



Capital
Markets

Greening the Financial System

Practical Insights on Developing a Climate Risk
Management Strategy

AUGUST 2020

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EXECUTIVE SUMMARY

Climate change and extreme weather-related news stories dominated the end of the last decade. We can also anticipate that climate change will be a dominant theme in the coming decades that will influence public policy to support technologies, practices, and companies that are less carbon intensive. While the impact of the COVID-19 pandemic continues to be felt globally, climate change issues remain on the agenda of governments.

The undeniable interconnectedness of environmental and social issues in society today has spurred calls for a just transition that ensures environmental sustainability, as well as dignified work, social inclusion and poverty eradication. At the same time, the pandemic has exacerbated existing systemic inequalities. These two major systemic issues of our time, of climate change and socioeconomic inclusion, will require governments and regulators to thoughtfully consider the social consequences of any climate related policy initiative. While this report focuses on climate change, our subsequent publications will consider socioeconomic inclusion as the other driving force towards inclusive capitalism.

The need for urgent and decisive action to slow down the impact of climate change is clear, however, the path forward is uncertain because of the sheer size, complexity and scope of the challenge. At the same time, there is cause for optimism as many Canadian companies have emerged as leaders in developing and implementing ambitious policies on reducing carbon emissions. Further, balance is required to address the pressing issue of climate change and also maintain a fair and a level global playing field for Canada's natural resources industries.

Central banks and prudential regulators also now view climate change as a growing risk to financial stability and believe that intervention may be required from central bankers to mobilize the financial system, and therefore banks, to support the transition toward a sustainable economy. As part of these initiatives, the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) was formed to enhance the role of the financial system to “manage risks and to mobilize capital for green and low-carbon investments in the broader context of environmentally sustainable development.”¹ In Canada, both the Bank of Canada and the Office of the Superintendent of Financial Institutions (OSFI) have signaled that the role of climate will be considered in developing and implementing future public policy initiatives, although the direction at this time is unclear.²

The growing market for sustainable finance and Environmental, Social and Governance (ESG)³ financial products has also drawn the attention of market conduct regulators, including provincial securities commissions. These regulators established the Sustainable Finance Network (SFN) in 2018 and their efforts have focused on investor protection and market fairness issues that have emerged in the rapid expansion of sustainable finance markets.⁴ Due to a lack of standards and reliable data in early ESG markets, one of the key issues that has emerged is “greenwashing” – practices or disclosures that give a false impression about how well a product, firm or activity is aligned with ESG objectives.⁵ The SFN estimated that investment products which carry a “sustainable” label amounted to US \$30 to 80 trillion in 2018.⁶ Greenwashing undermines confidence in sustainable finance products and is an obstacle to their broader market adoption. To address greenwashing and to improve investor protection and market fairness more broadly, SFN regulators have focused on improving transparency and disclosures in the sustainable finance market.⁷

Not all market participants are enthusiastic about active regulatory intervention and critics argue that regulating “green finance” should be done through policy enacted by elected politicians.⁸ While the merits of this debate are outside the scope of this report, it is clear that regulators view climate risk as a source of financial risk and therefore, it is within their mandate to ensure that the financial system is resilient to these risks. Thus, as regulators integrate climate risks into their financial stability monitoring and supervision of banks, banks in turn, will also have to understand climate risks in their own portfolio.

Market participants view climate risk through the lens of both physical risk and transition risk. Physical risk related to climate change is easily understood – this is the risk of increased frequency and severity of wildfires, floods, and rising sea levels, among others, causing significant financial losses that could impact the financial system and the broader economy. Transition risk is more difficult to understand and quantify. Such risk will emerge through changes in technology, markets, legal frameworks and public sentiment, as well as government and regulatory policies to reduce carbon emissions that could cause some firms to become non-viable causing risk to financial stability.

