CHARTERED PROFESSIONAL ACCOUNTANTS

2019 Study of Climate-Related Disclosures by Canadian Public Companies

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Contact

CPA Canada will engage in further discussions with key stakeholders on the issue of climate change and its implications for businesses.

We value the views and feedback of our members. Comments should be addressed to:

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Objective of the Study

This report is a follow-up to CPA Canada's 2016 study, *State of Play: Study of Climate-related Disclosures by Canadian Public Companies (the 2016 Study)*.[1] Since the 2016 Study, the final recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) were released,[2] and there has been increased momentum for the disclosure of climate-related issues in mainstream financial filings, (see side bar and Appendix 2).

Demands by investors for better reporting on climate-change risks and opportunities have also prompted the Canadian Securities Administrators (CSA) to review disclosure practices and issue two staff notices (see Appendix 2).

The objective of this study (the 2019 Study) is to review climate-related disclosures made by 40 TSX-listed Canadian companies in their regulatory filings and assess the alignment of these disclosures with the TCFD Recommendations. It also aims to compare these results with the results of the 2016 Study, which was conducted prior to the release of the TCFD Recommendations. Given the difference in size and basis of the samples, the results of the two studies are not directly comparable. Observations on trends have been made where possible.

In May 2020, the federal government announced the Large Employer Emergency Financing Facility (LEEFF) which will provide bridge financing to Canadian businesses with annual revenues greater than $300 million that have been impacted by the COVID-19 pandemic. "Recipient companies would be required to commit to publish annual climate-related disclosure reports consistent with the Financial Stability Board's Task Force on Climate-related Financial Disclosures, including how their future operations will support environmental sustainability and national climate goals[1]."

1 "Prime Minister announces additional support for businesses to help save Canadian jobs" (Government of Canada, May 2020).

Key Findings

This section of the report provides key findings from the 2019 Study, including insights into what was disclosed, where it was disclosed, and what has been the overall progress seen in disclosure since the final Recommendations of the TCFD were released.

1 "State of Play: Study of Climate-Related Disclosures by Canadian Public Companies" (CPA Canada, 2017).

2 "Recommendations of the Task Force on Climate-Related Financial Disclosures: Final Report" (Task Force on Climate-Related Financial Disclosures, Financial Stability Board: June, 2017) [TCFD Recommendations].

What Was Disclosed

Disclosures increasing but comparability remains a challenge

Almost all companies reviewed provided some TCFD-aligned disclosures; slightly more than one-third of companies included disclosure in all four TCFD categories in regulatory and voluntary documents.

Compared to the 2016 Study, companies are providing more information on climate-related risks and opportunities in regulatory filings (predominantly Management's Discussion and Analysis [MD&A]), but comparability remains challenging. For example, the introduction of the TCFD has potentially resulted in a marked improvement and consistency in how climate-related issues are disclosed. However, there is no uniformity across sectors and companies regarding choice of language in disclosures. The varied use of language and terminology makes it difficult not only to assess disclosures against the TCFD Recommendations but also to compare them with peers.

Assessment of climate-related risks may be limited

Companies commonly disclosed throughout their regulatory and voluntary reporting that they had thoroughly examined climate-related risks but concluded that none of the reviewed risks would materially impact the company. As many market commentators and experts have been acknowledging, climate issues present significant risk to economic actors.[3] It appears companies may still be struggling to fully understand and incorporate the probability and impact of climate-related risks and opportunities into their analyses.

Canadian companies outpace global average

On average, Canadian companies reviewed disclosed in 4.5 of the 11 TCFD subcategories versus the global average of 3.6.[4]

Ninety-eight per cent of companies reviewed included climate-related disclosure in at least one of the four TCFD-recommended categories in their regulatory filings. Most companies acknowledged climate-related risks; however, the nature and extent of their disclosures varied. In voluntary documents, 95% of companies reported in at least one of the four TCFD-recommended categories, and 32% reported in all four.

Only one company disclosed across all TCFD categories and subcategories

Of the 40 companies reviewed, only one (from the utilities sector) disclosed across all four TCFD-recommended categories and the corresponding 11 subcategories. Thirty-three per cent of companies reviewed included disclosures in all four of the TCFD-recommended categories but did not disclose in all 11 subcategories.

3 "The Global Risks Report 2020" (World Economic Forum, January 2020) [Global Risks Report 2020]; Bank of Canada, Financial System Review 2019.

4 TCFD Status Report (June 2019), p. 8.

Strategy, Metrics and Targets most popular disclosure categories

The most commonly disclosed category was “Strategy” in regulatory filings and “Metrics and Targets” in voluntary documents. Eighty per cent of companies reviewed included climate-related strategy disclosures in their regulatory filings. The 2016 Study found 24% of companies included strategy-related disclosures in their regulatory filings. Eighty-eight per cent of companies disclosed climate-related metrics and targets in voluntary reports, whereas 63% disclosed in the same category in their regulatory filings.

Governance disclosure is lacking

Because only half the companies disclosed climate-related governance in regulatory filings, it was the least disclosed regulatory category. This is especially noteworthy due to the emphasis on governance disclosure from the CSA and the TCFD.

Disclosure on scenario analysis is lacking

Only two of the companies reviewed (one from the industrials sector and one from the utilities sector) included the results of their scenario analysis in their disclosure. Four additional companies disclosed that they had conducted scenario analysis but did not provide results.

Where It Was Disclosed

Carbon emissions primarily disclosed in voluntary reports

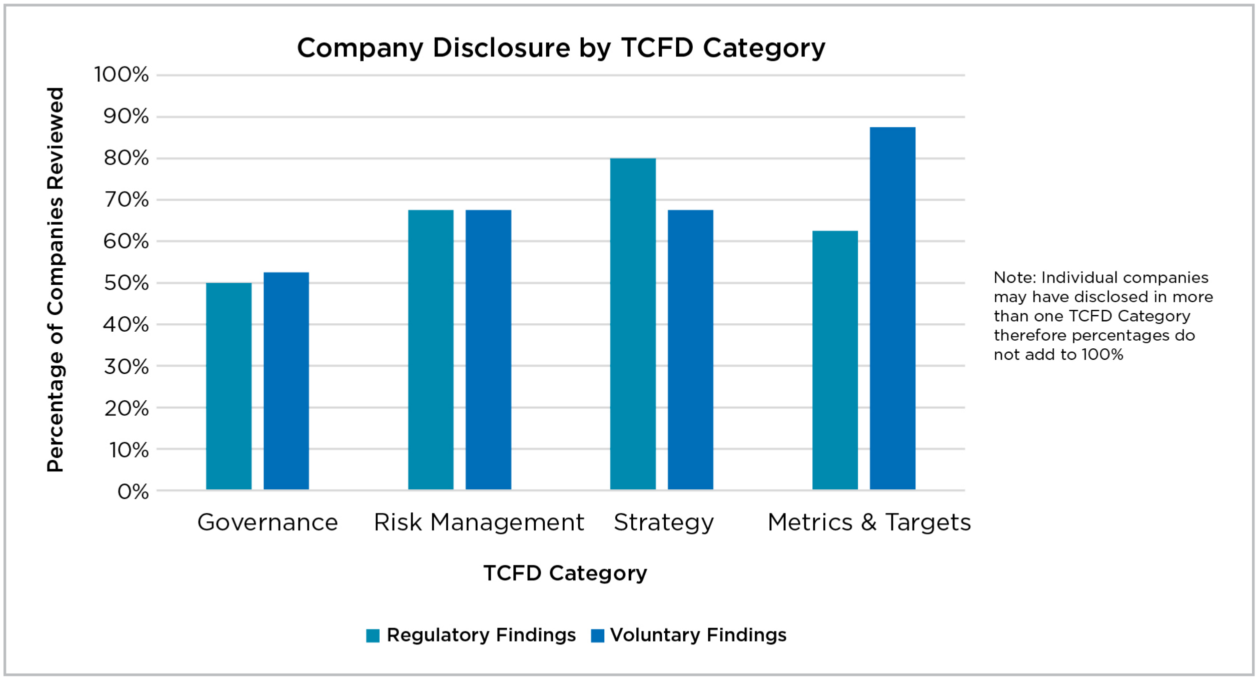
Fifteen per cent of companies disclosed GHG emissions in regulatory documents as opposed to voluntary reporting where 80% of companies disclosed GHG emissions.

