

Working Paper 2019/06

Analysis of Climate Reporting in the Public and Private Sectors

Title	<i>Working Paper 2019/06 – Analysis of Climate Reporting in the Public and Private Sectors</i> This paper forms part of the Institute’s ReportingNZ project
Citation	Please cite this publication as: McGuinness Institute (2019). <i>Working Paper 2019/06 – Analysis of Climate Reporting in the Public and Private Sectors</i> . [online] Available at: https://www.mcguinnessinstitute.org/publications/working-papers [Accessed date]. Copyright © McGuinness Institute Limited, October 2019 ISBN – 978-1-98-851824-4 (paperback) ISBN – 978-1-98-851825-1 (PDF) This document is available at www.mcguinnessinstitute.org and may be reproduced or cited provided the source is acknowledged.
Author	McGuinness Institute
Research team includes	Reuben Brady
Designers	Becky Jenkins
Editors	Ella Reilly
For further information	McGuinness Institute Phone (04) 499 8888 Level 1A, 15 Allen Street PO Box 24222 Wellington 6011 New Zealand www.mcguinnessinstitute.org
Disclaimer	The McGuinness Institute has taken reasonable care in collecting and presenting the information provided in this publication. However, the Institute makes no representation or endorsement that this resource will be relevant or appropriate for its readers’ purposes and does not guarantee the accuracy of the information at any particular time for any particular purpose. The Institute is not liable for any adverse consequences, whether direct or indirect, arising from reliance on the content of this publication. Where this publication contains links to any website or other source, such links are provided solely for information purposes and the Institute is not liable for the content of any such website or other source.
Publishing	The McGuinness Institute is grateful for the work of Creative Commons, which inspired our approach to copyright. Except where otherwise noted, this work is available under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International Licence. To view a copy of this license visit: creativecommons.org/licenses/by-nc-nd/4.0



Contents

1.0	Introduction	5
1.1	Purpose	5
1.2	Purpose of Project ReportingNZ	5
2.0	Methodology	6
2.1	Data sets	6
2.2	The standard methodology	6
2.3	Collating the data	8
2.4	Presenting the data	8
3.0	Results	9
3.1	Deloitte Top 200 [200]	9
3.2	Government departments [32]	10
3.3	Crown agents and Crown entities [63]	12
3.4	District health boards [20]	13
3.5	Crown research institutes [7]	15
3.6	State-owned enterprises [14]	16
3.7	Local authorities [78]	18
4.0	Observations	20
Appendix 1:	Examples of best practice across climate information categories	25
References		31

Tables

Table 1:	Data sets	6
-----------------	------------------	----------

Figures

Figure 1:	Standard methodology for all data sets	6
Figure 2:	Phases of problem solving	8
Figure 3:	Deloitte Top 200 disclosure of climate information by category	9
Figure 4:	Deloitte Top 200 disclosure of climate information	9
Figure 5:	Deloitte Top 200 disclosure of climate information by number of categories	10
Figure 6:	Government departments' disclosure of climate information by category	10
Figure 7:	Government departments' disclosure of climate information	11
Figure 8:	Government departments' disclosure of climate information by number of categories	11
Figure 9:	Crown agents and Crown entities disclosure of climate information by category	12
Figure 10:	Crown agents and Crown entities disclosure of climate information	12
Figure 11:	Crown agents and Crown entities disclosure of climate information by number of categories	13
Figure 12:	District health boards' disclosure of climate information by category	13
Figure 13:	District health boards' disclosure of climate information	14
Figure 14:	District health boards' disclosure of climate information by number of categories	14
Figure 15:	Crown research institutes' disclosure of climate information by category	15
Figure 16:	Crown research institutes' disclosure of climate information	15
Figure 17:	Crown research institutes' disclosure of climate information by number of categories	16
Figure 18:	State-owned enterprises' disclosure of climate information by category	16
Figure 19:	State-owned enterprises' disclosure of climate information	17
Figure 20:	State-owned enterprises' disclosure of climate information by number of categories	17
Figure 21:	Local authorities' disclosure of climate information by category	18
Figure 22:	Local authorities' disclosure of climate information	18
Figure 23:	Local authorities' disclosure of climate information by number of categories	19
Figure 24:	Significant New Zealand entity disclosure of climate information	20
Figure 25:	Significant New Zealand entity disclosure of climate information by category 2017 and 2018	20
Figure 26:	Significant New Zealand entity disclosure of climate information by number of categories	22

1.0 Introduction

1.1 Purpose

This working paper aims to contribute to a dialogue on how New Zealand might manage risks and maximise opportunities in the transition to a low-carbon economy. It is hoped that this work will be particularly useful given the introduction of the Climate Change Response (Zero Carbon) Amendment Bill to the House of Representatives in May 2019.

The purpose of this working paper is to explore the extent of climate reporting in the annual reports (or, if not available, the financial statements) of both public and private sector entities. The term ‘climate reporting’ refers to discussion of the behaviour of an entities in terms of climate change risks and initiatives and carbon emission metrics, costs, controls and targets in an annual report.

1.2 Purpose of Project ReportingNZ

This working paper forms part of *Project ReportingNZ*¹, which aims to contribute to a discussion on how to build an informed society, with particular regard to the important role that entities play within society. When entities operate efficiently and with similar values to the communities in which they operate, they add value through employment, taxation revenue and the support of community initiatives. However, entities can also present challenges if they do not reflect societal values or do not operate in a transparent manner. *Project ReportingNZ* looks specifically at the role of annual reports as a tool for improving the relationship between entities and the communities in which they operate. It also examines annual reports as one of the few mechanisms to collect readily available data on entities for use as an evidence base in policy development.

An underlying assumption of *Project ReportingNZ* is that New Zealand’s reporting framework is no longer fit for purpose. Questions of what users of reports need to know, in what format and in what time frame, need to be explored and assessed regularly to ensure reports are timely, relevant, cost-effective and useful.

The specific assumption underlying this working paper is that reporting on climate change is new, challenging and complex. As a result, all parties are required to work together to ensure that regulation, standards and guidelines work together to produce cost-effective, accessible, timely and comparable reports. The adage ‘we manage what we measure’ highlights that what is not measured is not managed. This working paper has been developed under the assumption that having a source of accessible, comparable and meaningful information gathered over an extended period of time creates a fundamental basis for informing public policy decisions.

This working paper follows on from previous *Project ReportingNZ* publications:

- *Working Paper 2018/01 – NZSX-listed Company Tables*
- *Working Paper 2018/03 – Analysis of Climate Change Reporting in the Public and Private Sectors*
- *Think Piece 30 – Package of Climate Change Reporting Recommendations*
- *Working Paper 2019/05 – Reviewing Voluntary Reporting Frameworks Mentioned in 2017 and 2018 Annual Reports*

It also contributes to the 2019 *Project ReportingNZ* publications *Discussion Paper 2019/01 – The Climate Reporting Emergency: A New Zealand case study*, and the upcoming *Report 17 – Building a Reporting Framework Fit For Purpose*.

1 For more on *Project ReportingNZ*, please see the *ReportingNZ* website at www.reportingnz.org.

2.0 Methodology

2.1 Data sets

The initial stage of this research was to define the seven data sets we would be analysing and comparing, represented in Table 1 below.

Table 1: Data sets

Data sets	2018	
	No. of entities	No. of available annual reports
Deloitte Top 200	200	161
State-owned enterprises	14	12
Crown agents and Crown entities	63	63
District health boards (DHBs)	20	20
Crown research institutes (CRIs)	7	7
Government departments	32	30
Local authorities	78	78
Total	414	371

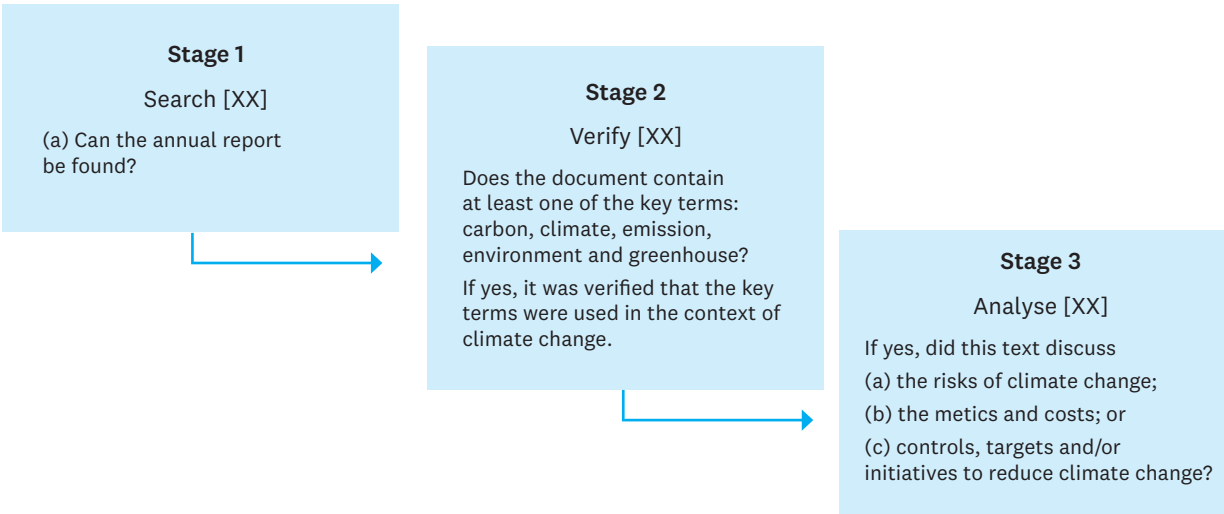
* DHBs and CRIs were treated as separate data sets rather than being included in the Crown agents and Crown entities data set.

** The total figure does not represent individual entities because some entities are both state-owned enterprises and on the Deloitte Top 200.

2.2 The standard methodology

The standard methodology for all data sets is indicated in Figure 1 and accompanied by a description below.

Figure 1: Standard methodology for all data sets



2.2.1 Stage 1: Search

Goal: Find copies of all annual reports.

To find a soft copy of each entity's annual report, the Companies Register was searched first and then, if required, the entity's website. If only financial statements (not annual reports) were found, they were included in the data set but excluded from Stage 2 onwards. Annual reports used in the data set had a year end during the 2018 calendar year.

2.2.2 Stage 2: Verify

Goal: Establish whether the documents include the search terms and verify that the terms are used in the context of climate change.

Using the 'advanced search' function on Adobe Acrobat Pro, all documents from a single data set could be aggregated and searched collectively for the terms 'carbon', 'climate', 'emission', 'environment' and 'greenhouse'. For documents that were not searchable using the 'find' tool, text recognition software (Adobe Acrobat Pro) was used. Any documents that did not contain any of the five search terms were set aside. Reports were checked to ensure that documents containing the search terms had used them in a context relevant to this research. For example, if a document only used the term 'climate' or 'environment' in reference to the 'economic climate/environment', and did not include any other relevant disclosures, the document did not proceed to the next stage of research.

2.2.3 Stage 3: Analyse

Goal: Analyse all the text containing the search terms.

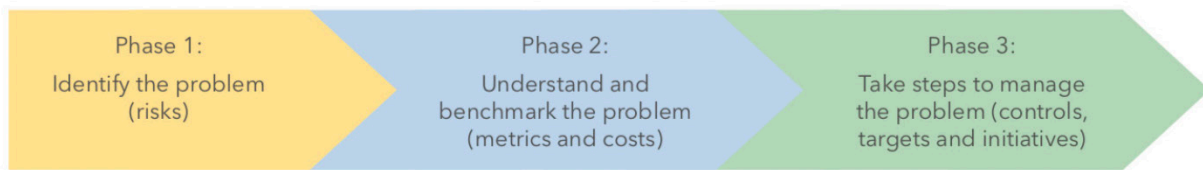
In this stage, disclosures were grouped into one of the following climate information categories:

1. **Climate change risks:** Any possible impact that climate change may have on the future of the entity, country and/or world. The company may have a response to these impacts as part of its discussion of risk.
2. **Emission metrics:** Existing carbon emissions data stated in tonnes, percentages or CO₂/m² produced and/or abated.
3. **Emission costs:** Existing carbon emission offsets stated in financial figures and/or the number of carbon units used (usually found in financial statements).
4. **Emission controls:** Reference to existing measures that were put in place to control or abate carbon emissions.
5. **Emission targets:** Specific goals to reduce future carbon emissions. Emission targets refer to a specific numerical value (in contrast to initiatives, which are broader and less specific).
6. **Climate change initiatives:** A statement, reference to an action, or similar that shows the entity is taking action or planning to take action to curb its emissions or reduce its vulnerability to climate change risks (or the vulnerability of a country or the world).

