global greenhouse gas emissions that are driven by factors such as economic activity, population changes, technological advances and policies for mitigation and sustainable resource use. This range of uncertainty was dealt with by the Intergovernmental Panel on Climate Change (IPCC) through consideration of 'scenarios' that describe concentrations of greenhouse gases in the atmosphere. These scenarios were called Representative Concentrations Pathways (RCPs)[2].

Napier Port Holdings
Climate Change Related Disclosure Report 2021 (continued)

PHYSICAL RISKS

Climate change related effects result in a number of risks to Napier Port infrastructure, in particular due to its coastal location and susceptibility to sea level rise. Our assets are susceptible to physical risks today, including from acute weather and natural disaster events. Climate change modelling indicates that higher temperatures will increase the likelihood of extreme weather events that may affect operations and damage infrastructure and there will be the ongoing impacts of sea level rise which may cause erosion and flooding.

The physical impacts of climate change considered most material to Napier Port are described below:

INCREASE IN SEA LEVEL

One of the major and most certain consequences of increasing concentrations of atmospheric greenhouse gases and associated warming is the rising sea level. The NIWA report includes projections of the approximate years when specific sea level rise (SLR) increments will be met. A 0.5m SLR increment is projected to be reached by 2075 under RCP8.5 and by 2090 under RCP4.5. A 1.0m SLR increment is projected to be reached by 2100 under RCP8.5[3].

Based on research, inundation of certain areas of the Port is a remote possibility today when there is the combination of high tides, storm surge and swell events (extreme sea levels), coupled with high rainfall. Climate change effects, predominantly the sea level rise described above, is projected to increase the frequency of inundation that may cause damage or operational issues for the Port. As an example, an extreme sea level event of 2.42m changes from a 1/500 annual recurrence interval (ARI) to a 1/10 ARI under RCP4.5 in the short to medium-term (2040)[4].

Potential inundation of the Port due to extreme sea levels has been modelled under future scenarios. This modelling shows potential areas of inundation based on extreme sea levels and projected sea level rise under RCP4.5 and RCP8.5 to 2040 and 2090.

A significant portion of the Port is of a sufficient elevation and not expected to be effected by SLR induced inundation under extreme sea levels, in particular the container terminal, wharves and adjacent infrastructure.

There are areas of the northern log yard which have the potential for some minor inundation even today across the eastern side due to extreme sea level events. This is expected to get worse under both RCP's, minor inundation can be reasonably expected every 5 years in the short to medium-term (2040) under RCP4.5. In the longer term (2090) under RCP4.5, and both the short and long-term under RCP8.5, the level of inundation is much more extensive across this area.

Inundation of the road to the northern log yard and several nearby sheds are shown to be inundated due to extreme sea levels at relatively lower ARIs in the longer-term (2090). In the long-term the pavement in the northern log yards will need to be raised to prevent regular flooding with an estimated cost of $10-$15 million.

The western reclamation area is subject to inundation from extreme sea levels even today, but this area has not been fully developed and will be developed to design levels sufficient to exceed future extreme sea levels arising from climate change.

EXTREME RAINFALL EVENTS

Climate change is expected to result in an increase in the frequency and intensity of extreme rainfall events. The NIWA report notes that short duration rainfall events have the largest relative increases compared with longer duration rainfall events. Rainfall depths for 1-in-50 year and 1-in-100 year events are projected to increase across the greenhouse gas concentration scenarios and future time periods[5].

The Port has seen minor issues with storm water management in recent years due to extreme rainfall events that the systems were not designed for. The storm water system will be further compromised by sea level rise with more outlets likely to be below sea level which impacts the system's ability to discharge effectively resulting in backing up of storm water. This is likely to result in inundation if the extreme rainfall coincides with extreme sea levels. Detailed modelling is to be completed to better understand the system capacity both currently and under future scenarios so appropriate plans can be put in place. Likely options include additional drainage networks or pumping stations.

Napier Port Holdings
Climate Change Related Disclosure Report 2021 (continued)

EROSION

The East Beach area of Napier Port has a history of significant movement of shingle to the north and south during swell events depending on swell direction. Erosion has been managed using ad-hoc shore protection where key infrastructure is situated, such as the Plant Services workshop. Climate-related risks are expected to increase erosion in this area. In the long-term a hard structure may be required to provide long-term protection in this area with a preliminary estimated cost of $10 - $15 million.