MD&A is top location for regulatory filings

The most common location for disclosures in regulatory documents was the MD&A filing, followed by the Annual Information Form (AIF). In voluntary reporting, only 13 companies (33%) published their responses to CDP questionnaires; however, those companies had the most robust voluntary disclosures. Significant voluntary disclosures were found in climate change-specific documents other than responses to CDP questionnaires.

Not all companies provided climate-related disclosures in voluntary documents, but voluntary climate-related disclosures were seen across all eight sectors represented in the 2019 Study.

FIGURE 1 – OVERVIEW OF DISCLOSURES BY TCFD CATEGORY



Disclosure across TCFD categories

Almost all companies disclosed in at least one TCFD category in both regulatory and voluntary documents. If companies disclosed in only one TCFD category, there was no consistency for which of the four categories was selected. One company (from the industrials sector) did not have any regulatory disclosures and two companies (both from the industrials sector) did not have any voluntary disclosures.

What Progress Has Been Made

2016 vs. 2019 regulatory disclosures

In the 2016 Study, 31% of companies disclosed physical risks of climate change in regulatory filings; in the 2019 Study, 58% of companies disclosed physical risks in regulatory filings.

Fifty-three per cent of companies disclosed metrics used to assess climate-related risks and opportunities. The 2016 Study found 28% of companies used metrics to quantify climate-related risks and opportunities.

TCFD Recommendations are being widely implemented but gaps remain

The results of the 2019 Study indicate TCFD Recommendations are being widely recognized and implemented.

While the 2019 Study indicates improvements in the climate-related disclosures of Canadian companies, they still lack the scale and quality needed to satisfy investor demands. There appears to be a gap between investor information needs and current corporate climate-related reporting practices. Below is a list of the five practical steps that can be taken by organizations to improve climate-related disclosures.

For a more detailed discussion of these steps, see the conclusion of this report on page 29.

Top Five Practical Steps for Companies to Improve Climate-Related Disclosures

1. **Build an understanding** of the regulatory landscape and climate-related disclosure requirements for your organization, including developing and using language that is both reflective of the organization and that resonates with key stakeholders, including investors.
2. **Establish leadership** on climate-related disclosures across the company to increase climate literacy, attract executive support, and increase board engagement.
3. **Perform an assessment** to understand material climate-related financial risks and opportunities and recognize that disclosures will evolve.
4. **Develop an approach** for climate-related disclosure that is well researched, accountable, and uniform.
5. **Continue to engage** peers, investors, and other stakeholders on best practices for climate-related disclosure.

Detailed Results of Climate-Related Disclosures by Selected Canadian Public Issuers

This report is divided into sections based on the disclosure categories outlined in the TCFD Recommendations. Climate-related risks and opportunities have also been given their own section. Findings fall into the following main categories:

1. Climate-related risks and opportunities
2. Governance
3. Strategy
4. Risk management
5. Metrics and targets

The examples contained in the call-out boxes and throughout this report are meant to be illustrative only; their inclusion in this report does not mean they have been assessed as best-practices disclosure. All examples have been edited to maintain anonymity.

Climate-Related Risks and Opportunities

The most disclosed climate-related risks were policy and physical risks. In total, 70% of companies disclosed policy-related risks while 58% of companies disclosed physical risks.

Table 1 lists observations about climate-related risks and opportunities in regulatory documents across the companies included in the 2019 Study.

TABLE 1 – RESULTS FROM CLIMATE-RELATED RISKS AND OPPORTUNITIES DISCLOSURES

Risks:

TCFD Recommended Disclosures: Most Disclosed Risks	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. Transition: Policy Risk	**70%** disclosed policy risks
2. Physical Risks	**58%** disclosed physical risks **48%** disclosed chronic physical risks **45%** disclosed acute physical risks[5]

Opportunities:

TCFD Recommended Disclosures: Most Disclosed Opportunities	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. Products and Services	33% disclosed opportunities for products and services
2. Resource Efficiency	28% disclosed resource-efficiency opportunities
3. Energy Source	25% disclosed energy-source opportunities

Increased disclosure of climate-related risks, particularly physical risks and opportunities across regulatory and voluntary filings

Both acute and chronic physical risks were disclosed across nearly all sectors in regulatory filings; together they were the most disclosed type of risk in voluntary documents. In total, 58% of companies disclosed physical risks in their regulatory documents. Thirty-one per

5 As defined in the TCFD Recommendations on p. 5, chronic physical risks refer to longer-term shifts in climate patterns (e.g., sustained higher temperatures) that may cause sea-level rise or chronic heat waves, whereas acute physical risks refer to those that are event driven, including increased severity of extreme weather events, such as cyclones, hurricanes, or floods.

cent of companies disclosed physical risks in their regulatory documents in the 2016 Study.[6] This may be reflective of the private sector's growing understanding of physical climate impacts and the need for climate adaptation. Even industries that may not have traditionally been thought of as directly exposed to physical risks (e.g., the financial sector[7]) disclosed relevant physical risks.

Even though this is not a specific TCFD category, it is a central part of continuous disclosure and indicates greater uptake in the identification and response to climate-related risks and opportunities.

Regulatory disclosures focused on policy and physical-risk disclosures

In regulatory filings, the most disclosed risk was policy risk, which was disclosed in regulatory filings nearly twice as many times as any other transition risk.[8] Recognizing policy risk in regulatory reporting, however, did not always translate into actual business practices. Policy disclosures tended to be more generic and contained little company-specific information (e.g., a brief statement that carbon pricing may impact the disclosing company's sector).

Further, there were multiple instances where a company acknowledged a policy risk but concluded that, because it was not possible to forecast the impact of the risk, the company did not elaborate or discuss how that risk could be managed.

> Examples of the Company's regulatory risks include, but are not limited to, uncertain or negative interactions with governments, uncertain energy policies, uncertain climate policies, uncertain environmental and safety policies…
>
> (Disclosure found in the Annual Information Form (AIF) of a company in the energy sector)

As for other transition risks, only 23% of companies disclosed on reputation risk in their regulatory filings. Two thirds of those companies came from the energy and materials sectors. Almost no disclosures were found on technology risk in regulatory filings.

6 2016 Study, p. 26. Note that the 2016 Study did not differentiate between acute and chronic physical risks.

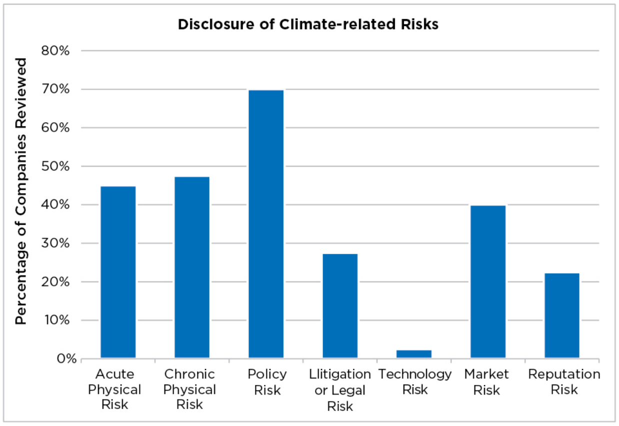
7 The financial sector excludes insurance companies, whose exposure to physical risk is well known. See: "Climate Change is Forcing the Insurance Industry to Recalculate" (Wall Street Journal, October 2, 2018); "Severe Weather Causes $1.9 Billion in Insured Damage in 2018" (Insurance Bureau of Canada, January 16, 2019).

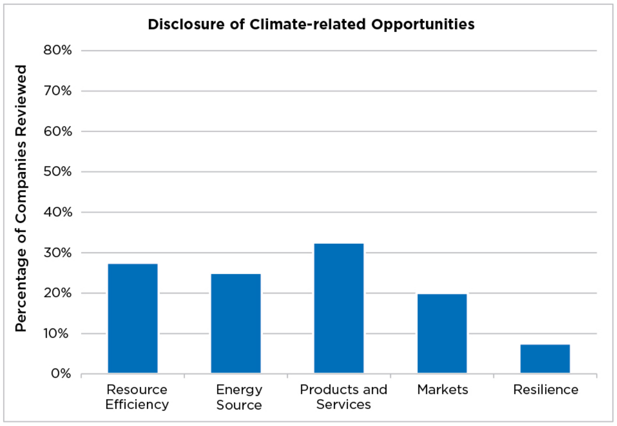
8 Note: These results may have been skewed, however, because the energy sector predominantly disclosed policy risk, and the 2019 Study includes a preponderance of companies in the energy sector.