The categories were selected to represent the three steps of problem solving. Analysing disclosures of risk tells us firstly if the entity is identifying a problem. Analysing disclosures of metrics and costs tells us secondly what data the entity is collecting to understand and benchmark the problem. Analysing disclosures of controls, targets and initiatives tells us finally what the entity is doing to try and manage the problem. In the bar graphs, Phase 1 is indicated with yellow, Phase 2 with blue and Phase 3 with green, as in Figure 2 overleaf. The terms in brackets in the diagram overleaf represent the categories of climate information searched for in this research.

Figure 2: Phases of problem solving

Source: (McGuinness Institute, 2018, p. 4)



2.3 Collating the data

2.3.1 Stage 2 data

The results for each data set were recorded on separate sheets of an Excel workbook. Each sheet included a table of the 2018 annual reports published by each entity. Reviewers recorded whether or not an entity had mentioned one or more of the search terms in their 2018 reports along with the page number(s) where the information was found.

2.3.2 Stage 3 data

The results for each data set were recorded on separate sheets of an Excel workbook. Each sheet included a table of the 2018 annual reports published by each entity. Reviewers recorded whether or not the inclusion of the search terms were relevant in one or more of the climate information categories mentioned on the previous page. The relevant qualitative information was recorded along with the page number(s) where it was found.

2.4 Presenting the data

The final data is presented as a series of graphs in Section 3.0. Each graph represents the relevant data set containing information found within entities' respective 2018 annual reports. Disclosed climate information has been colour-coded to represent the category that it belongs to, as mentioned previously (see Figure 2 above). The lighter shades of these colours represent the annual reports that did not disclose climate change information. Unavailable annual reports and financial statements have been illustrated in white.

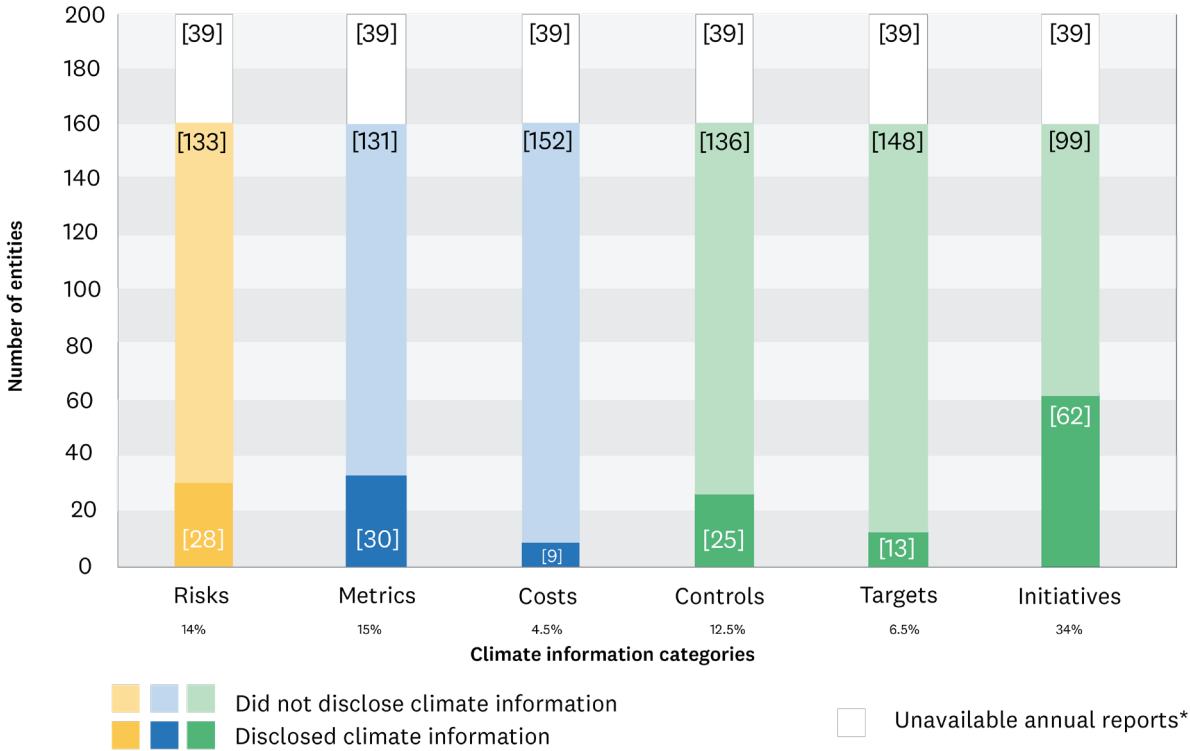
3.0 Results

3.1 Deloitte Top 200 [200]

3.1.1 Overview

Figure 3 illustrates the overall level of disclosure of climate information by category in publicly available 2018 Deloitte Top 200 annual reports.

Figure 3: Deloitte Top 200 disclosure of climate information by category



Note: * A set of financial statements on its own does not meet the definition of an annual report (see s 211 of the Companies Act 1993).

3.1.2 Results

Figure 4: Deloitte Top 200 disclosure of climate information

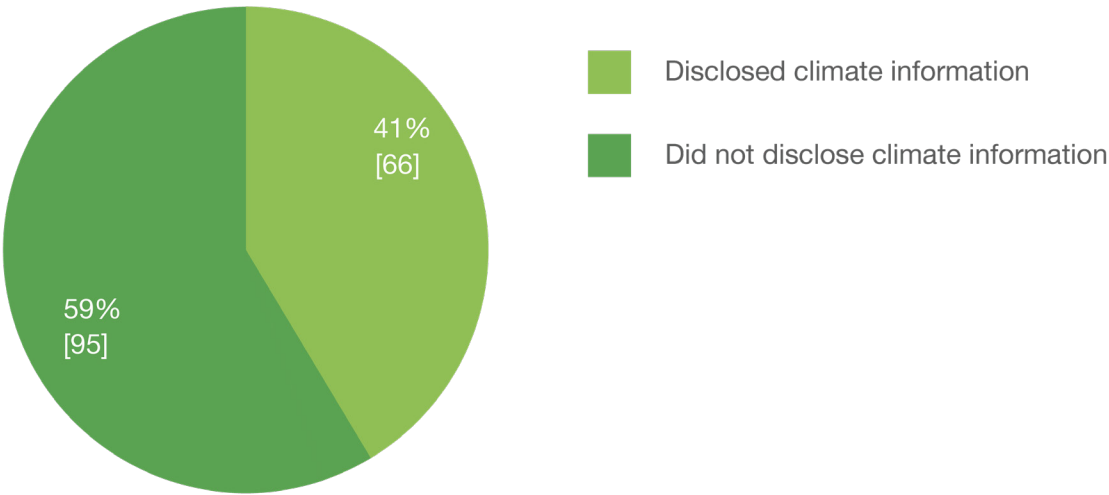
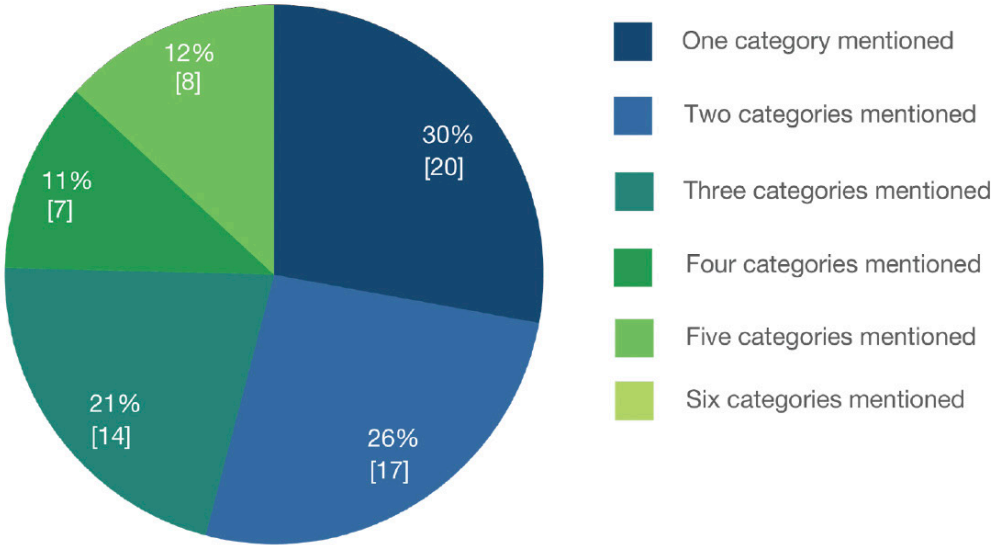


Figure 5: Deloitte Top 200 disclosure of climate information by number of categories

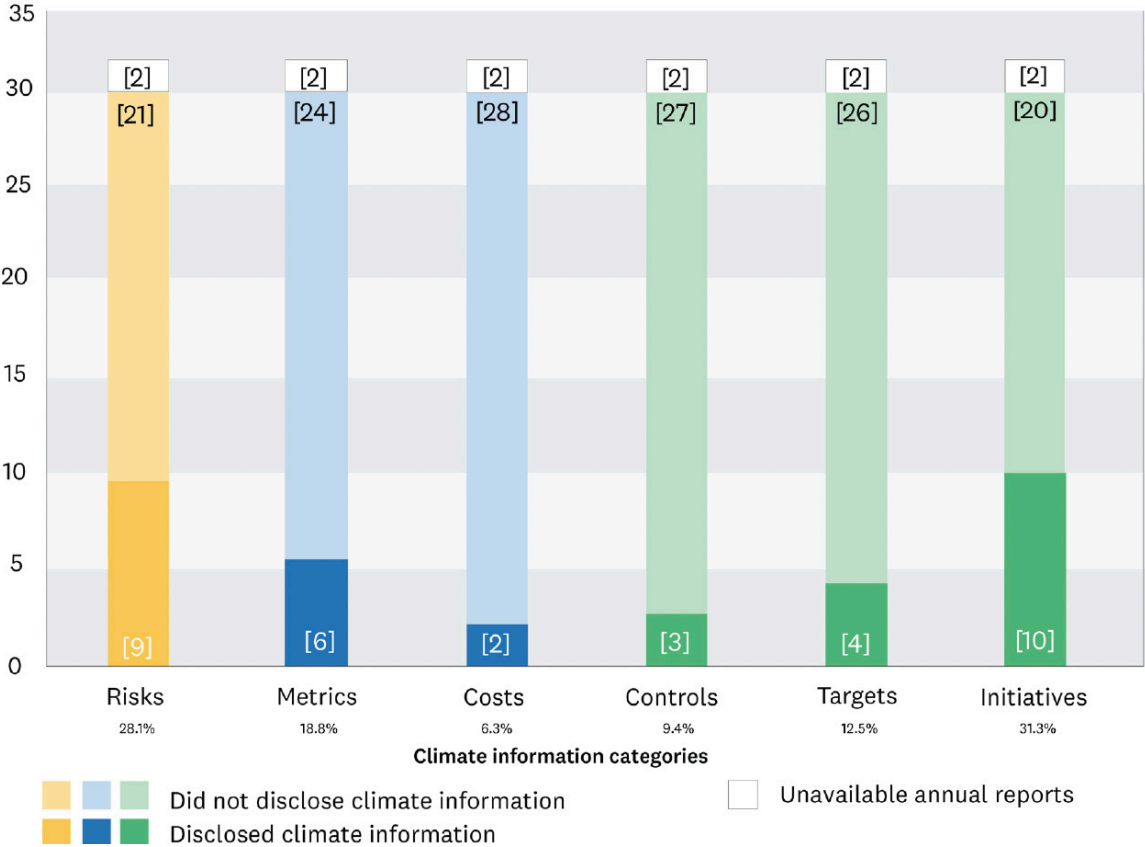


3.2 Government departments [32]

3.2.1 Overview

Figure 6 illustrates the overall level of disclosure of climate information by category in publicly available government departments’ 2018 annual reports.