GOVERNMENT AND REGULATOR ACTION

While the need to address climate risk is urgent, regulators should be careful not to front-run the private sector by imposing prescriptive regulations that could stifle innovation or have unintended consequences.⁹ The extraordinary shocks to the global economy and the health crisis caused by the COVID-19 pandemic has occupied federal governments and regulators this year, but as the world returns to new normalcy, regulatory actions must be principled, tailored and flexible. The private sector has an important role to drive innovative solutions to mitigate risks from climate change while the public sector, through smart regulation, can act as a catalyst in the development of these solutions.

This report considers the risks and opportunities our clients may face in transitioning to a “Greener Financial System.” We hope that this report provides practical guidance that our clients

may find helpful in developing their climate risk management strategy. Regulators have signaled the pressure points they will apply to banks: revisions to banks’ risk management practices relating to climate risks, including testing a bank’s resiliency to various climate scenarios and potentially capitalizing against climate risks in their portfolio; a call for additional disclosure of climate risks from all segments of the economy; and enacting policies to make sustainable investment mainstream.

As we can anticipate regulatory direction, there are some proactive steps clients can consider taking today to manage transition challenges related to climate change. Clients that are early adopters will be better positioned to take advantage of emerging opportunities during the transition and create a moat against competitors.

Regulatory Action	Potential Client Response
Bank regulators may integrate climate risks into financial stability monitoring, and supervision of banks.	<p>Recommendation # 1: Assess</p> <ul style="list-style-type: none"> • Evaluate and understand exposures to both the physical and the transition risks of climate change. • Build in-house expertise to respond to stakeholder (such as creditors, investors, rating agencies, customers and employees) inquiries on climate-related risks.
Regulators may require or incentivize comprehensive climate risk disclosures to bring climate risk and resilience in the heart of financial decision making.	<p>Recommendation # 2: Disclose</p> <ul style="list-style-type: none"> • Consider voluntary disclosure of climate-related financial risks and opportunities in accordance with market standards, such as those set by the Task Force on Climate-related Financial Disclosures (TCFD), a regulator-established industry task force (absent voluntary disclosures, third-party climate rating agencies will evaluate climate risk exposure that could result in inaccurate or incomplete conclusions).
Regulators may integrate Environmental, Social and Governance (ESG) principles into their own portfolio management.	<p>Recommendation # 3: Adapt</p> <ul style="list-style-type: none"> • Develop products and services that will hold up well to regulatory and stakeholder scrutiny and indeed can be a source of a competitive advantage.

RBC’s approach to sustainability is central to our business and to our stated purpose, which is to help clients thrive and communities prosper. We have undertaken a number of climate risk mitigating measures in our own internal operations and believe that sustainable finance represents a growth opportunity for our business and our clients. We are committed to an enterprise climate strategy to accelerate clean economic growth and support our clients.

A transition to a new, sustainable financial system will create tremendous opportunities for those who are ready, able and willing to seize them – RBC is looking forward to engaging with our clients in these efforts.

“The transition to a carbon-neutral economy provides opportunities, not just risks. By shifting the horizon away from the short term and contributing to a more sustainable economic trajectory, the financial sector can become a powerful force acting in our collective best interest. The future path for carbon emissions and the climate is uncertain, but it remains within our power to influence it.”¹⁰

– Christine Lagarde, President of the European Central Bank



In 2015, G20 Finance Ministers and Central Bank Governors asked the Financial Stability Board (FSB) to develop a framework for the financial sector to account for climate-related issues. The FSB established the Task Force on Climate-Related Disclosures to develop recommendations for more effective climate-related disclosures that: “could promote more informed investment, credit, and insurance underwriting decisions”, that in turn, “would enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system’s exposures to climate-related risks.”¹¹

The TCFD is chaired by Michael Bloomberg and has now become the gold standard for climate-related financial disclosure with a series of recommendations that have received endorsement from several of the Global Systemically Important Banks, top 10 global asset managers, leading pension funds and insurers. Collectively, these firms hold assets totaling US \$120 trillion.¹² The real value in such disclosure is that the TCFD recommendations go beyond plain statistics to a disclosure of forward-looking strategy and focuses on how climate change impacts businesses. This could be a source of competitive advantage for those of our clients that are thoughtful in understanding climate risks in their business operations and take proactive steps to be strategically resilient to both physical and transition risks.