Following policy risk, acute and chronic physical risks were the most disclosed type of risk. In the energy and telecommunications sectors, companies commonly disclosed risks such as damage to infrastructure from extreme weather events. In the financial sector, companies commonly disclosed risks such as increases in consumer insurance rates and uncertainty around the long-term viability of real estate as security for investments.

Thirty-five per cent of companies disclosed both acute and chronic physical risks in their regulatory documents.

FIGURE 2 - DISCLOSURES OF CLIMATE-RELATED RISKS AND OPPORTUNITIES IN REGULATORY DOCUMENTS





Companies have begun to disclose climate-related business opportunities, largely in voluntary filings

Companies are increasingly including references to the business opportunities presented by climate change in their disclosures. Companies in all sectors except the financial sector disclosed energy-source opportunities in regulatory documents. Reports from multiple sectors on products and services opportunities made these the most disclosed opportunities in both regulatory and voluntary filings (33% of companies in regulatory and 73% in voluntary). The broad recognition of different types of climate-related opportunities across regulatory and voluntary filings may signal that companies are beginning to recognize the potential for prosperity in a low-carbon economy.

In voluntary documents, the high concentration of disclosures on energy-source opportunities, particularly from the energy sector, made it the most disclosed opportunity in all voluntary disclosures.

Resilience opportunities were the least disclosed type of opportunity across voluntary and regulatory documents. Voluntary reporting contained more information on resiliency opportunities than regulatory reporting. The lack of disclosed resiliency opportunities may indicate industries are still grappling with how to manage risks stemming from climate change.

Examples: Risks

Acute Physical

Our operations are subject to adverse natural or man-made events such as forest fires, flooding, hurricanes and other severe weather conditions, climate change, timber diseases and insect infestations including those that may be associated with warmer climate conditions, and earthquake activity. Over the past several years, changing weather patterns and climatic conditions due to natural and man-made causes have added to the unpredictability and frequency of natural events such as severe weather, hurricanes, flooding, hailstorms, wildfires, snow, ice storms, and the spread of disease and insect infestations.

Chronic Physical

In addition, the physical risks of climate change may also have an adverse effect at some of X's operations. These may include extreme weather events, resource shortages, changes in rainfall and storm patterns and intensities, water shortages, changing sea levels and changing temperatures.

Policy

To combat climate change, federal and provincial carbon-reduction targets and financial mechanisms to reduce carbon emissions are being considered and/or implemented, such as carbon taxes, carbon pricing and cap-and-trade. With each jurisdiction operating under different policies of climate change reform, the Company may require operational changes and/or incur significant financial costs to comply with the various reforms.

Litigation

There is also a risk that X could face litigation initiated by third parties relating to climate change, including litigation pertaining to GHG emissions, the production, sale, or promotion of fossil fuels and petroleum products, and/or disclosure.

Technology

Our operations are exposed to climate-related physical risks, such as from the consequences of increasing severity and frequency of extreme weather events and rising global temperatures, as well as transition risks related to climate change, such as the impact of changes in policy or implementation of the lower-emission technology.

Market
As the world transitions to a lower-carbon economy, there is increasing focus on low-carbon technologies to replace carbon-intensive ones. Changes in carbon regulation or taxation may decrease demand for our blended bitumen product.

Reputation
External factors such as stakeholder expectations around environmental performance, resource constraints, impact of climate change and costs associated with adaptation are also potential sources of environmental risk. These risks may also affect our Clients and our suppliers, which could have a negative impact on our operations and performance.

Examples: Opportunities

Resource Efficiency
Second, Management continues to focus on reducing its operating costs as a percentage of total revenues. X invests in various environment-friendly and energy-saving initiatives including energy efficient boilers and lighting systems. In addition, it evaluates all energy purchasing programs to reduce or stabilize overall net energy costs.

Energy Source
During the year we commenced co-firing with natural gas. Natural gas combustion produces fewer greenhouse gas ("GHG") emissions than coal combustion, which lowers our GHG compliance costs. The combined impact of relatively low X gas prices and lower GHG compliance costs made this economically viable on the merchant plants for a substantial part of the year.

Products and Services
As more Canadians seek out environmentally friendly products, it is important to X to continue to bring innovative and eco-friendly products to our customers and enable them to make informed purchase decisions with the environment in mind. In addition to more than 850 energy-efficient products in our stores, we have installed electric vehicle charging stations at 21 locations, with more to come, to help give Canadians more options to reduce their emissions and to ensure we meet the needs of all Canadian drivers.

Markets
The global transition to a cleaner economy — renewable energy generation, increasing electrification and the mobility revolution — will also depend on a backbone of mined products. For example, zero-emission vehicles on average require four times as much copper as conventional vehicles, and renewable energy systems can require 12 times as much copper as traditional systems.

Resilience

Other capital investment opportunities include but are not limited to: incremental regulated transmission investment opportunities and energy storage and contracted transmission projects at X; renewable energy investments, energy storage projects, grid modernization, infrastructure resiliency.

Governance

Nearly 50% of companies, mainly in the financial and energy sectors, provided disclosure on board oversight of climate-related risks and opportunities. The 2016 Study found that 27% of companies disclosed that the oversight for climate-related risks was the responsibility of the board or board subcommittees. Table 2 lists the results of the 2019 Study regarding governance disclosures in regulatory documents.

TABLE 2 – RESULTS FROM GOVERNANCE DISCLOSURES: TCFD RECOMMENDED DISCLOSURES ON GOVERNANCE

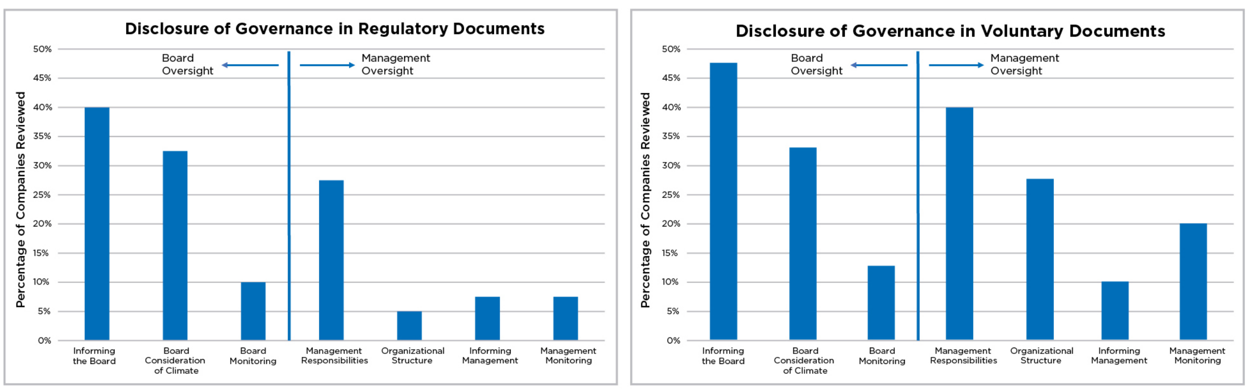
Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. **Board Oversight: board oversight of climate-related risks and opportunities**	**48%** described the board's oversight of climate-related risks and opportunities, including disclosures in one or more of the following: • the processes and frequency by which the board and/or board committees are informed about climate-related issues (40%) • whether the board and/or board committees consider climate-related issues when reviewing and guiding organizational strategic and operational activities (33%) • how the board monitors and oversees progress against goals and targets for addressing climate issues (10%)
2. **Management Responsibility: management's role in assessing and managing climate-related risks and opportunities**	**35%** described management's role in assessing and managing climate-related risks and opportunities, including disclosures in one or more of the following: • whether climate-related issues are assigned to management-level positions or committees (28%) • a description of the overall organizational structure (5%) • processes by which management is informed about climate-related issues (8%), and • how management monitors climate-related issues (8%)

Governance disclosure on board oversight is improving; however, disclosure on management oversight is lacking in regulatory filings

Governance disclosure trends were similar for both regulatory and voluntary disclosures. In total, 30% of companies across all sectors provided company-specific details in their regulatory governance disclosures: 20% of companies provided boilerplate disclosures. Board oversight of climate-related risks and opportunities in regulatory and voluntary filings was disclosed more often than management's role in assessing and managing climate-related risks and opportunities. Forty-eight per cent of companies (concentrated mostly in the financial and energy sectors) provided disclosures on board oversight of climate-related risks and opportunities in their regulatory disclosures.