Figure 6: Government departments’ disclosure of climate information by category



3.2.2 Results

Figure 7: Government departments' disclosure of climate information

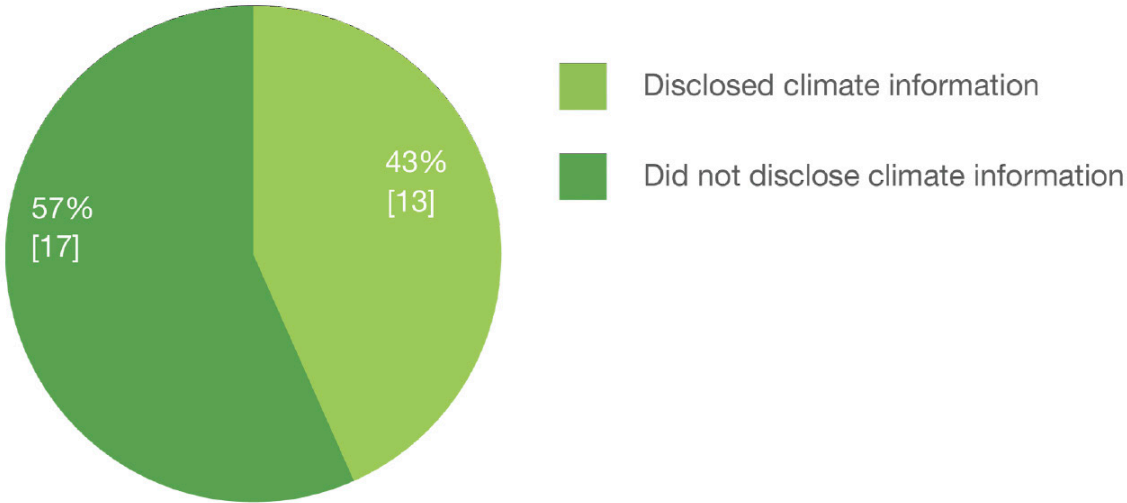
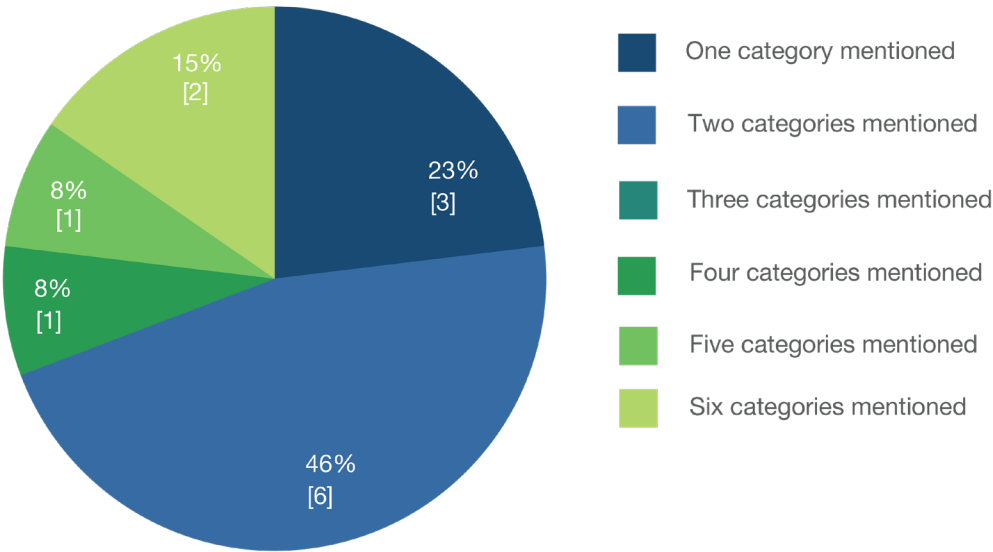


Figure 8: Government departments' disclosure of climate information by number of categories

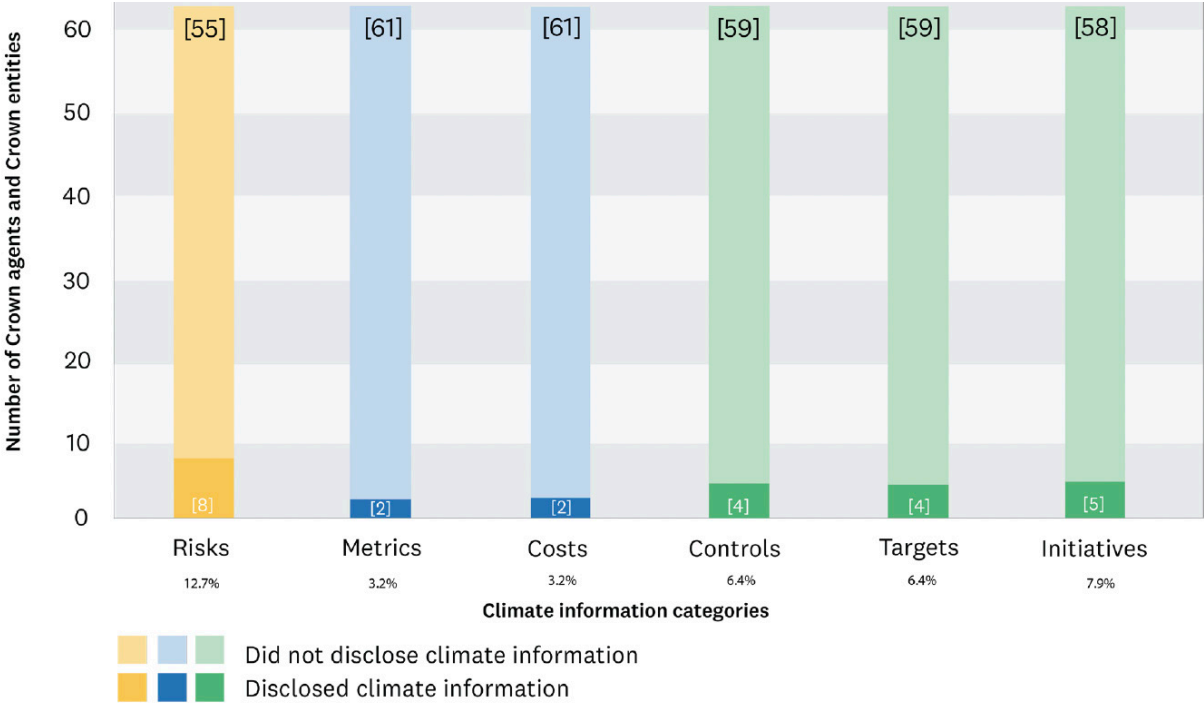


3.3 Crown agents and Crown entities [63]

3.3.1 Overview

Figure 9 illustrates the overall level of disclosure of climate information by category in publicly available Crown agents and Crown entities’ 2018 annual reports.

Figure 9: Crown agents and Crown entities’ disclosure of climate information by category



3.3.2 Results

Figure 10: Crown agents and Crown entities’ disclosure of climate information

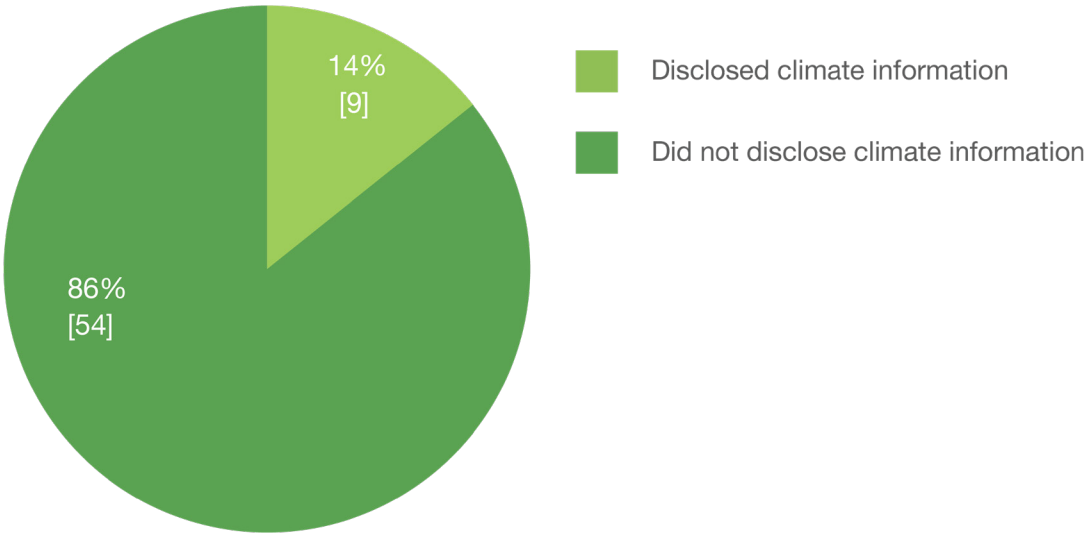
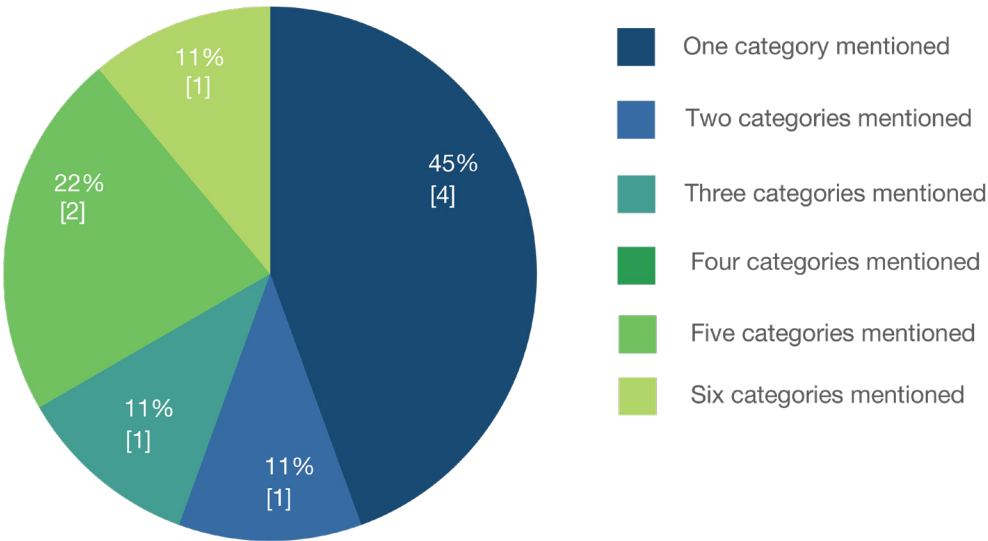


Figure 11: Crown agents and Crown entities' disclosures of climate information by number of categories

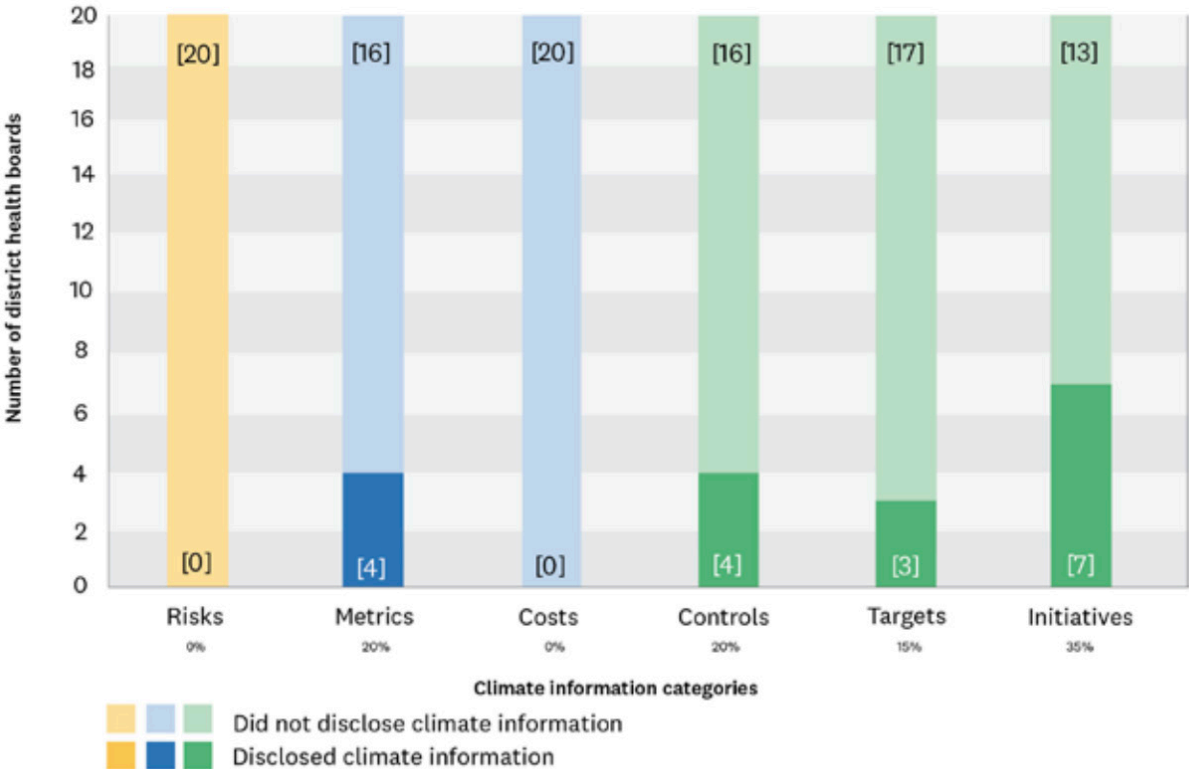


3.4 District health boards [20]

3.4.1 Overview

Figure 12 illustrates the overall level of disclosure of climate information by category in publicly available district health boards' 2018 annual reports.