Central banks view climate change as a growing risk to financial stability that requires active intervention from regulators to mobilize the financial system (and therefore banks) to support the transition toward a sustainable economy.

In September 2015, then Bank of England Governor Mark Carney addressed Lloyd’s of London, noting that climate change had become a growing risk to financial stability and that central banks had a meaningful role to play in strengthening the financial system to absorb climate shocks.¹³

Following Governor Carney’s lead, eight central banks established the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) at the 2017 One Planet Summit in Paris as a path to achieve global coordination and agreement among central banks on mitigating climate risks and promoting green finance.¹⁴ Canada joined the NGFS in March

2019¹⁵ and today the organization has over sixty members and observers including most of the national central banks in the European Union and almost all G7 members.¹⁶

In the US, Federal Reserve Chairman Powell has acknowledged the Federal Reserve has a role in ensuring the resiliency of the financial system against climate change risk; however, he noted that “society’s overall response to climate change needs to be decided by elected officials.”¹⁷ Despite these comments, the US Federal Reserve has also signaled that they are considering joining the NGFS.¹⁸



Regulatory Approaches to address Climate Risk and Sustainable Finance

US Regulators

US Prudential Regulators are examining appropriate supervisory actions to address financial stability within their frameworks.¹⁹ The US Federal Reserve has maintained that the US Congress has delegated responsibility to addressing climate change to other agencies; the US Federal Reserve's role is limited to preparing financial firms for the impact of severe weather events.²⁰ Some officials, most notably Federal Reserve Board Governor Lael Brainard, have envisioned a larger role for the US Prudential Regulators in this area.²¹

The approach in the US could be more direct participation of market conduct regulators to examine and address climate-related risks in US financial markets. The Commodity and Future Trading Commission (CFTC) established the Climate-

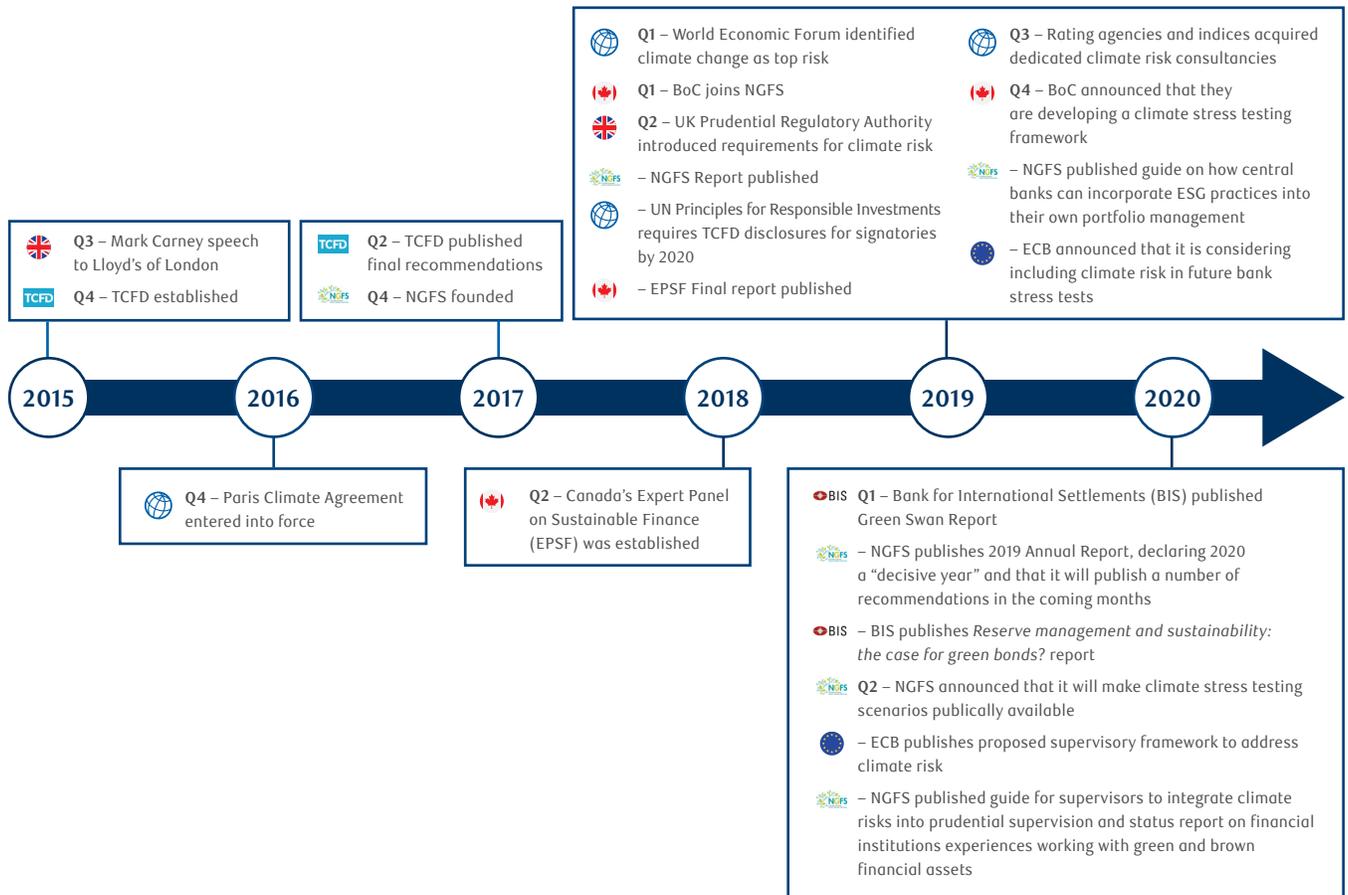
Related Market Risk Subcommittee in November 2019 to advise on climate-related financial and market risks.²² In January 2020, the Securities and Exchange Commission (SEC) began exploring standardized climate risk disclosures as part of efforts to modernize financial disclosures.²³