Companies disclosed specific roles and/or management oversight of climate-related issues in both regulatory and voluntary disclosures. However, the organizational structure, management processes, and processes for monitoring climate-related issues were largely disclosed in voluntary reports. This could indicate that management structures around climate-related issues are still emerging or can be highly dependent on the underlying company structure.

FIGURE 3 – DISCLOSURES OF GOVERNANCE IN REGULATORY AND VOLUNTARY DOCUMENTS



Selected Examples of Company-specific Disclosure with Detailed Discussion on Governance

Examples from Regulatory Filings

- The Environmental and Social (E&S) Committee is chaired by the President and Chief Executive Officer, and includes each of the regional Chief Operating Officers, Mine General Managers and health, safety, environment and closure leads, as well as the Group Sustainability Executive and an independent sustainability consultant. The E&S Committee meets each quarter to review the Company's sustainability performance and compliance with its sustainability policies, as well as to identify concerns and opportunities at the Company's operations at an early stage. The President & Chief Executive Officer reviews the reports of the E&S Committee with the Corporate

Governance & Nominating Committee on a quarterly basis as part of the Committee's mandate to oversee X's environmental, safety and health, corporate social responsibility, and human rights programs, policies and performance.

- In regards to overseeing and seeking to ensure that the Corporation consistently achieves strong environment, health and safety ("EH&S") performance, the Governance Safety and Sustainability Committee ("GSSC") undertakes a number of actions that include: i) receiving regular reports from management regarding environmental compliance, trends, and X's responses; ii) receiving reports and briefings on management's initiatives with respect to changes in climate change legislation, policy developments as well as other draft initiatives and the potential impact such initiatives may have on our operations; iii) assessing the impact of the greenhouse gas (GHG) policies implementation and other legislative initiatives on the Corporation's business.

Example from Voluntary Reporting

- Every year, at least one Audit Committee meeting covers environmental performance, including climate-related risks, performance in terms of energy consumption and greenhouse gas (GHG) emissions, and the results of energy savings initiatives. The Chair of the Audit Committee provides an annual report to the Board on environmental performance, including issues related to climate change.

Trends and Examples of Generic Governance Disclosures

- Companies listed the committees / teams responsible for managing and reporting on climate risks but neglected to include timelines (i.e., how many times a year the committee meets to discuss climate change).
- Companies mentioned that certain committees / teams had oversight of environmental matters (including climate change) but did not specify how climate change was specifically addressed within the larger environmental context.
- Companies did not discuss climate-related impacts in the short-, medium-, and long-term time horizons, and this was generally applicable to more detailed disclosures as well.
- In a particularly illustrative example, a company mentioned that the board oversees an effective internal risk-control culture, including climate risks, and accomplishes its mandate through committees such as the Risk Committee and Corporate Governance Committee. The company did not provide further detail on how climate change is considered in the risk-control culture.
- In another illustrative example, a company noted that their board received a presentation from external consultants regarding the Paris Climate Agreement and what it might mean for the company and its industry in North America. However, the company did not provide any information on actions stemming from that report.

Strategy

More than three quarters of companies reviewed (80%) disclosed information on their climate related strategies (e.g., implementing internal carbon-pricing mechanisms, transitioning to renewable energy sources etc.). Table 3 lists the results of this study regarding strategy disclosures in regulatory documents.

TABLE 3 – RESULTS FROM STRATEGY DISCLOSURES: TCFD RECOMMENDED DISCLOSURES ON STRATEGY

Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. Time Periods: Climate-related risks and opportunities identified by the organization over multiple time periods	**35%** described the climate-related risks and opportunities they had identified over the short-, medium-, and long-term, including one or more of the following: • what they consider to be the relevant short-, medium-, and long-term time horizons (8%) • specific issues for each time horizon (18%) • the process for determining which risks and opportunities could have a material financial impact on the company (15%)
2. Impact: Impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning	**80%** described the impact of climate-related risks and opportunities on the organization, including one or more of the following: • impact on business and strategy (73%) • how these issues are input into their financial planning process, the time period(s) used, how they are prioritized, and the impact on operating costs and revenues, capital expenditures and allocation, acquisitions or divestments, and access to capital (8%) • how interdependencies among the factors affect the company's ability to create value over time (8%) • impact on financial planning (35%) • a description of any climate scenarios used, if any (10%)

Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
3. Climate Scenarios: Resilience of the organization's strategy, taking into account different climate-related scenarios	**5%** described the resilience of the organization's strategy taking into account different forward-looking climate-related scenarios (including a 2°C or lower scenario), including one or more of the following: • how their strategies are likely to perform under various climate-related scenarios (e.g., potential effects under different scenarios) (5%) • any resulting changes to the company's strategy and financial planning in order to mitigate risks and take advantage of climate-related opportunities (3%)

Most companies disclosed climate-related risks and opportunities and their impact on business and financial planning in their regulatory disclosures

A large majority of companies reported information on their climate-related strategies. The most common disclosure under the strategy category focused on the impacts of climate-related risks and opportunities on the company's business, strategy and financial planning. Large Canadian companies are beginning to acknowledge climate-change impacts. In both voluntary and regulatory documents, double the number of companies disclosed the impact of climate-related risks and opportunities on the organization's business, strategy and financial planning (80% in regulatory and 68% in voluntary) as disclosed for either climate-related risks and opportunities identified by the organization over multiple time periods (35% in regulatory and 38% in voluntary) or the resilience of the organization's strategy, taking into account different climate-related scenarios (5% in regulatory and 15% in voluntary).

From the eight sectors reviewed, all the utilities-sector companies included strategy-related information in their regulatory disclosures. The information provided through these disclosures, however, was not sufficient for users to understand how these strategies were implemented. This suggests that these climate-related strategies may be in their early stages of development or not yet fully integrated into existing enterprise risk-management tools and corporate strategies.

The results of our analysis also empowered us to further the use of renewable energy in our operations. External to the company, we put a focus on designing renewable energy and reducing the overall energy needs of our projects. We evaluated how we could better connect our various design services in wind, solar, hydropower, battery storage systems, and cogeneration. We looked at financing trends for renewable energy projects and the role we could play.

(Disclosure found in the response to a CDP questionnaire of a company in the industrials sector)

A limited number of companies disclosed the details of their climate-related scenarios

Only two companies (one from the industrials sector and one from utilities) disclosed the results of their climate-related scenarios. An additional four, or a total of 15% of companies, disclosed that they conducted a scenario analysis but did not provide their results for interpretation and analysis.

Three companies (one each from the materials, telecommunication services, and financial sectors) disclosed they conducted scenario analysis in their regulatory disclosures. In voluntary disclosures, three companies (one each from the energy, materials, and financial sectors) also disclosed they had conducted scenario analysis.

Disclosures on how climate issues were integrated into business planning and strategy processes remain limited

While companies disclosed climate impacts, they did not necessarily disclose how climate issues are integrated into business planning and strategic processes. In both regulatory and voluntary reporting, there were numerous disclosures about the impact of climate-related risks and opportunities on the company's business, strategy, and financial planning (80% of companies in regulatory filings and 68% in voluntary documents). In regulatory filings, however, fewer than 10% of companies disclosed how climate impacts were input into financial planning processes; twice this number (20%) disclosed this in voluntary reporting.

The 2019 Study found that disclosures related to the integration of climate issues into business planning and strategy appeared more frequently in voluntary reports from companies in the energy, financial, industrial, and utilities sectors. The absence of this information from regulatory filings may indicate these processes have yet to reach the maturity threshold to be included in mainstream reporting.