Figure 12: District health boards' disclosure of climate information by category



3.4.2 Results

Figure 13: District health boards' disclosure of climate information

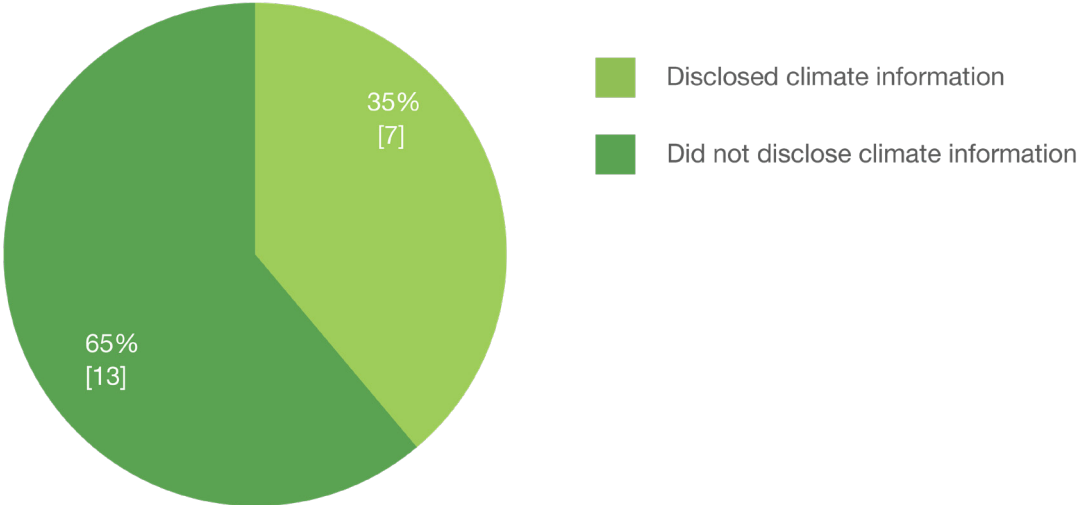
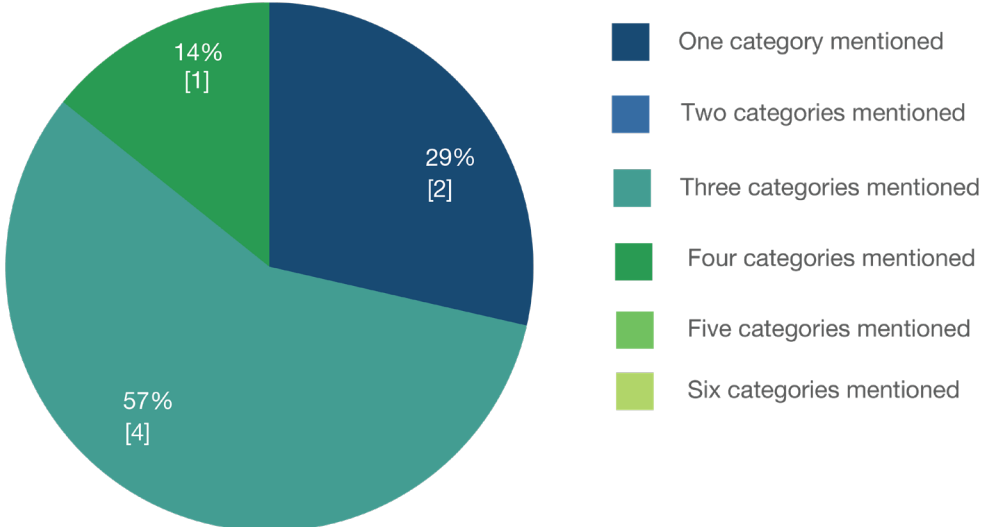


Figure 14: District health boards' disclosure of climate information by number of categories

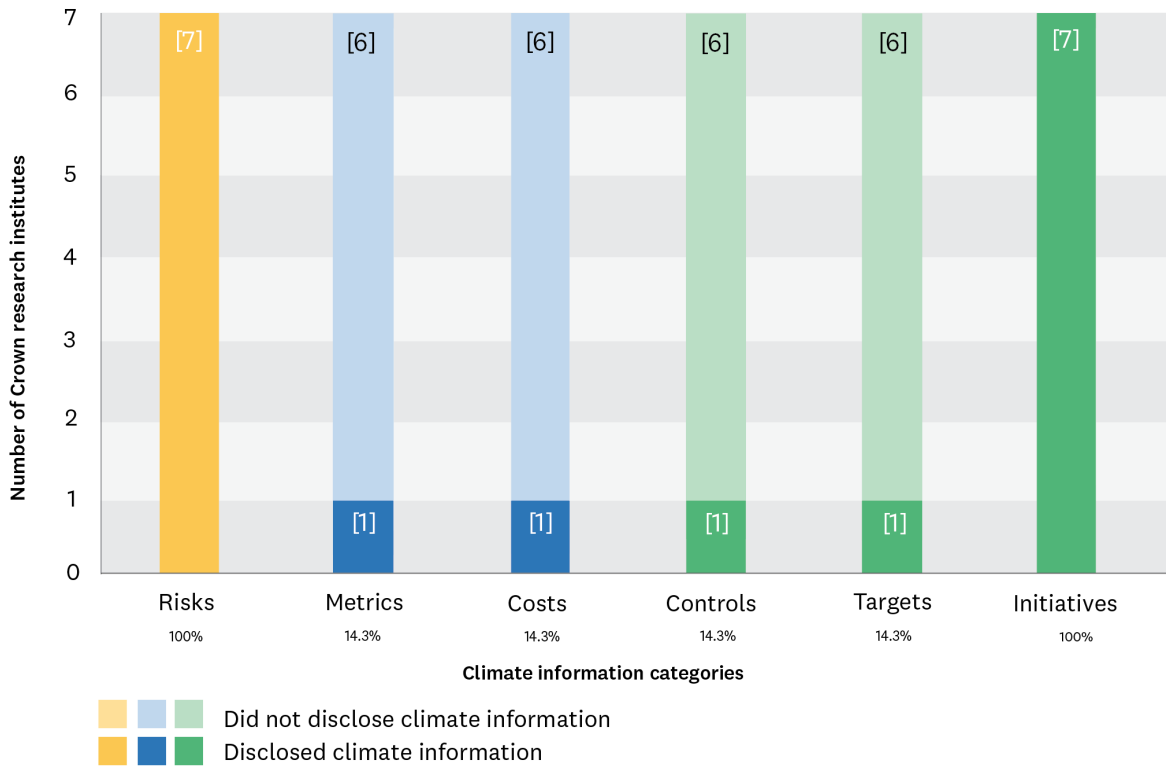


3.5 Crown research institutes [7]

3.5.1 Overview

Figure 15 illustrates the overall level of disclosure of climate information by category in publicly available Crown research institutes' 2018 annual reports.

Figure 15: Crown research institutes' disclosure of climate information by category



3.5.2 Results

Figure 16: Crown research institutes' disclosure of climate information

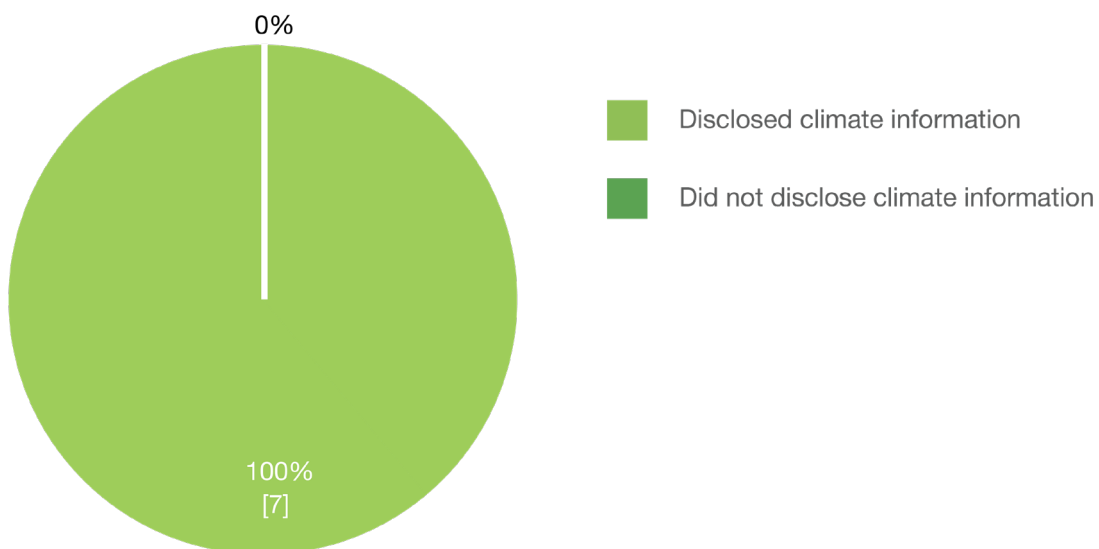
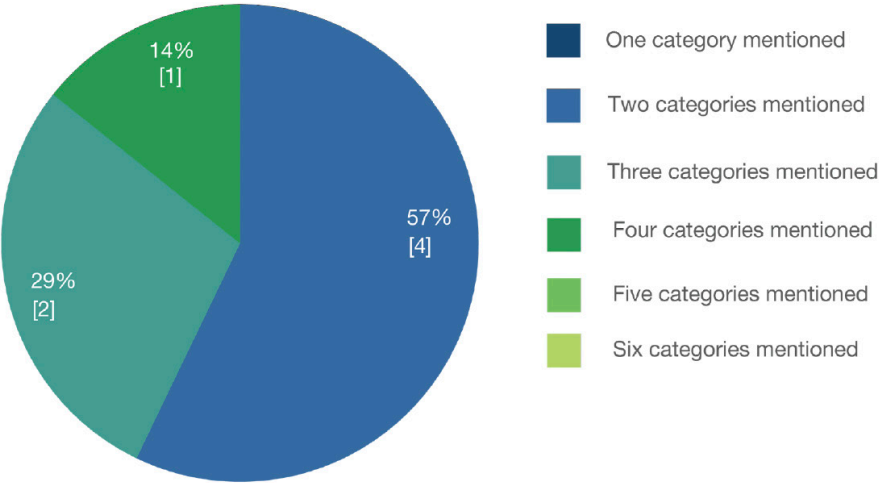


Figure 17: Crown research institutes' disclosure of climate information by number of categories