EU Regulators

EU regulators have aggressively pushed forward with plans to integrate climate risks and sustainable finance into their financial system. The European Central Bank (ECB) has recently published a proposed supervisory framework to address climate risk. The ECB proposal includes requirements for banks to incorporate climate risk factors in their business models, governance and risk management frameworks (including credit, market, liquidity and operational risk).²⁴

The NGFS’ mandate is “to enhance the role of the financial system to manage risks and to mobilize capital for green and low-carbon investments in the broader context of environmentally sustainable development.”²⁵ Since then, the pace of regulatory actions on climate policy is increasing – see figure 1.

FIGURE 1
Government and Regulator Action on Climate Risks and Sustainable Finance



The NGFS published *A call for action: Climate change as a source of financial risk* (NGFS Report) in April 2019 outlining six recommendations for its members and the broader financial system to address climate risks and promote sustainable finance.²⁶ These recommendations include central banks and financial institutions quantifying the impact of physical and transition risks on financial assets and accelerating efforts to develop risk indicators and analytical tools that consider climate change. Physical and transition risks are core to central bank policy and are further explained in figure 2 below.

FIGURE 2
Physical Risk and Transition Risks

Climate Risk	Description	Industries Sensitive to Climate Risk
<p>Physical Risks</p> 	<ul style="list-style-type: none"> Physical risks originate from more frequent and severe weather events that can result in large financial losses due to damage to property and infrastructure, disruption to transportation and trade, and lower economic productivity. Physical risk events could negatively impact company and asset valuation, as well as revenue (through drops in production and disruption to supply lines and transportation routes). Losses from physical risks could be severe enough to ripple through the financial sector through an increase in defaults and impairment to collateral. Increase in insurance premiums could lead to some regions becoming uninsurable due to exposures to physical risks. For example, global insured losses in 2018 were \$80 billion, double the inflation-adjusted average for the past 30 years.²⁷ 	 Agriculture  Forestry  Real Estate  Industrial  Mining and Metals  Insurance
<p>Transition Risks</p> 	<ul style="list-style-type: none"> These risks are the direct consequence of changes in government climate policies, technologies or market sentiment as the world adjusts to a lower-carbon economy. Transition risks are driven by: <ul style="list-style-type: none"> Advances in technology (emergence of low-carbon alternatives), Government policies (promotion of firms that perform highly on ESG metrics), Market shifts (increased consumer demand for green products), Legal (litigation related to failure to mitigate or disclose climate risks), and Reputation concerns (changes in customer expectations of a firm’s environmental practices). An abrupt and disorderly transition to a low carbon economy may result in carbon-intensive assets becoming stranded. Increased redistribution of capital to green investments can result in abrupt re-pricing of financial instruments including equity, corporate bonds and derivatives. A UN Principles for Responsible Investments study found that one in five companies listed on the MSCI ACWI Index (which includes several of the world’s most valuable companies) could have their equity value impacted by 10% (either positively or negatively) by the implementation of climate policy.²⁸ 	 Automotive  Oil and Gas  Transportation  Utilities  Industrial Products  Mining and Metals