DROUGHT

Drought has been highlighted as one of the key risks for Hawke's Bay, with some of the largest increases to the annual number of days of soil moisture deficit compared to other parts of the country[4]. The largest impact is expected to be in the meat industry with increased drought frequency resulting in changes to pasture composition. Increased droughts coupled with occasional heavy rainfall could have major adverse effects on soil stability.

The meat industry is a significant exporter through Napier Port and drought therefore poses a risk to revenue in the medium term and almost certainly in the long term under both Representative Concentrations Pathways (RCPs). Other industries such as apples and timber are in a better position to manage the risk of drought through various practices, although horticulture will have an increased reliance on water security.

TRANSITION IMPACTS

The transition impacts of climate change caused by strong climate action policy are also a mix of risks and opportunities for our business.

Government regulation to encourage shift to low carbon economy may result in:

- increased fuel costs particularly for Napier Port's mobile plant;
- requirements to invest in new technologies, equipment and supporting infrastructure to move away from diesel powered plant; and
- policies to increase the use of rail which may require additional infrastructure investment and changes to Napier Port's operating model.

Opportunities may include additional revenue streams from requirements for ships to use shore power while in Port and opportunities to partner in the supply chain to provide low carbon or zero emission solutions for customers.

The transition impacts considered most material to Napier Port are:

GOVERNMENT REGULATION TO ENCOURAGE SHIFT TO LOW CARBON ECONOMY RESULTING IN HIGHER FUEL COSTS

Government policy may increase emissions taxes on fuel by greater amounts to encourage the significant reduction in emissions required to achieve net zero emissions by 2050. This will likely significantly increase diesel fuel costs and operating costs for Napier Port which is currently reliant on diesel fuel to power tugs, mobile harbour cranes, and container handling equipment.

The higher fuel costs may encourage the shift to alternative fuels throughout the region which may ultimately reduce the fuel imported through Napier Port and the revenue that this generates.

GOVERNMENT REGULATION TO ENCOURAGE SHIFT TO ALTERNATIVE FUELS

Combined with the above there will almost certainly be government regulation to ban or limit the procurement of, and reduce the use of, diesel powered machines and encourage the shift to machines powered by alternative fuels (e.g. electricity, hydrogen). It is expected that import bans will precede the outright ban of diesel equipment, which will provide some time to adapt.

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Precinct Properties NZ
Climate-related Financial Disclosures 2021

Strategy. (Continued)

Top climate risks for Precinct

Physical risks

Risk type	Chronic physical		Acute physical
Risk driver/ physical change	**Rising sea levels**	**Rising mean temperatures**	**Increased severity and frequency of extreme weather events such as cyclones and floods**
Magnitude of impact	High	Medium-low	Medium-low
Time horizon	Long term	Medium term	Medium term
Primary potential financial impact	• Decreased asset values or asset useful life leading to write-offs, asset impairment or early retirement of existing assets	• Increased indirect (operating) costs • Increased capital expenditures	• Increased capital expenditures • Increased indirect (operating) costs
Description	• Risk of asset impairment due to coastal-storm inundation resulting from long term sea level rises. • Indirect impacts for instance loss of infrastructure and public transport	• Risk of higher temperatures putting additional load on building HVAC systems leading to increased operating and maintenance costs and increased energy consumption.	• Risk of extreme weather events causing property damage, impacting buildings occupation and ability to access appropriate insurance. • Risk of higher operating expenses and capital cash in order to repair buildings following extreme events or improve resilience in order to withstand future events.

Rising sea level

Several of Precincts buildings are located close to the waterfront in both Auckland and Wellington. As a result, the potential for rising sea levels represents a key physical risk. Auckland and Wellington Councils model coastal-storm inundation from 1 in 100 year events based on current and projected sea levels. These datasets illustrate that while Precinct is not currently impacted there is a higher risk exposure to long term sea level rises including direct and indirect impacts for instance loss of infrastructure and public transport.

Rising mean temperature

Rising mean temperatures will put additional load on building HVAC systems leading to increased operating and maintenance costs and increased energy consumption.

Storm events

Climate change may result in an increase in the frequency and severity of extreme weather events. These events may increase demand on HVAC systems, repairs and maintenance and insurance premiums. Increased demand on building services would reduce the life of the assets through accelerated depreciation. As a result, operating expenses and total occupancy costs would increase reducing demand for our products and impacting revenue.