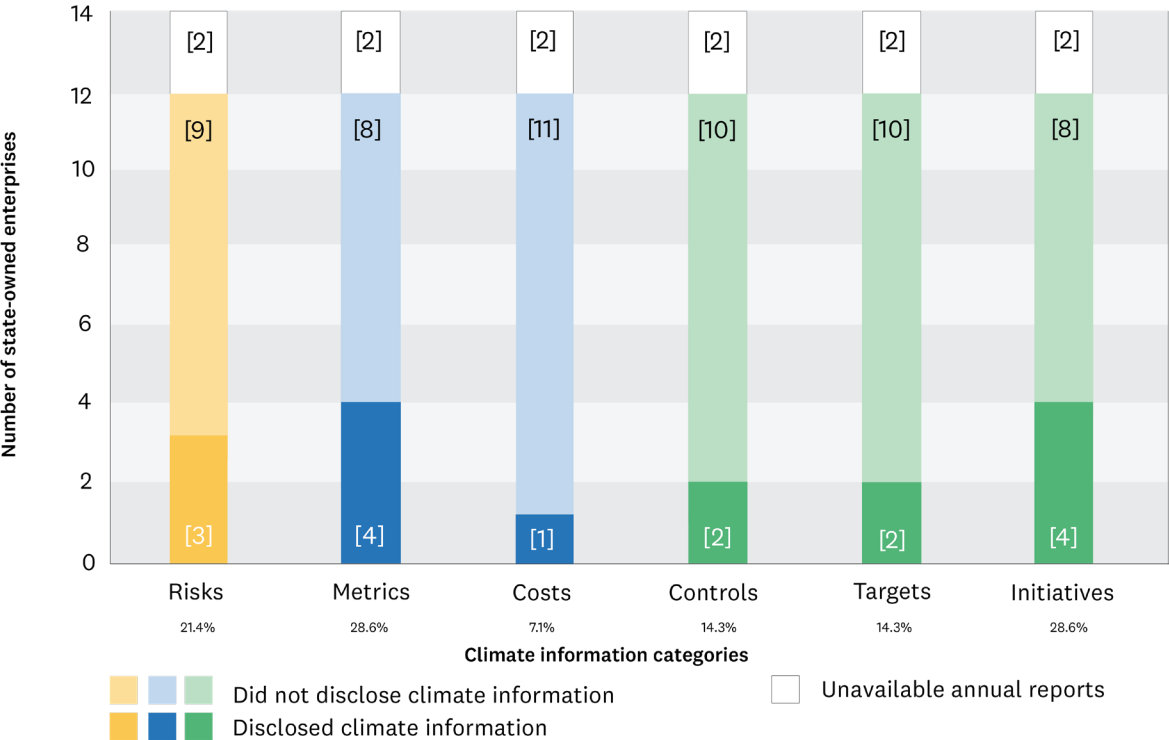


3.6 State-owned enterprises [14]

3.6.1 Overview

Figure 18 illustrates the overall level of disclosure of climate information by category in publicly available state-owned enterprise 2018 annual reports.

Figure 18: State-owned enterprises' disclosure of climate information by category



3.6.2 Results

Figure 19: State-owned enterprises' disclosure of climate information

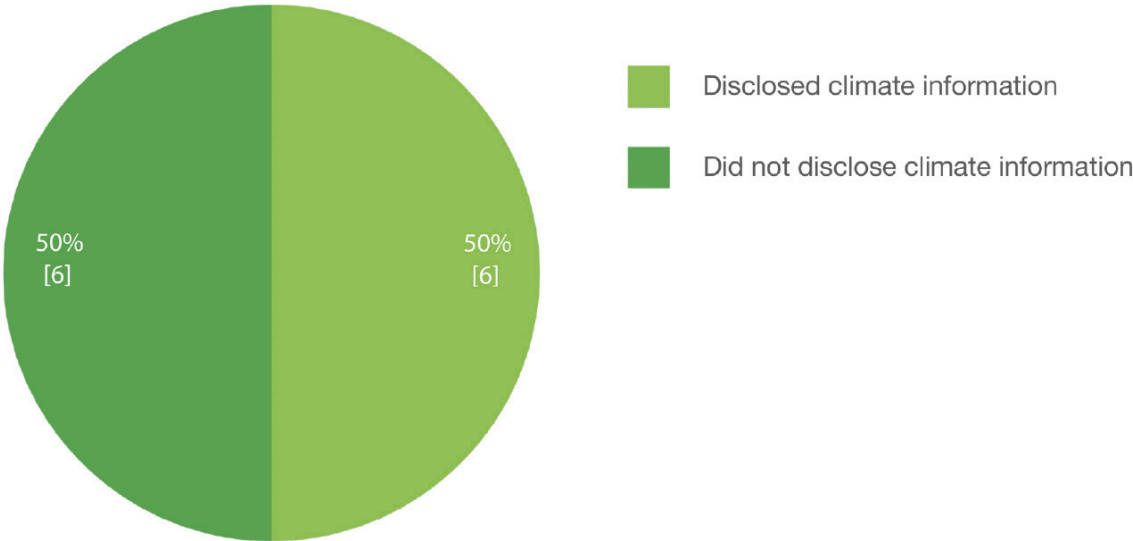
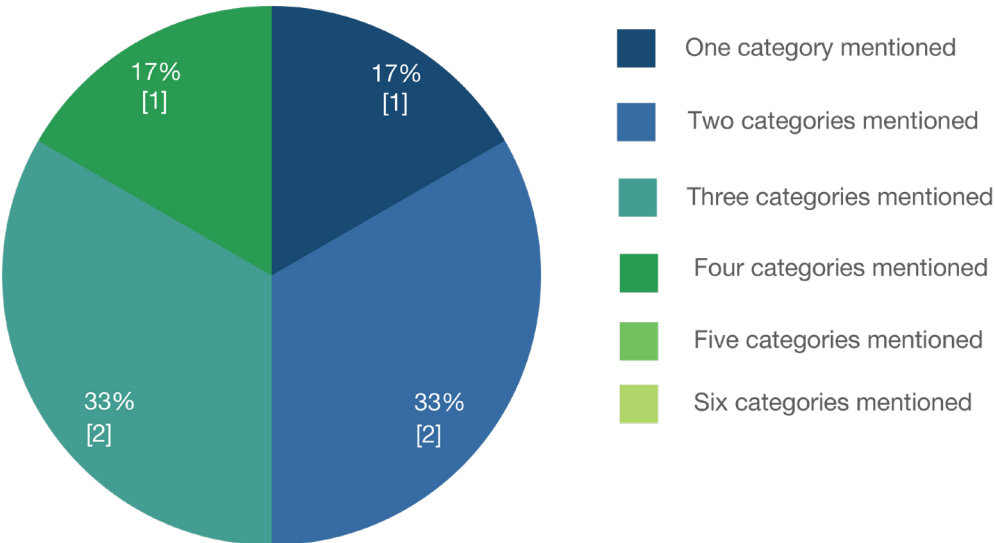


Figure 20: State-owned enterprises' disclosure of climate information by number of categories

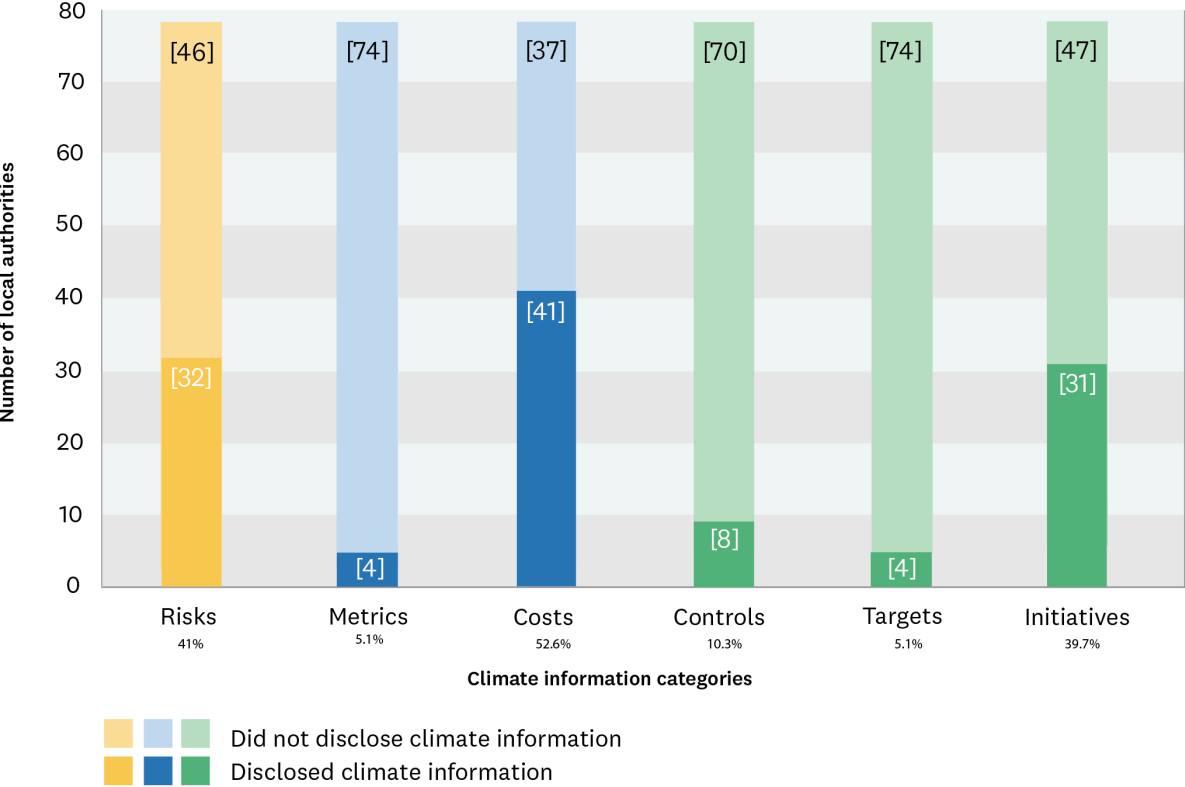


3.7 Local authorities [78]

3.7.1 Overview

Figure 21 illustrates the overall level of disclosure of climate information by category in publicly available local authority 2018 annual reports.

Figure 21: Local authorities’ disclosure of climate information by category



3.7.2 Results

Figure 22: Local authorities’ disclosure of climate information

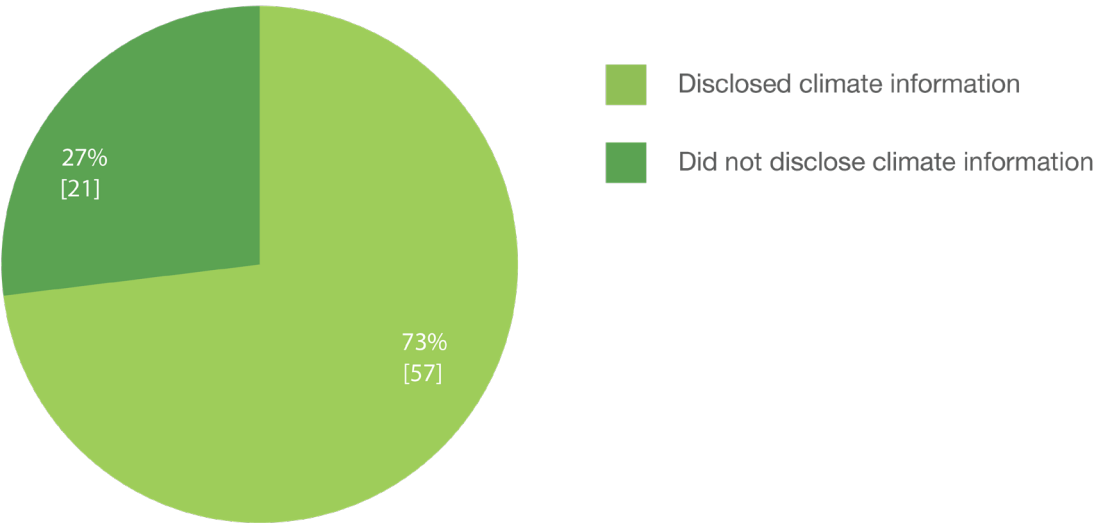
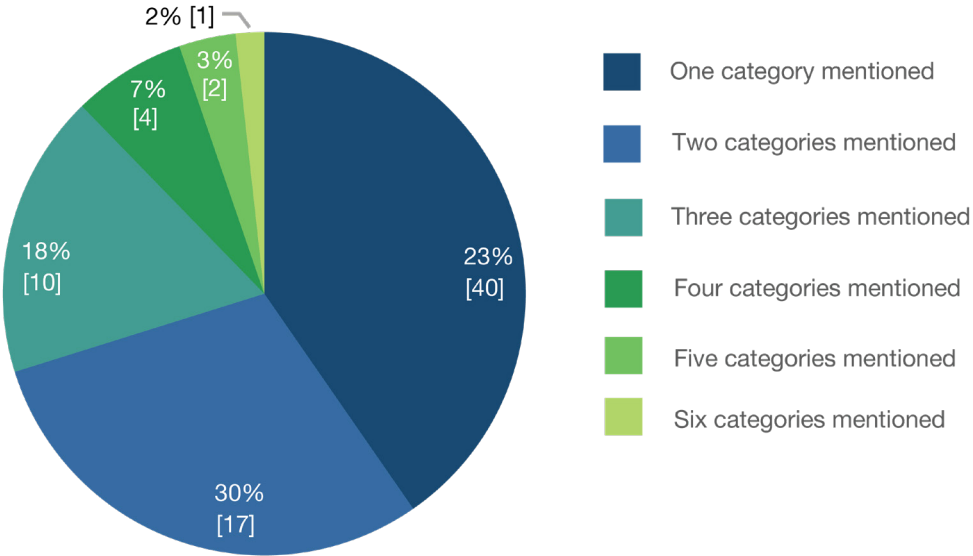