THE CANADIAN CONTEXT

Canada is uniquely positioned with a diversified, and a resource-rich economy; a world-leading financial sector; and a demonstrated capacity for innovation to become a global market leader in developing the vision and pathway for clean innovation in natural resources led through a close partnership and collaboration between the public and the private sector, and smart regulation.

In 2019, Canada's Expert Panel on Sustainable Finance (EPSF)²⁹ released its final report on sustainable finance that "lays out a package of recommendations aimed at 'connecting the dots' between Canada's climate objectives, economic ambitions and investment imperatives."³⁰ The EPSF's recommendations are summarized in [Appendix A](#).

One EPSF recommendation we wish to spotlight is *Recommendation 12: Support Canada's oil and natural gas industry in building a low-emissions, globally competitive future*, which is a pragmatic approach to support Canada's oil and gas industries (although it can be applied broadly to all nature resource sectors) today while providing a pathway to low-carbon economy tomorrow. This approach views cooperation between public (governments and regulators) and private (industry) sectors as central to achieving this goal. Together, the public and private sector would be tasked with developing and implementing a common vision and pathway for clean innovation, committing to industry transparency on ESG metrics and helping Canada become the global supplier for cleaner, more responsibly produced oil and gas.³¹

RBC shares EPSF's vision for pragmatism towards Canada's natural resources and energy sector. Despite the impacts of the recent COVID-19 pandemic, global energy demands will remain significant.³² Through collaboration between the private and public sectors, Canadian companies can be well positioned to meet this demand by selling our resources overseas, where we can demand a premium for our responsibly produced goods (for example, the use of coal declined in first quarter of 2020 partly because China, a coal-based economy was hardest hit by COVID-19, but also because of sustained demand for natural gas and growing demand for renewable energy).³³ In turn, this will generate public funds to further invest in clean energy and the broader transition to a low carbon economy. As Canada recovers from the disruptions caused by the COVID-19 pandemic, some observers have noted that the Bank of Canada, under newly appointed Governor Tiff Macklem (who also chaired the EPSF), could take proactive measures to support economic recovery "while positioning Canada for success in a low-carbon economy."³⁴



MARKET CONDUCT ISSUES

Market conduct regulators also have an important role to play in the transition to a low carbon economy as they can develop and implement regulations that support a common international taxonomy to eliminate "greenwashing" practices.

The International Organization of Securities Commissions (IOSCO), comprised of the world's financial market conduct authorities (including the Ontario Securities Commission and Quebec's Autorité des marchés financiers) launched the Sustainable Finance Network (SFN).³⁵ In line with the mandates of their member regulators, the SFN's efforts have been focused on addressing investor protection and market fairness issues that have emerged during the rising demand for sustainable finance and ESG products.

Greenwashing

One of the threshold market conduct issues that has emerged that has contributed to investor protection challenges are “greenwashing” practices. These are practices or disclosures that give a false impression on how well a product, firm or activity is aligned with environmental sustainability goals (or ESG goals more broadly).³⁶

The lack of a uniform product taxonomy for sustainable activities/investments, the general unavailability of quality climate related data and lack of a standard non-financial reporting framework contributed to the emergence of greenwashing activities.³⁷ Greenwashing may undermine confidence in sustainable finance and ESG investment products.