Selected Examples of Company-Specific Disclosures on Strategy With Detailed Discussion

Examples from Regulatory Filings

- The potential physical impacts of climate change on our operations are highly uncertain, and could be particular to the geographic circumstances in areas in which we operate and may include changes in rainfall, storm patterns and intensities, water shortages, rising water levels and changing temperatures. These factors may impact our decisions to construct new facilities or maintain existing facilities in areas most prone to physical climate risks. We could also face indirect financial risks passed through the supply chain and process disruptions due to physical climate changes could result in price modifications for our products and the resources needed to produce them.
- Climate change may have an adverse effect on our operations or on demand for our products. Climate change may, among other things, cause or result in sea level increases, changes in precipitation, changes in fresh water levels, increases in extreme weather events, melting permafrost in the Arctic and resource shortages. While our operations are located well above sea level, an increase in sea level could affect our ocean transportation and shipping facilities. Extreme weather events have the potential to disrupt operations at our X and to impact our transportation infrastructure, including by affecting the length of our shipping season at our X. Climate change may also result in shortages in certain consumables and other products required to sustain our operations, and any such shortage could impact our production capacity. Our X is located in the Arctic and could be materially impacted by melting permafrost.
- Climate change may have similar impacts on our customers, reducing demand for our products. In addition, government action to address climate change and societal pressures towards a lower-carbon economy may reduce the demand for our products. Climate change may result in increased regulations for our operations or those of our customers and/or restrict the development of our projects, which may increase costs and/or limit production.
- Concerns regarding climate change may lead to further changes in legal and regulatory regimes, and technological development of alternatives to certain of our products, such as X. Although we make efforts to anticipate potential costs associated with climate change to mitigate the physical risks of climate change, and work with governments to influence regulatory requirements regarding climate change, there can be no assurances that these efforts will be effective or that climate change or associated governmental action will not have an adverse impact on our operations and therefore our profitability.

Examples from Voluntary Reporting

- Our approach includes quantifying risks and opportunities stemming from climate-change issues with a view to leveraging X's products and services to enable carbon reduction. This entails identifying the potential impact of severe weather on our operations with our business continuity team as it assesses threats, vulnerabilities, and impacts on our business and develops risk-mitigation plans. We monitor the potential for current and future climate-related legislation, policy, and regulations that may affect our business, and report on these findings to our internal Health, Safety, Security, Environment and Compliance HSSEC committee twice a year.

Trends and Examples of Generic Strategy Disclosures

- Companies noted climate-related policy initiatives and regulations that have the potential to disrupt the company's operations, such as carbon taxes, but did not provide detail on the impact of these initiatives / regulations for the company.
- Companies acknowledged that climate change may be a driver that exacerbates other risks including financial, legal, and reputational risks. These companies also stated that they were taking steps to better understand and respond to climate-related risk but provided no indication of what these steps entail.
- Companies observed that climate impacts may adversely affect their finances and operations but stated that climate change is unpredictable and that no conclusions / projections / actual lessons for the company could be drawn.
- Companies acknowledged that environmental risk, including climate change, has the potential to result in strategic, financial, operational or reputational value losses and stated that the management of environmental risk is a company-wide priority.
- Companies concluded that climate change presents both opportunities and challenges for the industry and stated that they are seeking to take advantage of climate-related opportunities through unspecified innovations and to mitigate risks for their properties through unspecified means.

Risk Management

Approximately half the companies in the 2019 Study disclosed their processes for identifying and/or managing climate-related risks and opportunities, but there were fewer disclosures regarding the integration of these risks and opportunities into a company's overall risk-management framework.

Table 4 lists the results of this study regarding risk-management disclosures in regulatory documents.

TABLE 4 – RESULTS FROM RISK MANAGEMENT DISCLOSURES: TCFD RECOMMENDED DISCLOSURES ON RISK MANAGEMENT

Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. Identifying: processes for identifying and assessing climate-related risk	**50%** described processes for identifying and assessing climate-related risk, including one or more of the following: • processes for identifying and assessing climate-related risks (43%) • how the company determines the relative significance of climate-related risks in relation to other risks (10%) • how the company considers existing and emerging climate-related factors and developments (10%) • processes for assessing the potential size and scope of climate-related risk (3%) • references to or definitions of risk terminology and existing risk classification frameworks (18%)
2. Managing: processes for managing climate-related risk	**53%** described processes for managing climate-related risk, including one or more of the following: • processes for managing climate-related risks, including how decisions are made to mitigate, transfer, accept or control those risks (50%) • processes for prioritizing climate-related risks, including how materiality determinations are made within their organizations (8%)
3. Integration: how processes for identifying, assessing, and managing climate-related risk are integrated into overall risk management	**20%** described how they integrated the subsequent TCFD-recommended processes into overall risk management, including one or more of the following processes for: • identifying climate-related risks (20%) • assessing climate-related risks (13%) • managing climate-related risks (13%)

Approximately half of the companies disclosed their processes for identifying and/or managing climate-related risks and opportunities in their regulatory documents

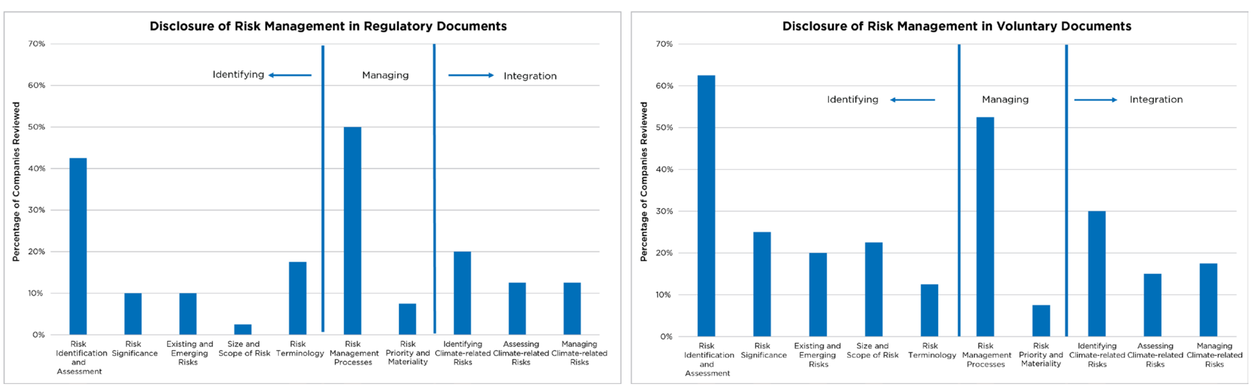
In regulatory documents, 68% of companies disclosed in at least one of the three risk management subcategories. However, only two of the 40 companies reviewed (both from the materials sector) provided company-specific discussion in their risk management disclosures. In fact, companies were more likely to disclose their processes for identifying and assessing climate-related risk than their processes for managing that risk, and there were fewer disclosures regarding the integration of risks into a company's overall risk management framework. The same percentage of companies disclosed in this category in voluntary documents (68%).

Regulatory filings tended to focus on whether a company had processes for identifying and managing climate-related risk either by naming a particular process or providing an example. However, significantly more detail on climate-risk management was found in voluntary disclosures; 28% of companies provided company-specific detail compared to only 5% in regulatory documents. Some examples of detailed disclosure on climate-risk management found in voluntary documents include:

- identifying the management framework used to integrate climate-related issues into business objectives and strategy
- describing the impact managing climate-related issues will have on external stakeholders
- describing how a company's service offerings fit into the main components of its climate-related risk-management strategy

More disclosure about integration of climate risk into risk-management processes was found in voluntary (30%) than in regulatory (20%) reports. In voluntary reports, companies from the energy, financial, industrial, materials, and utilities sectors included information on how their climate-related risk-management processes were integrated into the overall company risk management.

FIGURE 4 - DISCLOSURES OF RISK MANAGEMENT IN REGULATORY AND VOLUNTARY DOCUMENTS



Financial sector companies consistently included risk-management information in their disclosures

In both regulatory and voluntary documents, a small number of companies disclosed how processes for identifying, assessing, and managing climate-related risks were integrated into overall risk management (20% for regulatory and 30% for voluntary). Companies in the financial sector tended to have the most detail about the integration of climate risk into risk management practices, such as the example in the call-out below:

> As part of our enterprise risk management framework and credit risk management framework, we evaluate the environmental and social risk associated with credit and counterparty transactions and exposures. We have developed and implemented specific financing guidelines to address environmental and social risks for specific lines of business. To limit our potential exposure to clients' environmental risks, we apply enhanced due diligence to transactions with clients operating in environmentally sensitive industry sectors, and we avoid doing business with borrowers that have poor environmental and social risk management track records.
>
> (Disclosure found in the Management Discussion and Analysis (MD&A) of a company in the financial sector)

The financial sector companies included in the 2019 Study, consistently included climate-related risk management information in their disclosures. Of the nine financial-sector companies included in the 2019 Study, there was at least one and as many as seven companies that disclosed in every subcategory in regulatory filings. No other sector had such consistent disclosure within a specific category.