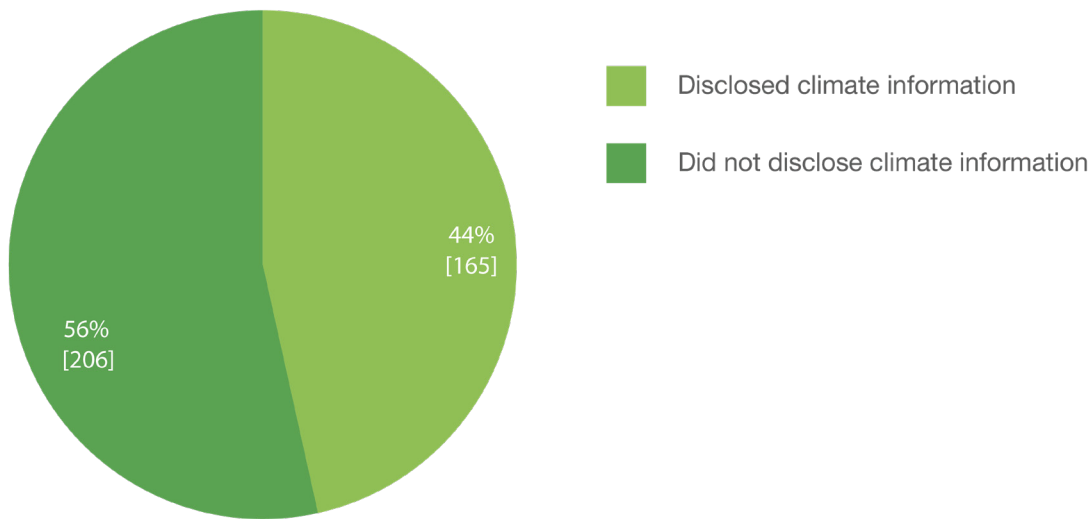
Figure 23: Local authorities' disclosure of climate information by number of categories



4.0 Observations

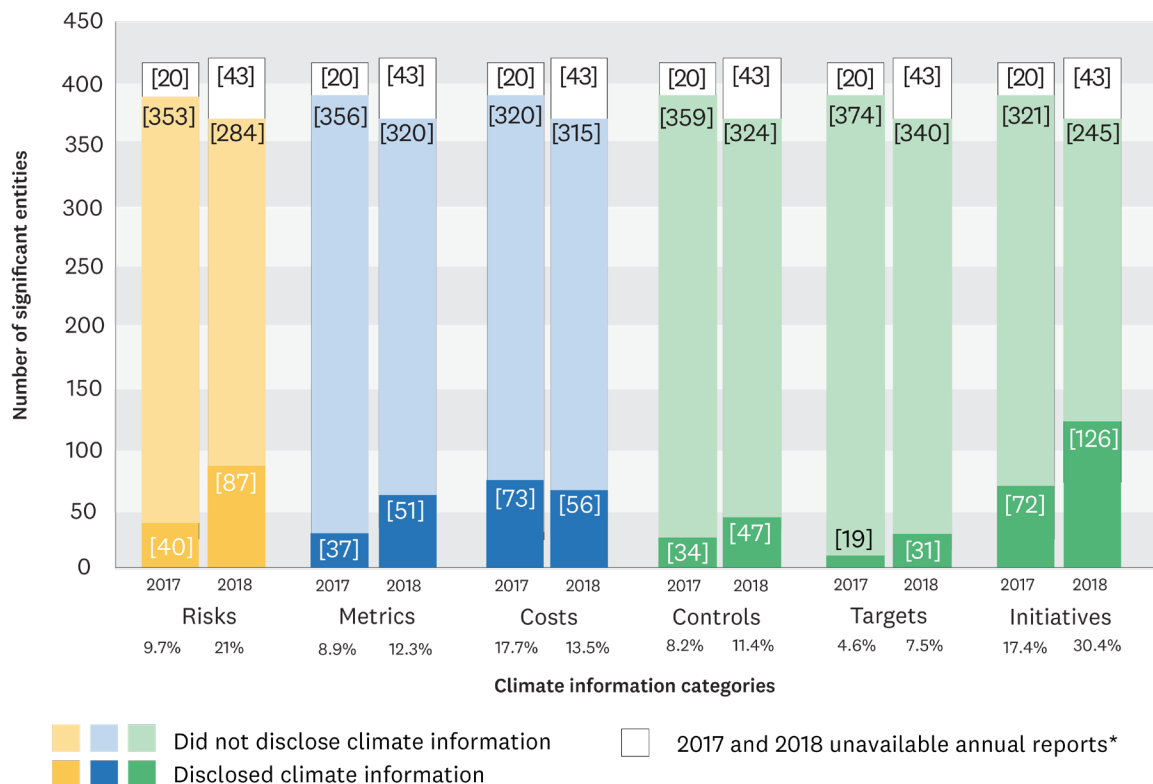
In this section we make some key observations across all data. At an aggregate level, the state of climate reporting across New Zealand is concerning. Of all 414 entities analysed, 56% did not disclose climate information within their 2018 annual reports. The remaining 44% had disclosed climate information that was able to be grouped into specific categories (see Section 2.2.3). When interpreting these results, it should be kept in mind the very low threshold that was applied when deciding whether information constituted as climate-related information.

Figure 24: Significant New Zealand entity disclosure of climate information



Conducting research into 2018 data as an update to 2017 data from *Working Paper 2018/03 – Analysis of Climate Change Reporting in the Public and Private Sectors*, enables the ability to benchmark results and investigate any comparative trends within data.

Figure 25: Climate information disclosed in the 2017 and 2018 annual reports of significant New Zealand entities



Note: * A set of financial statements on its own does not meet the definition of an annual report (see s 211 of the Companies Act 1993).

Figure 25 notes continued;

** To make results comparable between both years, the 2017 data set has been adapted from *Working Paper 2018/03* to illustrate the number of annual reports that were unavailable

*** The total figure of 413 in 2017, and 414 in 2018 does not represent individual entities as some entities are both state-owned enterprises and on the Deloitte Top 200.

**** The numerical difference between 2017 and 2018 data sets is because of a government department that was introduced after research was conducted.

We have observed an overall increase in the level of information disclosed between 2017 and 2018 annual reports. However, there is also plenty of room for improvement. Out of the 165 entities (44%) that did disclose relevant information (see Figure 24), the level of such information provided within these publicly available documents was generally low. This small level of information illustrates the extent to which New Zealand is vulnerable to the risks of climate change. These results also indicate that voluntary reporting has not delivered the necessary information to drive public policy or effective investment.

Climate information categories

Most common categories of climate information disclosures among all entities:

- Climate change initiatives [126]
- Climate change risks [87]

Least common categories of climate information disclosures among all entities:

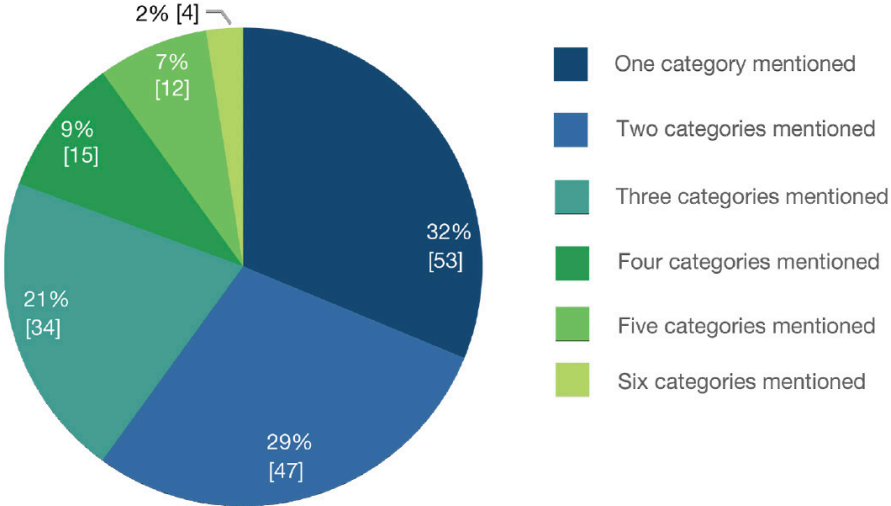
- Emission costs [57]
- Emission metrics [51]
- Emission controls [47]
- Emission targets [31]

Of the entities that disclosed information, the majority of disclosures focused on initiatives and risks. There were fewer instances of disclosure around the specific costs, metrics, controls and targets associated with emission production/abatement. Initiatives were mentioned by 126 individual entities. A climate change initiative is simply a statement, reference to an action, or similar that shows the entity is taking action or planning to take action to curb its emissions or reduce its vulnerability to climate change risks. The general, broad nature of this definition explains the prevalence of initiative disclosure within this research. While most instances of initiative disclosure are believed to be sincere, sceptics may argue that because voluntary initiatives lack accountability, it is possible that they could constitute 'greenwashing', essentially only acting as a public relations exercise.

Disclosure of information by number of categories mentioned:

Due to the varied quality of disclosed climate information among the 165 relevant entities, it was important to differentiate the level of climate reporting between entities. To determine which entities had disclosed information at a higher quality than others, the results were compared by the number of categories mentioned.

Figure 26: Significant New Zealand entity disclosure of climate information by number of categories



Out of the entities that disclosed climate information, twelve contained information that met the criteria of five categories, and only four entities disclosed information that covered all six categories.

Entities with five categories mentioned [12]:

- Kapiti Coast District Council (Local authority)
- Greater Wellington Regional Council (Local authority)
- Spark New Zealand Limited (Deloitte Top 200)
- The Warehouse Group Limited (Deloitte Top 200)
- Meridian Energy Limited (Deloitte Top 200)
- Mercury NZ Limited (Deloitte Top 200)
- Vector Limited (Deloitte Top 200)
- SkyCity Entertainment Group Limited (Deloitte Top 200)
- Sanford Limited (Deloitte Top 200)
- OMV Group Limited (Deloitte Top 200)
- Energy Efficiency and Conservation Authority (Crown agent and Crown entity)
- Environmental Protection Authority (Crown agent and Crown entity)

Entities with six categories mentioned [4]:

- Guardians of New Zealand Superannuation (Crown agent and Crown entity)
- Wellington City Council (Local authority)
- Ministry of Primary Industries (Government department)
- Ministry for the Environment (Government department)

The majority of these entities operate in the electricity, gas, water and waste services industry and are dependent on natural resources. Due to this nature of business, it is expected that such entities would have higher levels of disclosure on climate information, as their operations have both an impact on the environment and are vulnerable to changes within that environment.