As clients begin preparations to manage climate risk and integrate ESG principles into operations, the efforts must be robust and genuine. We anticipate that reporting on climate related risk and ESG metrics will become standardized (this will be discussed in more detail in Section 2 - Disclose) and a uniform product taxonomy for sustainable investments will be developed - we encourage clients to develop a compliance framework that adheres to these standards.

To address issues like greenwashing and more broadly enhance investor protection and market fairness, SFN regulators are working to improve transparency and disclosures in the sustainable finance market to ensure that investors and firms have the necessary information to make informed decisions about ESG financial products.³⁸ However, more is

required. To their credit, SFN have developed a robust action plan to strengthen governance among issuers; build capacity through training of market participants on sustainability topics; and ultimately facilitate investment towards sustainable development goals through financial products.³⁹ RBC will be eagerly monitoring these efforts.

RECOMMENDATION 1: ASSESS

Clients should evaluate and understand their exposures to both the physical and the transition risks of climate change and build in-house expertise to respond to stakeholder (such as creditors, investors, rating agencies, customers and employees) inquiries on climate-related risks and opportunities in their businesses.

As regulators integrate physical and transition climate risks into their financial stability monitoring and supervision of banks, banks will be required to understand climate risks in their own portfolio. There could also be higher costs on banks to intermediate financial services for clients in carbon-intensive firms that do not actively take steps to manage their climate-related impacts.



Central banks and prudential regulators have two main policy levers to influence the commercial behavior and risk management practices of banks – systemic risk regulation and prudential supervision – see figure 4.

FIGURE 4
Systemic Risk and Prudential Regulation Levers

Policy Levers	Potential Regulatory Measures	Examples of Central Bank Actions
<p>Systemic Risk Regulation – regulating against risk of severe instability or collapse of an industry or economy</p>	<ul style="list-style-type: none"> Regulators will subject banks to “climate stress tests” to assess their resiliency to a range of climate scenarios (e.g. scenario where the world warms by > 2° Celsius). Historically banks that fail stress tests are required to take remedial actions that can have material impact (e.g. requirement to hold additional capital, restriction on dividend payments, overhaul of governance and risk systems, etc.). Some regulators have also publicized the names of banks which have failed stress tests, leading to negative market and reputational consequences for those bank.⁴⁰ 	<ul style="list-style-type: none">  The Bank of Canada (BoC) is developing a climate stress-testing framework that will assess the Canadian financial system’s resiliency to “extreme but plausible” climate scenarios. The BoC will begin with Canadian banks, analyzing their direct and indirect exposures to climate risk.⁴¹  The Bank of England (BoE) will become the first regulator to stress test its major banks and insurers against different climate pathways, including business-as-usual scenario, transition to net zero by 2050, and a scenario where a sudden transition could strand assets and cause economy-wide disruptions.⁴²  The Netherlands Central Bank stress-tested its banks against dual shocks of \$100 carbon tax, and the technology shock in rapid development of renewable energy, which leaves fossil fuel dependent technologies obsolete, resulting in capital stock write-offs. The climate stress results indicate a loss of up to 3% for banks, potentially leading to a 4% decline in Dutch bank’s CET1 ratio.⁴³
<p>Prudential Supervision – regulating safety and soundness of banks through governance and minimum capital requirements.</p>	<ul style="list-style-type: none"> Regulators can require banks to account for climate risk and ESG factors in their business strategy, governance and risk management frameworks. Perhaps most controversially, prudential regulators could include minimum capital requirements that include the exposure to climate risks. This could take the form of either a: <ul style="list-style-type: none"> (i) “green supporting factor” – which would reduce capital requirements for banks with lower exposure to climate risks, or a (ii) “brown penalizing factor” – which would increase capital requirements for banks with higher exposure to companies with significant climate risk.⁴⁴ 	<ul style="list-style-type: none"> In May 2020, The NGFS published a guide on how regulators can integrate climate-related risks into their supervisory frameworks. The NGFS recommends that supervisors set expectations of how climate risks would be addressed by banks in their governance, strategy, risk management, scenario analysis/ stress testing and disclosure.⁴⁵  While no prudential regulator to date has proposed changing capital requirements based on climate risk of a bank counterparty, this remains a potential powerful tool in a prudential regulators’ tool kit. In fact, former BoE Governor Carney warned against accelerating the financing of low carbon economy by adjusting the capital regime for banks, as changes in prudential rules – designed to protect financial stability – for public policies can result in dangerous outcomes.⁴⁶