Appendix 5:
Documents other than 2021 annual reports that contain TCFD information

Ventia Services Group
Sustainability Report 2021

ENVIRONMENT PROGRESS & PRIORITIES

Our progress: managing climate risk

Climate change and the transition towards a lower carbon global economy will create risks and opportunities for Ventia, as well as our people, customers, suppliers and partners and the communities we work in.

Ventia aims to align our risk management and reporting with the recommendations of the **Task Force on Climate-related Financial Disclosures (TCFD).**

Consistent with this approach, we are in the process of undertaking a detailed risk assessment of our business. We completed this assessment for our Telecommunications sector in 2021 and plan to complete the assessment for our other sectors in 2022.

The risk assessment for Telecommunications has highlighted opportunities for Ventia in supporting our clients' transition and resilience efforts, and in responding to climate-related weather events. In comparison, the risks associated with weather events impacting facilities and staff, and the risk of increases to the cost of service, were considered minor.

Some of these opportunities and risks may also apply to the other Ventia sectors, however the level of exposure may differ. For example, the risks associated with climate impacting the ongoing viability of Telecommunications customers was considered minor, however this may be different for other sectors' customers.

More detailed disclosures encompassing the full Ventia business will be made in future sustainability reports.

2021 PROGRESS ON THE FOUR KEY PILLARS OF THE TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD)

GOVERNANCE

- **Established the Board Safety and Sustainability Committee with governance of sustainability issues, including climate risk.**
- **Ventia's risk and opportunity management framework is overseen by the Board and the Audit, Risk and Compliance Committee.**
- **The Group CEO and the Executive Leadership team implement the risk and opportunity management framework within their areas of accountability. These roles and responsibilities are part of the overall Ventia corporate governance framework.**

APPENDIX 5

Ventia Services Group
Sustainability Report 2021 (continued)

STRATEGY

- Ventia's Redefining Service Excellence Strategy elevates sustainability as a key focus.
- Sustainability Strategy emphasises 'managing climate risk and resilience for us and our clients'.
- Our approach includes undertaking climate-related risk assessments across our sectors and at specific contracts.
- We actively developed strategies to respond to our climate risks and those of our clients.
- A key strategy commitment is to set science-based targets to achieve net-zero emissions.

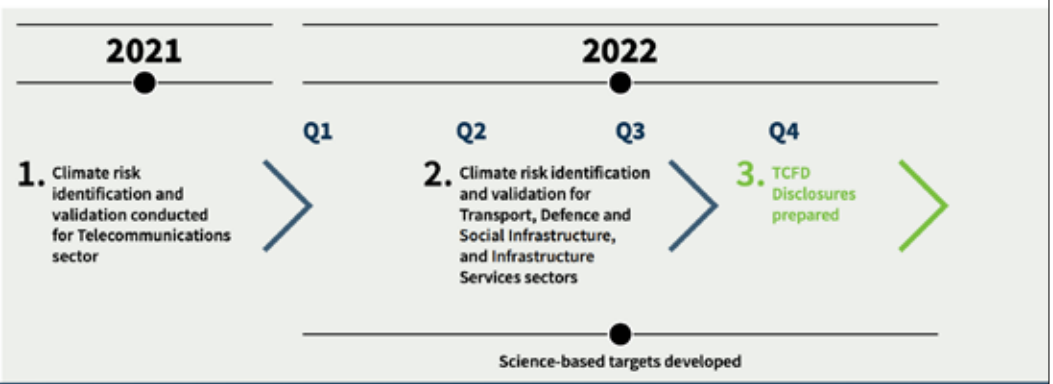
RISK MANAGEMENT

- Commenced risk assessment in one Ventia sector in 2021, to be continued in 2022 with all resulting risks to be incorporated into Ventia's risk management processes.
- Risk management workshops and materiality discussions (initially in Telecommunications) included use of scenario analysis to validate physical and transitional risks and opportunities.
- Conducted detailed climate risk assessments, considering physical and transitional risks, at two Transport contracts in conjunction with clients.

METRICS AND TARGETS

- Metrics under review from the Telecommunications sector assessment include alignment of emissions targets and feedback from clients on response to/ innovative solutions for extreme climate events.
- Committed to setting science-based targets for achieving emissions reduction and net-zero.
- Initial targets established for renewable electricity, and hybrid and electric fleet.
- Reporting in our annual Sustainability Report of our greenhouse gas emissions and progress of climate risk assessments and adaptation.