Selected Examples of Company-Specific Disclosure on Risk Management With Detailed Discussion

Examples from Regulatory Filings

- In 2018, climate change was incorporated into X's formal risk assessment process, whereby sites included climate-related factors into their risk assessment process (e.g., by considering the impact of increased precipitation, drought, or severe storms on operations as well as on communities near our operations). This followed the risk and opportunity assessment we conducted in 2017, where we identified three primary climate-related risks and opportunities for our business: an increase in extended duration extreme precipitation events; an increase in climate-change regulations to limit greenhouse gas ("GHG") emissions; and increased global investment in innovation and low-carbon technologies

- X acquired the X project in 2013 after procurement of the power plants. The outcome of an alternatives analysis of available power sources in X conducted at the time by the previous owner informed the decision to use coal. Although the power plants will increase the Company's carbon emissions, the Company has installed appropriate technology to ensure compliance with (International Finance Corporation) IFC General Environmental, Health and Safety Guidelines (2007), the IFC EHS Safety Guidelines for Thermal Power Plants (2008) and IFC Standards for Air, Water and Noise emissions, which are stricter than the Panama standards.

Examples from Voluntary Reporting

- The Carbon Management Critical Competency Network also provides corporate guidance and recommendations around the growing financial risks and value of carbon and contributes information to the Executive Health, Safety and Environment Committee on a regular basis. This information is also incorporated into X's enterprise risk matrix, where climate-related risks are assessed alongside other critical risks to the Company. Risks deemed to have substantive financial impact to the company (greater than $10,000,000) are highlighted for additional scrutiny. The Carbon Management Regulatory Monitoring Committee monitors emerging regulations related to carbon, including carbon pricing, methane regulations, and clean fuel standards.

Trends and Examples of Generic Risk-Management Disclosures

- Multiple companies considered climate-related risks but concluded none of these risks (either individually or collectively) was material over the short-to-medium term.
- Companies disclosed they undertook to a process to identify, assess and report on significant climate-related business risks in order to develop a plan to mitigate those risks. However, these disclosures did not provide details on the risk management or mitigation plans.
- Financial institutions disclosed they measured and identified climate-related risks and also monitored leading thinking from the federal and provincial governments on climate-related issues. There was no indication of what actions were taken to address identified climate risks or how leading government thinking is integrated into business practices.
- Some companies indicated they are taking a step-by-step approach to managing climate-change issues as opposed to a more deliberate response because potential climate risks and opportunities vary too much for a coherent and defined policy to be developed in response.

Metrics and Targets

The 2019 Study showed that a majority (53%) of companies disclosed metrics used to assess climate-related risks and opportunities. Nearly every company across all industries included in the study used GHG emissions as a metric. Table 5 lists the results of this study regarding metrics and targets disclosures in regulatory documents.

TABLE 5 – RESULTS FROM METRICS AND TARGETS DISCLOSURES: TCFD RECOMMENDED DISCLOSURES ON METRICS AND TARGETS

Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
1. Key Metrics: metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk-management processes	**55%** disclosed the metrics used to assess climate-related risks and opportunities in line with its strategy and risk-management practices, including one or more of the following: • providing key metrics used to measure and manage some climate-related risks and opportunities (55%) • providing metrics over a historical period to allow for trend analysis (3%) • describing methodologies used to calculate or estimate these key metrics where they were not apparent (5%)
2. GHG Emissions: disclosure of Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions and the related risks	**15%** disclosed GHG emission figures including one or more of the following: • Scope 1 and Scope 2 GHG emissions (calculated in line with the GHG Protocol methodology[9]) (15%) • if appropriate, Scope 3 GHG emissions (3%) • providing generally accepted sector-specific GHG efficiency ratios (3%)

9 "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (World Business Council for Sustainable Development). The TCFD has acknowledged the GHG Protocol as the most widely recognized and used international standard for calculating GHG emissions.

Sub-Category	Percentage of Companies Disclosing in Line With TCFD Recommendations
3. Targets: to describe the targets used by the organization to manage climate-related risks and opportunities, and performance against those targets	**30%** described key targets used by the organization to manage climate-related risks and opportunities and performance against targets, including one or more of the following: • key climate-related targets such as those in line with anticipated regulatory requirements or market constraints or other goals, including: — whether targets are absolute or intensity based — the time frame over which a target applies — the base year from which the target is measured — key performance indicators used to assess performance against targets (30%) • a description of the methodologies used to calculate and measure targets (3%)

Companies have increased their disclosure on climate-related metrics and targets; however, most of the information remains in voluntary reports

In regulatory documents, 53% of companies disclosed metrics used to assess climate-related risks and opportunities; 83% reported this information in voluntary filings. The 2016 Study found that 28% of companies used metrics to quantify climate-related risks and opportunities.[10]

The majority of disclosures on metrics and targets were found in voluntary rather than regulatory reporting. In voluntary documents:

- 83% of companies disclosed metrics used to assess climate-related risks and opportunities
- 80% of companies disclosed Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions
- 78% of companies disclosed targets used by the organization to manage climate-related risks and opportunities

Disclosure about targets was found more often in voluntary reports, with 78% of companies disclosing (as opposed to 30% in regulatory), but there was generally insufficient explanation of how these targets were relevant or material to the disclosing company. Companies tended to either disclose sector-wide climate targets (e.g., the whole forestry sector); or set out company-specific targets without discussing the methodology used to

10 2016 Study, p. 27.

establish them. Targets are difficult to compare between companies or sectors because some companies based their targets on absolute emissions, while others calculated their targets per square foot, among other measures.

> To demonstrate our commitment to reducing our impact on climate change, we have the following goals:
>
> - reduce our absolute domestic energy consumption by 10 per cent from 2010 levels by 2020
> - reduce our absolute domestic greenhouse gas (GHG) emissions by 25 per cent from 2010 levels by 2020.
>
> (Disclosure found in the Annual Information Form (AIF) of a company in the telecommunication services sector)

In voluntary reporting, companies from all sectors widely disclosed metrics and targets, as well as GHG emissions, including Scope 3. Similarly, for regulatory disclosures, companies across all sectors included high-level information on key metrics and targets used to manage some climate-related risks and opportunities. This could be indicative of the growing consideration of climate-related risk as a material business issue.

Metrics and Targets disclosures remain focused on energy use and GHG emissions

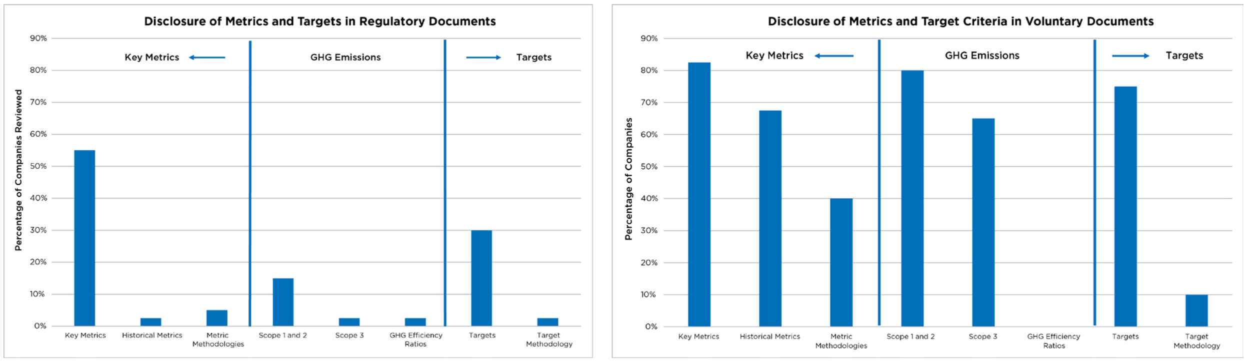
In regulatory and voluntary documents, the most commonly disclosed metrics include energy use and GHG emissions. Companies disclosing other metrics disclosed, for example, CDP scores and measures of energy use and fuel efficiency.