In contrast, for an entity with operations that have little impact and dependency on the environment, Guardians of New Zealand Superannuation's annual report contained high levels of qualitative climate information. The fact that Guardians of New Zealand Superannuation is moving from a passive investment strategy to a low-carbon investment strategy indicates that it is thinking about the future of New Zealand in relation to climate change. Whether this is due to financial reasons or environmental concerns, it is clear that Guardians has undertaken extensive research in climate change and is willing to commit to investing for a cleaner future.

Other specific observations

- The Institute's recent research into government department strategies (GDSs) revealed a considerable lack of climate change integration into government strategy, (McGuinness Institute, 2019, p. 43). Although strategy documents haven't been included in this research, the quality of climate information within government departments' annual reports was expected to be of a similar standard. As outliers, reports from Ministry for the Environment and Ministry of Primary Industries included substantial amounts of climate information that covered all six climate information categories.
- Apart from local authorities, there was poor disclosure of the costs associated with emissions across all remaining entity types. Throughout 2018 annual reports, 41 local authorities disclosed information on emission costs – accounting for 73% of total disclosure on emission costs across all entities. These costs were entirely disclosed in the form of emission units/carbon credits as part of non-tangible asset reporting within financial statements.
- As the only representative of the private sector within this research, Deloitte Top 200 had the highest number of individual cases of disclosed information. This is most likely due to the larger size of the data set, but could also be a result of greater reporting requirements. We understand that the crossover between some Deloitte Top 200 entities and NZSX-listed companies results in greater levels of disclosed information due to higher reporting requirements.

Examples of best practice across climate information categories (see Appendix 1)

- 1. Climate change risks: Meridian Energy Limited**
Meridian Energy Limited disclosed climate change risks at a high standard within its annual report. The position of the relevant information within the report indicates the priority that Meridian Energy places over climate change risks. Under the guidance of the Task Force on Climate-related Financial Disclosures (TCFD), this risk assessment breaks down climate risks into the levels of relevance and significance for Meridian Energy's business model.
- 2. Emission metrics: Guardians of New Zealand Superannuation**
Guardians of New Zealand Superannuation has included clear and concise disclosures of their emission production over the 2017-2018 period. Carbon emissions have been disclosed under the guidance of International Organization for Standardization (ISO) 14064-1:2006 (a framework recommended by Ministry for the Environment (MfE)). This is an example of best practice as this information is disclosed voluntarily and done so at a high standard.
- 3. Emission costs: Ministry for the Environment**
This example of best practice focuses on existing carbon emission offsets disclosed in financial figures and/or the number of carbon units used. The information is consistent and comparable as it is disclosed in accordance with the New Zealand Emission Trading Scheme (NZ ETS).
- 4. Emission controls: KiwiRail Holdings Limited**
KiwiRail Holdings Limited has included extensive information relating to existing measures that are in place to control its emissions. While KiwiRail is not required to disclose this information, it shows that the entity is considering how its operations are both impactful on and impacted by the climate.
- 5. Emission targets: Guardians of New Zealand Superannuation**
In addition to its high-quality disclosure of emission metrics, Guardians of New Zealand Superannuation has also included specific goals to reduce future carbon emissions. These forward-looking targets aim to 'reduce the carbon emissions intensity of the Fund by at least 20% [and] reduce

the potential emissions from reserves of the Fund by at least 40%’ by 2020. Again, this is an example of best practice as this information is disclosed voluntarily and done so at a high standard.

6. Climate change initiatives: Mainfreight Limited

Mainfreight Limited has included a variety of initiatives in regard to the actions the entity is taking or planning to take to curb emissions and/or reduce its vulnerability to climate change risks. The information is disclosed under a specific environmental section within the annual report. The disclosed initiatives identify various areas of Mainfreight’s business model that are most vulnerable to climate change risks.

Appendix 1: Examples of best practice across climate information categories

1) Climate change risks

Meridian Energy Limited Integrated Report 2018, p. 5.

Meridian Integrated Report 2018

ASSESSING OUR CLIMATE CHANGE RISKS.

The Board also sets Meridian's overall appetite for risk and its approach to risk management. A summary of Meridian's key risks can be found in the FY18 Corporate Governance Statement available at <https://www.meridianenergy.co.nz/assets/Investors/Governance/Meridian-Energy-Corporate-Governance-Statement.pdf>.

Included among the various risks and risk scenarios that the Board reviews are climate-change-related risks. This year, using the newly published guidelines prepared by the Task Force on Climate-Related Financial Disclosures (TCFD), Management have identified the specific climate change risks from our existing set of risks. Given Meridian's focus on climate action, taking the time to consolidate our view of these risks is appropriate.

Of the 20 specific climate change risks identified, 12 are considered well managed, six require ongoing monitoring, two are considered priorities and there are no urgent risks.

The risks identified for ongoing monitoring are:

- changes in inflows
- population changes
- unsuccessful investments in new technologies
- cost of transition to lower emissions technology
- change in regulation
- legal precedent.

The two risks identified as priorities are:

- **industry disruption** – the concern that New Zealand's two biggest industries, agriculture and international tourism, could be curtailed because of their higher than average greenhouse gas emissions
- **flooding** – climate change modelling indicates that there will be an increase in rainfall on the West Coast of New Zealand. In the extreme, a flood event could, theoretically cause significant damage to Meridian's generation assets and third-party damage to infrastructure, property (town), farmland and the environment.

We have mitigation plans in place for all these risks.

THE ROLE OF COMMITTEES. Committees support the Board by providing detail on specific issues and having subject matter experts provide insights and advice. The following Committees, and the Board as a whole, cover the spectrum of resources on which we depend for our business success, and feed into the Company's overall strategy and direction. They also keep the Board well informed of day-to-day operations.

The Board and Committees also oversee progress on our Sustainable Development Goals (SDGs). The Safety and Sustainability Committee has responsibility for our progress on SDG7 (Affordable and Clean Energy) and

RESOURCES	BOARD OVERSIGHT
Financial and manufactured capital (our cash and assets)	Audit & Risk Committee
Technology	Full Board
Human capital	
• Our people and expertise	Remuneration & Human Resources Committee
• Health and safety	Safety & Sustainability Committee
Relationships and reputation	
• Our people	Remuneration & Human Resources Committee
• All other groups	Safety & Sustainability Committee and full Board
Natural resources	Safety & Sustainability Committee
Significant risks around resources	Audit & Risk Committee

SDG13 (Climate Action). The Board as a whole oversees our progress as a responsible generator, particularly as it pertains to the Waitaki consenting process. Our Remuneration and Human Resources Committee oversees Meridian's maintenance and development of being a great place to work. Our Audit and Risk Committee assists the Board in fulfilling its responsibilities in matters related to risk management, financial accounting and reporting.

THE ROLE OF PEOPLE AND CULTURE. No strategic goals, policies or processes would be achievable if it weren't for Meridian's people, who are our most important resource. They work hard to create value for shareholders, so it's essential that they are aligned with the Company's strategy and are well supported and rewarded appropriately for their efforts. The Board has approved a wide range of policies that Management are required to adhere to and incorporate in the Company's operations, including a Code of Conduct, the content of which all employees agree to honour. The Code provides guidance to staff on the behaviours that are expected and how to handle the issues and challenges they may face. Our approach to remunerating our people is on page 56.

IF YOU WOULD LIKE FURTHER INFORMATION. We look forward to seeing you at the Annual Shareholder Meeting. In the meantime, if you are a shareholder, please feel free to ask questions, request information or comment on this report via Meridian's website or by directly contacting the Investor Relations Manager at investors@meridianenergy.co.nz.



CHRIS MOLLER
Chair



PETER WILSON
Deputy Chair

00:05

2) Emission metrics

Guardians of New Zealand Superannuation Annual Report 2018, p. 100

100

OPERATIONAL REPORT

ENVIRONMENTAL PERFORMANCE

The Guardians' environmental performance falls under the remit of the Guardians' Health, Safety, Security and Environment (HSSE) Committee. The Committee aims to improve staff awareness about the environmental impact of our activities and set achievable targets for minimising this impact.

As a responsible investor, we strive to integrate environmental concerns into our wider activities as an investment manager and hold ourselves accountable to the same guidelines. The biggest potential impact we can make is on our investment portfolio through our engagement with the organisations we invest in. See the Responsible Investment Report that begins on page 58 for more information.

The measures detailed below are the greenhouse gas emissions for the corporate operations of the Guardians. They have been calculated in accordance with the guidance provided in ISO 14064-1:2006 and have been verified by Enviro-Mark

Solutions. A verification report is available on: <https://ar2018.nzsuperfund.co.nz/downloads>.

The bulk of our emissions derive from international long-haul air travel. As a global investor, the Guardians is limited in the extent to which it can actively reduce air travel activity. A focus for 2018/19 is the implementation of a new natural environment policy, to be incorporated into the Human Resources Policy. The policy will commit the Guardians to understanding and reducing the environmental impact of our activities.

ENERGY SOURCE	MEASURE	QUANTITY	2017/18		2016/17		2015/16
			CO ²	QUANTITY	CO ²	QUANTITY	CO ²
Electricity	Kwh	155,772	18.61t	141,121	16.86t	140,932	19.82t
International air travel (long haul)	Km	4,826,196	2092.35t	3,947,104	1,705.10t	3,489,400	1,510.61t
International air travel (short haul)	Km	1,012,522	184.98t	950,715	176.88t	685,707	129.20t
Domestic air travel	Km	291,037	77.83t	223,342	60.99t	226,499	66.39t
Mileage (medium car) 1.6 – 2.0L	Km	6,872	1.44t	7,102	1.48t	5,628	1.29t
Taxi – cost	\$	103,832.41	6.91t	87,413	5.81t	66,967	7.21t
Waste to landfill	Kg	2,392	2.71t	2,339	2.63t	2,609	3.10t
TOTAL			2,384.83t		1,969.75t		1,737.62t

In FY2017/18, carbon emission figures for long haul, short haul and domestic air travel were calculated based on the actual travel class flown on each flight (business, economy, premium economy). The carbon emitted differs according to travel class in accordance with the space occupied by the passenger; business class seats are larger than the standard berth, meaning less people can get on a plane. This results in more fuel being burnt per person to get the aircraft to its destination.

As previous emissions figures published were not broken down into travel class (but rather, calculated as an average of all travel classes available on the flight) the CO₂ totals for air travel in FY2016/17 and FY2015/16 have been re-calculated to show a like for like comparison against the most recent year, in order to show the correct changes to our carbon emissions.

102 - 48
103 - 1
103 - 2
103 - 3
302 - 1
305 - 1
305 - 2
305 - 3
306 - 2

3) Emission costs

Ministry for the Environment Annual Report 2018, p. 124

8. Explanations of major variances against mains forecast

Explanations for major variances from the Ministry's non-departmental main forecast figures are as follows:

(i) Schedule of non-departmental revenue

	2017/18 Actual \$000	2017/18 Mains Forecast \$000	Variance \$000
Emissions trading	669,392	542,507	126,885

Emissions trading: The actual revenue from surrendering units under the New Zealand Emissions Trading Scheme from emitters was higher than mains forecast primarily due to an increase in the price of New Zealand Units. Further, higher than forecast units were surrendered by the forestry sector.

There were no other significant variances to mains forecast.

(ii) Schedule of non-departmental expenses

	2017/18 Actual \$000	2017/18 Mains Forecast \$000	Variance \$000
Grants and settlements	41,352	58,460	(17,108)
Allocations of New Zealand Units	719,667	482,095	237,572
Net changes in carbon price of New Zealand units	462,273	58,296	403,977

Grants and settlements: Expenditure on grants and settlements were lower than mains forecast primarily due to the following:

- **Community Environment Fund:** Expenditure was lower than the mains forecast due to delays in the delivery of milestones. An expense transfer of funding from 2017/18 to 2018/19 is sought for projects that support the implementation of freshwater and resource management reforms, and other initiatives. This transfer represents the rephasing of funds to match the expected delivery of project milestones.
- **Contestable Waste Minimisation Fund:** Expenditure was lower than the mains forecast due to projects experiencing delays. Further, each year there is a time lag between the Waste Disposal Levy and the funding round opening. Baseline updates are used to match expected spend over the forecast period, once it is known following the funding round.
- **Fresh Start for Fresh Water: Rotorua Te Arawa Lakes Programme** (a multi-year appropriation): Expenditure was lower than the mains forecast due to delays in the delivery of milestones. Funding has been rephased to match the amount with the revised timing of project deliverables.
- **Te Mana o Te Wai:** Expenditure was lower than the mains forecast due to delays in the delivery of milestones. An expense transfer of funding from 2017/18 to 2018/19 is sought to match the expected delivery of project milestones.
- **The Freshwater Improvement Fund:** Expenditure was lower than the mains forecast due to delays in contract negotiations with successful applicants. The majority of the contracts are likely to begin in 2018/19 financial year. An expense transfer of funding from 2017/18 to 2018/19 is sought to meet the funding needs of the projects once they begin to ensure each project has sufficient funds to complete their programme of work.