DETAILED RISK ASSESSMENT AND SCIENCE-BASED TARGETS DEVELOPMENT TIMELINE



Ventia 2021 Sustainability Report 25

Appendix 6: Analysis of 2021 NZSX-listed companies' TCFD reports by mentions of weather and climate extremes

Table 6: Analysis of 2021 NZSX-listed companies' TCFD reports by mentions of weather and climate extremes

	NZSX-listed companies	2021	Analysed (yes or no)	Where the full TCFD report can be found	Industry type (ANZSIC 2006 divisions) [See Note 1 below]	Weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)						Comments
						1. Temperature extremes (s. 11.3) [e.g. hot extremes and cold extremes]	2. Heavy precipitation and pluvial flooding (s. 11.4) [e.g. flash floods]	3. Other types of flooding (s. 11.5) [e.g. river floods and coastal floods]	4. Droughts (s. 11.6) [e.g. meteorological, agricultural and ecological, and hydrological droughts]	5. Extreme storms (s. 11.7) [e.g. tropical cyclones (TCs), extratropical cyclones (ETCs), and severe convective storms]	6. Compound events (s. 11.8) [e.g. hot and dry conditions and compound flooding]	
1	Air New Zealand [AIR]	Dedicated section	Yes	Appendix 1	Division I: Transport, postal and warehousing	Not applicable	Not applicable	Yes, p. 66	Yes, p. 66	Yes, p. 66	Not applicable	Not applicable
2	AFT Pharmaceuticals [AFT]	Intent to publish	No	Not applicable	Division Q: Health care and social assistance	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
3	AMP Limited [AMP]	External link	Yes	Appendix 5	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Yes. p. 63	Mentions IPCC.
4	ANZ Bank [ANZ]	Dedicated section	Yes	Appendix 1	Division K: Financial and insurance services	Not applicable	Yes, p. 39	Yes, p. 39	Not applicable	Not applicable	Not applicable	Not applicable
5	Arvida Group [ARV]	Intent to publish	No	Not applicable	Division Q: Health care and social assistance	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
6	Auckland International Airport [AIA]	External link	Yes	Appendix 5	Division I: Transport, postal and warehousing	Yes, p. 4	Yes, p. 4	Yes, p. 3	Yes, p. 4	Yes, p. 4	Not applicable	Mentions IPCC.
7	A2 Milk [ATM]	Intent to publish	No	Not applicable	Division A: Agriculture, forestry and fishing	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
8	Barramundi [BRM]	Casual reference	No	Not applicable	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
9	Channel Infrastructure NZ Limited (previously Refining NZ) [CHI] [See Note 1 on Table 5]	Intent to publish	No	Not applicable	Division D: Electricity, gas, water and waste services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

	NZSX-listed companies	2021	Analysed (yes or no)	Where the full TCFD report can be found	Industry type (ANZSIC 2006 divisions) [See Note 1 below]	Weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)						Comments
						1. Temperature extremes (s. 11.3) [e.g. hot extremes and cold extremes]	2. Heavy precipitation and pluvial flooding (s. 11.4) [e.g. flash floods]	3. Other types of flooding (s. 11.5) [e.g. river floods and coastal floods]	4. Droughts (s. 11.6) [e.g. meteorological, agricultural and ecological, and hydrological droughts]	5. Extreme storms (s. 11.7) [e.g. tropical cyclones (TCs), extratropical cyclones (ETCs), and severe convective storms]	6. Compound events (s. 11.8) [e.g. hot and dry conditions and compound flooding]	
10	Contact Energy [CEN]	Indexed throughout	No	Not applicable	Division D: Electricity, gas, water and waste services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
11	Delegat Group [DGL]	Intent to publish	No	Not applicable	Division A: Agriculture, forestry and fishing	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
12	Downer Group EDI [DOW]	External link	Yes	Appendix 1	Division E: Construction	Yes	Yes	Not applicable	Yes	Yes	Not applicable	Downer Group EDI's full TCFD report can be found here on their website.
13	Freightways [FRE]	Dedicated section	Yes	Appendix 1	Division I: Transport, postal and warehousing	Yes, p. 56	Yes, p. 52	Yes, p. 56	Yes, p. 52	Yes, p. 52	Not applicable	Not applicable
15	F&P Healthcare [FPH]	Indexed throughout	No	Not applicable	Division Q: Health care and social assistance	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
16	Genesis Energy [GNE]	Dedicated section	Yes	Appendix 1	Division D: Electricity, gas, water and waste services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Discusses physical climate impacts with reference to 'severe weather events'.
18	Investore Property [IPL]	Partial mention	No	Not applicable	Division E: Construction	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
19	Kingfish [KFL]	Casual reference	No	Not applicable	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
20	Marlin Global [MLN]	Casual reference	No	Not applicable	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
21	Marsden Maritime Holdings [MMH]	Intent to publish	No	Not applicable	Division E: Construction	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
22	Mercury [MCY]	Dedicated section	Yes	Appendix 1	Division D: Electricity, gas, water and waste services	Yes, p. 71	Yes, p. 67	Yes, p. 73	Yes, p. 71	Yes, p. 64	Yes, p. 71	Not applicable
23	Meridian Energy [MEL]	External link	Yes	Appendix 5	Division D: Electricity, gas, water and waste services	Yes, pp. 6–8	Yes, p. 7	Yes, p. 7	Yes, pp. 6–8	Yes, p. 6	Not applicable	Not applicable
24	Napier Port Holdings [NPH]	External link	Yes	Appendix 5	Division I: Transport, postal and warehousing	Yes, pp. 4, 7	Yes, p. 7	Yes, p. 7	Yes, p. 8	Not applicable	Yes, p. 7	Mentions IPCC.