> We further committed to the Canadian forest products industry's pledge to remove 30 megatonnes (MT) of CO_2 per year by 2030 – more than 13% of the Canadian government's emissions target. We continue to invest in bioenergy systems that more effectively capture the heat and steam generated during the production of wood products and other future relevant technology as it continues to improve.
>
> (Disclosure found in the Sustainability Report of a company in the materials sector)

Six companies (15%) (representing all sectors except consumer staples) disclosed GHG emissions in regulatory reporting. The 2016 Study found 8% of companies disclosed GHG emissions in regulatory filings.[11] This 15% of companies from the 2019 Study can be further contrasted with 80% of companies disclosing GHG emissions in voluntary reporting.

11 2016 Study, p. 29.

FIGURE 5 – DISCLOSURES OF METRICS AND TARGETS IN REGULATORY AND VOLUNTARY DOCUMENTS



Reporting on performance against climate-related targets remained limited, especially in regulatory documents

In total, 30% of companies disclosed climate-related targets (e.g., GHG emission reductions, developing sustainable energy solutions, and reducing fuel consumption) in regulatory documents, but only 12% of companies disclosed performance against those targets. These numbers significantly jumped in voluntary documents where 78% of companies disclosed climate-related targets and 45% of all companies disclosed performance against targets. A majority of companies that disclosed their performance noted they met or were on track to meeting their targets.

> X believes it is a top quartile performer with one of the lowest GHG emissions intensity operations in the in situ oil sands industry. For full-year 2018, X's overall net GHG emissions intensity was approximately 20% below the in situ industry average, determined using third party verified methodology.
>
> (Disclosure found in the Annual Information Form (AIF) of a company in the energy sector)

> In line with our commitment to environmental responsibility, X has established greenhouse gas emissions reduction targets across our corporate real estate and real estate investment portfolios. We are on track to achieve targeted reductions of 20% per square foot by 2020 and 30% per square foot by 2030.
>
> (Disclosure found in the Annual Information Form (AIF) of a company in the financial sector)

Selected Examples of Company-Specific Disclosure on Metrics and Targets With Detailed Discussion

Examples from Regulatory Filings

- X's absolute emissions increased 5.8 percent in 2017 compared to 2016. The primary reason was an increase in the Company's footprint in the area of raw material acquisition and product manufacturing from our retail banners due to increased volumes of product and sales of product within more energy intensive product categories. Greenhouse gas (GHG) emissions also increased from third-party transport due to more product volume and weight shipped by all transport modes. The Company has reduced its footprint from business and retail operations by 9.1 percent since 2011, achieving 41.3 percent of the 2022 target and transportation has remained relatively flat.
- In 2018, we estimate that 20.8 million tonnes of greenhouse gases (GHGs) with an intensity of 0.77 tonnes per MWh (2017-29.9 million tonnes of GHGs with an intensity of 0.86 tonnes per MWh) were emitted as a result of normal operating activities. Our significant reduction in GHG emissions is the result of coal closures and reduced coal power generation from our X facility in Alberta and increased co-firing with gas at our merchant coal facilities. Notably, our 2018 emissions reductions, supported achieving our 2021 target to reduce GHG emissions by 30 per cent over 2015 levels of 32.2 million tonnes CO_2e.

Examples from Voluntary Reporting

- In 2017, the global absolute greenhouse gas (GHG) emissions (direct and indirect) from all our manufacturing facilities and office locations, increased by 26% when compared to those of 2015. Specifically, in 2017, our absolute GHG emissions were measured at 578,791 tCO_2eq compared to 500,251 tCO_2eq in 2016.

Trends and Examples of Generic Metrics and Targets Disclosures

- Companies mentioned GHG reductions targets but gave no rationale for the level of reduction that had been set.
- Companies did not provide detailed discussion or link metrics and targets to their strategy and risk-management process.
- Companies stated they measured or tracked climate-related risks but offered no indication as to how that measurement or tracking was done, or what risks may have been identified.
- Companies disclosed they have GHG reduction targets but did not always specify them. They also noted they are investing in renewable energy but also did not give any specifics on these investments.

- In a particularly illustrative example, a financial institution mentioned its green bond had resulted in X tonnes of CO_2 emissions avoided for every X amount of money invested but did not specify how many tonnes of CO_2 emissions had actually been avoided, or how this avoidance was being measured or verified.

Recommendations for Improving Climate-Related Disclosure

While the 2019 Study showed improvements in the climate-related disclosures of Canadian companies, they still appear to lack the scale and quality needed to satisfy investor demands.

What practical steps can be taken by organizations to improve climate-related disclosures?

1. **Build an understanding** of the regulatory and reporting landscape to:
   - Determine the applicable climate-related disclosure requirements for your organization.
   - Develop and use consistent language to describe climate-related risks and opportunities across the organization, in alignment with the TCFD, that is both reflective of the organization and that resonates with key stakeholders, including investors.
2. **Establish leadership** on climate-related disclosures across the organization to:
   - Increase climate literacy at all levels throughout the organization.
   - Attract executive sponsorship to create a consistent and strong "tone from the top" which is critical for the successful implementation of climate risk and opportunity management processes and reporting.
   - Increase board engagement in overseeing climate-change issues.
3. **Perform an assessment** that will identify material climate-related financial risks and opportunities to:
   - Inform business operations and future strategies.
   - Increase transparency on how your organization assesses climate-related risks and opportunities with the expectation improving climate-related disclosures should lead to the emergence of best practices for disclosure across sectors.
4. **Develop an approach** that is well researched, accountable, and uniform for climate-related disclosure to:
   - Build cross-functional teams and establish accountability structures or measures.
   - Understand how the organization collects and analyzes climate-related information, including processes for ensuring accuracy and reliability.
5. **Continue to engage** peers, investors, and other stakeholders on best practices for climate-related disclosure to:
   - Enable your organization to proactively adapt over time, recognizing that disclosure requirements and best-practices for climate-related reporting will continue to evolve.

Appendix 1: Scope and Methodology

CPA Canada commissioned Mantle314 Inc. to conduct a study of the climate-related disclosures provided by 40 TSX-listed companies[12] in their regulatory and voluntary reporting. The study also assessed how the company disclosures aligned with the TCFD Recommendations.

The study assessed the 2018 financial statements, AIF, MD&A, and information circulars for the companies under review. In addition, available voluntary disclosures[13] such as corporate social responsibility (CSR) / sustainability reports, and CDP[14] reports were also reviewed to assess how voluntary reporting compared to mandatory reporting.

This report focuses on findings from regulatory disclosures unless explicitly stated otherwise.

Climate-related disclosures made by issuers were assessed across the four main TCFD-recommended categories and 11 subcategories.[15]

FIGURE 6: TCFD RECOMMENDATIONS AND SUPPORTING RECOMMENDED DISCLOSURES

Category	Recommendations	Supporting recommended disclosures
Governance	Disclose the organization's governance around climate related risks and opportunities.	1. Describe the board's oversight of climate-related risks and opportunities. 2. Describe management's role in assessing and managing climate-related risks and opportunities.
Strategy	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.	1. Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term. 2. Describe the impact of climate- related risks and opportunities on the organization's businesses, strategy, and financial planning. 3. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

12 Representing 50% of the market capitalization of the S&P/TSX Composite Index, as of January 8, 2019.

13 Out of the 40 companies reviewed, 38 had recently published voluntary reports.

14 Formerly known as the Carbon Disclosure Project.

15 Figure 1 taken from TCFD Recommendations, p. 14.

Category	Recommendations	Supporting recommended disclosures
Risk Management	Disclose how the organization identifies, assesses, and manages climate-related risks.	1. Describe the organization's processes for identifying and assessing climate-related risks. 2. Describe the organization's processes for managing climate-related risks. 3. Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.
Metrics and Targets	Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.	1. Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process. 2. Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks. 3. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

The study focused on larger public issuers. Twelve out of the 40 companies reviewed have publicly stated their support for the TCFD Recommendations and have a demonstrated record in providing climate-related disclosures.[16]

Companies were selected from the following eight sectors:

1. consumer discretionary (4)
2. consumer staples (1)
3. energy (7)
4. financials (9)
5. industrials (6)
6. materials (mining and forestry) (7)
7. telecommunication services (3)
8. utilities (3)

16 Climate leaders were identified by determining that they were public supporters of the TCFD and/or had a minimum CDP score of B-.