4) Emission controls

KiwiRail Holdings Limited, Annual Report 2018, p. 48

Capitals review: Environment

This year the Coalition Government signalled its support for modal shift to rail. In the Government Policy Statement on Land Transport (GPS), a mode-neutral approach to transport planning and investment was introduced, and carbon emission reduction was highlighted as a priority. A measure of the contribution that KiwiRail can make is that while transport accounts for 19% of New Zealand's carbon emissions, rail generates less than 1% of that total.

EY found that New Zealand's rail services reduce carbon emissions by 488,000 tonnes a year - the equivalent of taking 87,000 cars off the road.

A significant part of that saving comes from the commuter rail services in Auckland and Wellington, services which KiwiRail, as owner and maintainer of the network, enables. Last year 34 million commuter trips were made on our network, with numbers in Auckland rising by 20% over the last two years.

The GPS looks to increase the numbers of commuters on rail, with funding for maintaining and improving rail infrastructure on key passenger services in major metropolitan areas, including inter-regional rail services.

Driving economic growth in the regions is a key strategy for KiwiRail with projects funded through the Government's Provincial Growth Fund. In 2018, \$5 million was committed to rebuild the Napier to Wairoa line which, when fully utilised, could avoid 5,714 trucks on Hawke's Bay roads, reducing carbon emissions and providing a seamless supply chain to port.

This is one of the initiatives KiwiRail is pursuing to increase the role rail plays in moving logs from New Zealand's "Wall of Wood".

Energy efficiency

Building on rail's competitive advantage as an energy efficient mode of transport, KiwiRail is also committed to cutting its own fuel use.

A key component of our energy saving programme is a close collaboration with the Energy Efficiency and

Conservation Authority (EECA) to progress programmes and set targets across our rail and ferry operations.

All areas of the organisation are working to meet KiwiRail's 73.5 gigawatt hours (GWh) energy saving target by 2020, a target that was raised after the initial 20 GWh target was reached just eight months after the agreement was established in November 2016.

EY found that New Zealand's rail services reduce carbon emissions by 488,000 tonnes a year - the equivalent of taking 87,000 cars off the road.

With fuel for trains and ferries making up the overwhelming bulk of KiwiRail's energy consumption, that is the area of greatest focus, with a number of initiatives underway that will deliver large gains over the next two years.

The Locomotive Fuel Savings project has already shown significant success, delivering fuel savings of 17 million litres, or \$12 million, since 2015 through the ground-breaking Driver Advisory System (DAS), and other energy initiatives on our rail freight services.

The ferry initiatives being undertaken in collaboration with EECA aim to deliver substantial energy savings through a number of projects, including propeller caps on the Aratere designed to reduce resistance, a new fuel monitoring system which - as DAS does for locomotives - can provide vital information on how to sail the ship safely with improved fuel efficiency, and studies on the feasibility of heat recovery in the ships.

Waste management

Another area of focus over the past year has been the reinvigoration of KiwiRail's waste management programme with a focus on exploring new ways to reduce industrial and passenger waste.

KiwiRail's Great Journeys of New Zealand tourism services have signed the New Zealand Tourism Sustainability Commitment, with one early initiative reducing the use of plastic packaging and straws.

Rail is a material-intensive industry and over the past few years KiwiRail has developed a recycling programme for used rail infrastructure materials which still have life left in them.

In 2018, the programme has seen sleepers and rail previously installed at Raurimu, on the North Island Main Trunk line, used in the rebuild of the Napier-Wairoa Line.

5) Emission targets

Guardians of New Zealand Superannuation Annual Report 2018, p. 56

56

INVESTMENT REPORT

CLIMATE CHANGE

Given the Fund's long-term horizon and purpose, it is important that the risks and opportunities stemming from climate change are factored into our investment strategies and ownership practices.

In 2016/17, as part of our climate change strategy, we transitioned the Fund's global passive equity portfolio (40% of the Fund) to a low-carbon approach. We also developed 2020 carbon reduction targets for the overall Fund. Here we provide an update on the climate change activities we undertook during 2017/18 and our progress towards the 2020 targets.

CARBON TARGETS

Measured relative to the original Reference Portfolio, by 2020:

1. Reduce the carbon emissions intensity of the Fund by at least 20%
2. Reduce the potential emissions from reserves of the Fund by at least 40%

	Carbon emissions intensity*	Potential emissions from reserves**
2018	-18.7%	-32.1%

* Carbon emissions intensity is defined as measured tonnes CO₂e/\$m sales = tonnes of carbon emissions divided by \$m of company sales. This measures the portfolio in terms of carbon emissions per unit of output and provides a measure of the overall efficiency of the portfolio by comparing emissions with the economic activity that produces them. This metric is robust to movements in market valuations.

** Fossil fuel reserves are defined as potential future emissions: measures tonnes CO₂e/\$m invested = tonnes of carbon emissions divided by \$m invested. This measures the carbon equivalent emissions stored in fossil fuel reserves that would be released if those reserves were produced and used in the future, relative to dollars invested. MSCI ESG research calculates the potential emissions should all reserves be produced and burnt expressed as tonnes of CO₂ equivalent using the Potsdam Institute methodology. This includes proved and probable reserves.

STRATEGY OVERVIEW

The aim of the climate change investment strategy is to improve investment resilience to climate change over the long-term horizon of the Fund. Climate change considerations are factored into the Guardians' valuation investment decision-making processes and governance structures on an ongoing basis. This entails managing and monitoring the Fund's carbon exposure, managing climate-related risks, and seeking to take advantage of the investment opportunities arising from climate change action.

The Chief Executive Officer at the Guardians is ultimately responsible for the Fund's strategy. The Chief Investment Officer (CIO) is responsible for the climate change investment strategy, with both the CIO and Head of Responsible Investment overseeing its implementation, and acting as project sponsors. The different elements of the strategy are integrated into the objectives of the relevant members of the investment team, with the heads of each team responsible for ensuring delivery.

Our climate change strategy has four work-streams, which together help to make our portfolio more resilient to climate-related risks.

- **Reduce** – implement rules and activities to reduce climate change risk in the passive listed equities portfolio and other relevant portfolios;
- **Analyse** – implement framework to assist investment professionals in integrating climate change into valuations for active and prospective investments;
- **Engage** – implement an engagement programme and voting policy on climate change;
- **Search** – progress implementation of climate change opportunities identified.

ENVIRONMENT

As a progressive global business, we are mindful of our responsibilities to the communities we live and operate in around the world. Environmental and sustainability initiatives are a key part of the planning and development of new facilities and processes as we expand.

We measure the carbon emissions we generate across our New Zealand and European operations, and over time will establish measurement across our global operations.

In seeking to reduce our emissions, Mainfreight's initiatives include:

- > Moving capacity from road to rail and coastal shipping
- > Route planning - using GPS in congested international cities, and introducing planning software to bring efficiencies to freight deliveries and pick-ups
- > Truck size management - using smaller trucks for distribution within cities and larger trucks between cities
- > Promoting off-peak distribution, particularly between cities and from ports
- > Efficient driving techniques promulgated through our driver training programmes
- > Vehicle maintenance guidelines for owner-drivers to promote efficient running of their trucks
- > The conversion of gas and diesel powered forklifts operating on our docks to electric, and the use of manual pallet trucks to replace forklifts where practicable

- > Trialling EV/hybrid vehicles in Australia and New Zealand (current fleet of 3 EVs and 124 hybrid cars).

In addition, our European business continues to participate in studies underway in the Netherlands to evaluate the practical application of "Platooning". Truck Platooning involves a number of trucks equipped with state-of-the-art driving technology - one closely following the other with the vehicles constantly communicating.

With the following trucks braking immediately, with zero reaction time, platooning can improve traffic safety. Other benefits include cost-saving (as the trucks drive close together at a constant speed), and lower CO₂ emissions, and it also boosts traffic flows/road efficiency.

It is important to note that through good old-fashioned common sense, we have been recycling office and depot waste for 30 years in New Zealand. We store and use rainwater and recycle greywater for truck washing, ablutions and irrigation. Where possible, our new freight and warehousing facilities in New Zealand and Australia are built with environmental design principles in mind; energy-efficient lighting and heating solutions; and solar power installations where feasible.

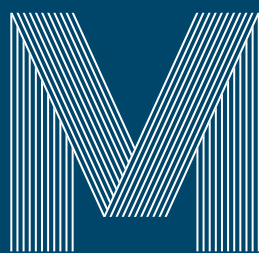
Rain gardens are installed as a feature of our landscaped grounds.

Our Hamilton facility is equipped with 690 solar panels, making it one of the largest private solar installations in Australasia, with a 170 kWh capacity. Our facility in Epping, Melbourne also includes a solar installation, with 100 kWh capacity. In future new facilities, environmental considerations will influence design and build, as we look to extract maximum ecological benefits.

In Europe, the business has committed to the Netherlands' sustainable logistics programme, with the objective of reducing carbon emissions by 30% in 2013 from levels recorded in 2007. For the Dutch fleet, we achieved a carbon reduction of 47% in the 2017 calendar year, compared to baseline in 2007, while the Belgium business reported a preliminary result of 31% reduction in 2017 compared to 2010. The carbon emission is a combination of fuel consumption and average usage of our fleet. Fuel consumption also continues to improve for the fleet in Europe; over the past 10 years we have recorded a decrease of 11%, with 2% of this reduction achieved last year.

References

- Guardians of New Zealand Superannuation. (2018). *Guardians of New Zealand Superannuation Annual Report 2018*. Auckland: New Zealand Superannuation Fund. Retrieved 1 October 2019 from <https://nzsuperfund.nz/sites/default/files/documents-sys/Annual%20Report%202018.pdf>.
- KiwiRail Holdings Limited. (2018). *Stronger Connections. Better New Zealand. Annual Integrated Report 2018*. NL: Author. Retrieved 1 October 2019 from <https://www.kiwirail.co.nz/assets/Uploads/documents/Annual-reports/2018/d5a9898395/KiwiRail-Integrated-Report-2018-SML.pdf>.
- Mainfreight Limited. (2018). *Annual Report 2018*. NL: Author. Retrieved 1 October 2019 from <https://www.mainfreight.com/Files/Downloads/Mainfreight%20Annual%20Report%202018.pdf>.
- McGuinness Institute (2018). *Working Paper 2018/03 – Analysis of Climate Change Reporting in the Public and Private Sectors*. Wellington. Author. Retrieved 28 July 2019 from <http://www.mcguinnessinstitute.org/wp-content/uploads/2018/10/20181029-Working-Paper-2018%E2%80%A203-cover-4.30-pm.pdf>.
- McGuinness Institute (2019). *Working Paper 2019/04 – Analysis of Government Department Strategies between 1 July 1994 and 31 December 2018*. Wellington. Author. Retrieved 28 July 2019 from <http://www.mcguinnessinstitute.org/wp-content/uploads/2019/06/20190606-GDS-Analysis-working-paper.pdf>.
- Meridian Energy Limited. (2018). *Meridian Energy Limited Integrated Report 2018*. NL: Author. Retrieved 1 October 2019 from <https://www.meridianenergy.co.nz/assets/Investors/Reports-and-presentations/Annual-results-and-reports/2018/95098799a5/Meridian-Energy-Integrated-Report-for-the-year-ended-30-June-2018.pdf>.
- Ministry for the Environment (MfE). (2018). *Ministry for the Environment Annual Report 2018*. Wellington: Author. Retrieved 1 October 2019 from <https://www.mfe.govt.nz/sites/default/files/media/About/Annual-report-2017-18-WEB.pdf>.



MCGUINNESS INSTITUTE
TE HONONGA WAKA