	NZSX-listed companies	2021	Analysed (yes or no)	Where the full TCFD report can be found	Industry type (ANZSIC 2006 divisions) [See Note 1 below]	Weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)						Comments
						1. Temperature extremes (s. 11.3) [e.g. hot extremes and cold extremes]	2. Heavy precipitation and pluvial flooding (s. 11.4) [e.g. flash floods]	3. Other types of flooding (s. 11.5) [e.g. river floods and coastal floods]	4. Droughts (s. 11.6) [e.g. meteorological, agricultural and ecological, and hydrological droughts]	5. Extreme storms (s. 11.7) [e.g. tropical cyclones (TCs), extratropical cyclones (ETCs), and severe convective storms]	6. Compound events (s. 11.8) [e.g. hot and dry conditions and compound flooding]	
25	NZ Oil and Gas [NZO]	Dedicated section	Yes	Appendix 1	Division D: Electricity, gas, water and waste services	Not applicable	Yes, p. 47	Yes, p. 47	Not applicable	Yes, p. 47	Not applicable	Not applicable
26	New Zealand Exchange [NZX]	Intent to publish	No	Not applicable	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
27	Precinct Properties NZ [PCT]	External link	Yes	Appendix 5	Division E: Construction	Yes, p. 6	Not applicable	Yes, p. 6	Not applicable	Yes, p. 6	Yes, p. 6	Not applicable
28	Property for Industry [PFI]	Dedicated section	Yes	Appendix 1	Division E: Construction	Not applicable	Yes, p. 38	Yes, p. 38	Not applicable	Yes, p. 38	Not applicable	Not applicable
29	Port of Tauranga [POT]	Partial mention	No	Not applicable	Division I: Transport, postal and warehousing	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
30	Rua Bioscience [RUA]	Intent to publish	No	Not applicable	Division Q: Health care and social assistance	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
31	Sanford [SAN]	Intent to publish	No	Not applicable	Division A: Agriculture, forestry and fishing	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
32	Scales Corporation [SCL]	Dedicated section	Yes	Appendix 1	Division A: Agriculture, forestry and fishing	Yes, p. 23	Yes, p. 22	Yes, p. 22	Yes, p. 22	Yes, p. 23	Yes, p. 22	Not applicable
33	SkyCity Entertainment Group [SKC]	Intent to publish	No	Not applicable	Division R: Arts and recreation services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
34	Spark [SPK]	Partial mention	No	Not applicable	Division J: Information media and telecommunications	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
35	Stride Property & Stride Investment [SPG]	Partial mention	No	Not applicable	Division E: Construction	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
36	Summerset [SUM]	Intent to publish	No	Not applicable	Division Q: Health care and social assistance	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
37	Tourism Holdings [THL]	Intent to publish	No	Not applicable	Division R: Arts and recreation services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