The Canadian public companies that have officially supported the TCFD Recommendations are listed on the TCFD website, and are current as of January 28, 2019.

Given the limited sample size included in the study, caution should be exercised in drawing broad conclusions.

The 2016 Study sample was determined on a different basis. Please see Appendix A of the 2016 Study for details.

Supplementary Information and Resources

Source	Title	Publication Date
CPA Canada	Disclosing the Impacts of Climate Change: A Process for Assessing Materiality	2019
CPA Canada	Webinar – Scenario Analysis and TCFD Climate Risk Disclosure: The Next Frontier in Corporate Reporting?	2019
CPA Canada	Investor Interviews on Climate Disclosure and Decision-making: Key Findings	2019
CPA Canada	Task Force on Climate-related Financial Disclosures: Overview	2018
Sustainability Accounting Standards Board (SASB) and Climate Disclosure Standards Board (CDSB)	TCFD Implementation Guide	2019

Appendix 2: Growing Momentum for Climate-Related Disclosures

International and domestic support for the TCFD Recommendations and disclosure obligations is growing. Below are a few highlighted examples that support this shift:

International Momentum

- May 2018: The EU Commission adopted a package of measures implementing key pieces of its action plan on sustainable finance, including benchmarks, disclosure, and taxonomy.[17]
- June 2019: The European Commission published guidelines to improve how companies report climate-related information.[18]
- As of 2020: The UN Principles for Responsible Investment (PRI) has made TCFD-recommended reporting mandatory for its 2,250 signatories representing $83 trillion of assets under management.[19]
- The UN Sustainable Stock Exchanges Initiatives and the Network for Greening the Financial System (NGFS) promote improved corporate disclosure for social and environmental issues, including climate change.[20]

CSA Staff Notices on Climate Change-Related Disclosures

CSA Staff Notice 51-354 *Report on Climate change-related Disclosure Project* (published April 2018) reported on findings of the CSA project that reviewed the risks and financial impacts associated with climate change, disclosed by reporting issuers. The notice summarized the work completed, findings from the project and recommended areas of future work.

CSA Staff Notice 51-358 *Reporting of Climate Change-related Risks* (published in August 2019) provided issuers with guidance on how they might approach preparing disclosures of material climate change-related risks. The notice does not create any new legal requirements or modify existing requirements. The notice reinforces and expands upon the guidance provided in CSA Staff Notice 51-333 *Environmental Reporting Guidance* (published in October 2010).

17 "Commission legislative proposals on sustainable finance" (European Commission, May 2018).

18 "Guidelines on reporting climate-related information" (European Commission, June 2019).

19 "TCFD-based reporting to become mandatory for PRI signatories in 2020" (UNPRI, February 2019)

20 "TMX Joins UN Sustainable Stock Exchanges Initiative" (Newswire, February 19, 2019).

Canadian Momentum

April 2018: The Canadian Securities Administrators (CSA) Staff Notice 51-354 Report on Climate change-related Disclosure Project was published in response to the demand for better reporting on climate-change risks and opportunities by investors (see side bar).

- 2019: In response to climate-related disclosure issues, CPA Canada released the report *Progressive Investors and Corporate Disclosure*[21] based on interviews conducted with 10 institutional investors to assist corporations in providing better decision-useful climate-related financial disclosures.
- February 2019: The Toronto Stock Exchange, joined the UN Sustainable Stock Exchanges Initiative.[22]
- March 2019: The Bank of Canada joined with the Central Banks' and Supervisors' NGFS.
- June 2019: The Government of Canada's Expert Panel on Sustainable Finance published its recommendations which focused on mobilizing the Canadian financial sector for sustainable growth and made specific recommendations about TCFD implementation among Canadian issuers.[23]
- May 2020: The federal government has required all LEEFF program recipients to include climate-related disclosures aligned with TCFD as part of their annual reporting. Canadian companies make up 4.2% of all TCFD supporters globally.[24]

21 "Progressive Investors and Corporate Disclosure: The Unstoppable Transition to a Resilient, Low Carbon Economy" (CPA Canada, 2019) [2019 Climate Investor Report].

22 "TMX Joins UN Sustainable Stock Exchanges Initiative" (Newswire, February 19, 2019).

23 "The Final Report of the Expert Panel on Sustainable Finance" (Government of Canada, June 2019).

24 The list of supporters that have officially supported the TCFD Recommendations and are listed on the TCFD website: www.fsb-tcfd.org/tcfd-supporters.

Appendix 3: Glossary

TCFD Definitions: Climate-Related Risks and Opportunities

For a list of climate-related risks and opportunities, as defined in the TCFD Recommendations, see Tables 6 and 7 immediately below. The TCFD notes that transition risks (i.e., risks associated with the transition to a lower-carbon economy) include policy risk, litigation or legal risk, technology risk, market risk, and reputation risk.[25]

TABLE 6 – CLIMATE-RELATED RISKS AS DEFINED BY THE TCFD

Risk Category	Definition from TCFD Recommendations[26]
Chronic Physical Risk	Chronic physical risks refer to longer-term shifts in climate patterns (e.g., sustained higher temperatures) that may cause sea-level rise or chronic heat waves.
Acute Physical Risk	Acute physical risks refer to those that are event-driven, including increased severity of extreme weather events, such as cyclones, hurricanes, or floods.
Transition: Policy Risk	Policy actions around climate change generally fall into two categories: policy actions that attempt to constrain actions that contribute to the adverse effects of climate change, or policy actions that seek to promote adaptation to climate change. The risks associated with, and the financial impacts of policy changes depend on the nature and timing of the policy change.
Transition: Litigation or Legal Risk	Recent years have seen an increase in climate-related litigation claims being brought before the courts by property owners, municipalities, states, insurers, shareholders, and public interest organizations. Reasons for such litigation include the failure of organizations to mitigate impacts of climate change, failure to adapt to climate change, and the insufficiency of disclosure around material financial risks. As the value of loss and damage arising from climate change grows, litigation risk is also likely to increase.
Transition: Technology Risk	Technological improvements or innovations that support the transition to a lower-carbon, energy-efficient economic system can have a significant impact on organizations. The timing of technology development and deployment, however, is a key uncertainty in assessing technology risk.

25 TCFD Recommendations, p. 5.

26 Definitions found in TCFD Recommendations, pp. 5-6.

Risk Category	Definition from TCFD Recommendations[26]
Transition: Market Risk	While the ways in which markets could be affected by climate change are varied and complex, one of the major ways is through shifts in supply and demand for certain commodities, products, and services as climate-related risks and opportunities are increasingly taken into account.
Transition: Reputation Risk	Climate change has been identified as a potential source of reputational risk tied to changing customer or community perceptions of an organization's contribution to or detraction from the transition to a lower-carbon economy.

TABLE 7 – CLIMATE-RELATED OPPORTUNITIES AS DEFINED BY THE TCFD

Opportunity Category	Definition from TCFD Recommendations[27]
Products and Services	Organizations that innovate and develop new low-emission products and services may improve their competitive position and capitalize on shifting consumer and producer preferences. Some examples include consumer goods and services that place greater emphasis on a product's carbon footprint in its marketing and labeling, and producer goods that place emphasis on reducing emissions.
Resource Efficiency	There is growing evidence and examples of organizations that have successfully reduced operating costs by improving efficiency across their production and distribution processes, buildings, machinery / appliances, and transport / mobility—in particular in relation to energy efficiency but also including broader materials, water, and waste management. Such actions can result in direct cost savings to organizations' operations over the medium-to-long-term and contribute to the global efforts to curb emissions.
Energy Source	According to the International Energy Agency (IEA), to meet global emission-reduction goals, countries will need to transition a major percentage of their energy generation to low emission alternatives such as wind, solar, wave, tidal, hydro, geothermal, nuclear, biofuels, and carbon capture and storage. Organizations that shift their energy usage toward low emission energy sources could potentially save on annual energy costs.

27 Definitions found in TCFD Recommendations, pp. 6-7.

Opportunity Category	Definition from TCFD Recommendations[27]
Markets	Organizations that pro-actively seek opportunities in new markets or types of assets may be able to diversify their activities and better position themselves for the transition to a lower-carbon economy.
Resilience	The concept of climate resilience involves organizations developing adaptive capacity to respond to climate change to better manage the associated risks and seize opportunities, including the ability to respond to transition risks and physical risks.

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