	NZSX-listed companies	2021	Analysed (yes or no)	Where the full TCFD report can be found	Industry type (ANZSIC 2006 divisions) [See Note 1 below]	Weather and climate extremes addressed in the IPCC's 6th Assessment Report (Chapter 11, 2021)						Comments
						1. Temperature extremes (s. 11.3) [e.g. hot extremes and cold extremes]	2. Heavy precipitation and pluvial flooding (s. 11.4) [e.g. flash floods]	3. Other types of flooding (s. 11.5) [e.g. river floods and coastal floods]	4. Droughts (s. 11.6) [e.g. meteorological, agricultural and ecological, and hydrological droughts]	5. Extreme storms (s. 11.7) [e.g. tropical cyclones (TCs), extratropical cyclones (ETCs), and severe convective storms]	6. Compound events (s. 11.8) [e.g. hot and dry conditions and compound flooding]	
38	Trustpower [TPW]	Partial mention	No	Not applicable	Division D: Electricity, gas, water and waste services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
39	T&G Global [TGG]	Intent to publish	No	Not applicable	Division A: Agriculture, forestry and fishing	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
40	Vector [VCT]	Intent to publish	No	Not applicable	Division D: Electricity, gas, water and waste services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
41	Ventia Services Group [VNT]	External link	Yes	Appendix 5	Division E: Construction	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
42	Vista Group [VGL]	Intent to publish	No	Not applicable		Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
43	Westpac [WBC]	Dedicated section	Yes	Appendix 1	Division K: Financial and insurance services	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Mentions IPCC
44	Warehouse Group [WHS]	Intent to publish	No	Not applicable	Division G: Retail trade	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
45	Z Energy [ZEL]	Dedicated section	Yes	Appendix 1	Division D: Electricity, gas, water and waste services	Yes, p. 36	Yes, p. 36	Yes, p. 36	Yes, p. 36	Yes, p. 36	Yes, p. 36	Not applicable
	Total	**45**										Not applicable

Note: See Australian and New Zealand Standard Industrial Classification 2006: catalogue.data.govt.nz/dataset/industrial-classification-anzsic06. There is some subjectivity involved in categorising the companies under the Australian and New Zealand Standard Industrial Classification 2006.

Division A: Agriculture, forestry and fishing
Division B: Mining
Division C: Manufacturing
Division D: Electricity, gas, water and waste services
Division E: Construction
Division F: Wholesale trade
Division G: Retail trade
Division H: Accommodation and food services
Division I: Transport, postal and warehousing
Division J: Information media and telecommunications
Division K: Financial and insurance services
Division L: Rental, hiring and real estate services
Division M: Professional, scientific and technical services
Division N: Administrative and support services
Division O: Public Administration and safety
Division P: Education and training
Division Q: Health care and social assistance
Division R: Arts and recreation services
Division S: Other services

Endnotes

1 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 https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

2 See Task Force on Climate-related Financial Disclosures. (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Retrieved 21 May 2021 from https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

3 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*, which 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.

4 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 https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

5 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 https://assets.bbhub.io/company/sites/60/2021/10/FINAL-2017-TCFD-Report.pdf

6 See Financial Markets Conduct Regulations 2014, cl 61D Annual report to be publicly available. Retrieved 20 September 2022 from https://www.legislation.govt.nz/regulation/public/2014/0326/latest/DLM6292901.html

7 See NZX. (17 June 2022). *NZX Listing Rules*. Retrieved 14 June 2021 from https://www.nzx.com/regulation/nzx-rules-guidance/nzx-listing-rules

8 See NZX. (17 June 2022). *NZX Listing Rules*. Retrieved 14 June 2021 from https://www.nzx.com/regulation/nzx-rules-guidance/nzx-listing-rules

9 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

10 See Ministry of Business, Innovation & Employment. (August 2022). *Energy in New Zealand 22*, p. 21. Retrieved 22 September 2022 from https://www.mbie.govt.nz/dmsdocument/23550-energy-in-new-zealand-2022-pdf

11 Figures 1 and 2 contain information from the following report, in particular Chapter 11.

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I Seneviratne, S.I., X. Zhang, M. Adnan, W. Badi, C. Dereczynski, A. Di Luca, S. Ghosh, I. Iskandar, J. Kossin, S. Lewis, F. Otto, I. Pinto, M. Satoh, S.M. Vicente-Serrano, M. Wehner, and B. Zhou. (2021). 'Weather and Climate Extreme Events in a Changing Climate'. In Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (Eds.), *Climate Change 2021: The Physical Science Basis.* Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1513–1766. Retrieved 15 September 2022 from www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf

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12 See Endnote 10.

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