The prudential policy pressures along with investor and stakeholder (including customers and employees) demand are causing banks to consider internal policies and metrics to evaluate exposures to climate-risk in their own portfolios, which in turn will impact clients. These discussions consider whether banks should:

1. Differentiate the level of capital held against assets that are prone to climate risks
2. Expand their risk appetite for opportunities that are beneficial to the transition to a low-carbon economy
3. Create separate risk appetite metrics related to climate risks

In figure 5 below, we provide an overview of various performance metrics that are actively being debated in the context of climate change but the direction of implementation remains highly uncertain.

FIGURE 5
Performance Metrics for Bank’s Clients

Metrics	Comments	Impact to Clients
Sustainable financing targets	<ul style="list-style-type: none"> • Banks may set targets for amount of lending and other financing connected with climate opportunities. 	<p>Companies that: (i) perform well on ESG metrics, or (ii) are recognized for initiatives that reduce greenhouse gas (GHG) emissions will potentially get:</p> <ul style="list-style-type: none"> • easier access to credit lines; and • lower cost of capital. <p>In Recommendation 2: Disclose below, we summarize steps clients can take to improve their ESG performance metrics and reduce GHG emissions to be viewed through a more favourable lens by creditors and other stakeholders.</p>
Capitalization and credit metrics	<ul style="list-style-type: none"> • Methodologies are emerging where banks apply a Risk Weighted Asset (RWA) discount for low-carbon projects, and a premium for those assets exposed to higher climate risk. • Banks could recalibrate Loan-to-Value (LTV), Probability of Default (PD) and Loss Given Default (LGD) for firms susceptible to climate risk.⁴⁷ 	
Expand exposure to companies that are beneficial to the transition to a low-carbon economy	<ul style="list-style-type: none"> • Transactions with exposure to clients in higher climate risk industries could be given additional scrutiny and escalated to senior management before an underwriting commitment is made. • Restrictions could be placed at portfolio, client and/or transactional level at varying level of constraints (e.g. reduce exposure to a sector (eg. thermal coal) over time. 	
Climate Risk disclosures	<ul style="list-style-type: none"> • Many banks have made a public commitment to the consider the recommendations of the TCFD in their climate-related disclosure, including the % total exposure in their loan portfolios to clients that are most sensitive to transition and physical risk. 	
Climate risk related risk appetites	<ul style="list-style-type: none"> • Banks are considering changes to their risk appetite based on climate risk factors. (Traditional risk appetite metrics include Target Common Equity Tier 1 Ratios, Liquidity Coverage Ratios and Leverage Ratios). • These new factors could include imposing limits on ratio of Carbon-intensive assets relative to total assets. This ratio measures assets tied to the energy and utilities sectors, excluding water utilities and renewable power relative to total assets of the bank. • Other restrictions could include: (i) percentage of assets held belonging to firms which make TCFD-compliant disclosures; and (ii) percentage of assets that are net-zero aligned.⁴⁸ 	

Understanding physical and transition risks will be helpful in taking steps to mitigate those risks and be responsive to stakeholder (creditors, rating agencies, employees, suppliers) inquiries.

In the previous section, we described anticipated regulatory pressures on banks and their potential response to these pressures to develop robust climate risk management policies. In this section, we set out additional analysis that clients can undertake to assess the risk of climate change in their operations. Some continue to view extreme consequences of climate change related risks as remote; however, the COVID-19 pandemic has shown the severe negative consequences to global economies and the health of it is citizens because of failure to prepare for extreme but possible tail risk scenarios.⁴⁹ This scenario analysis can help clients consider the impact of climate change to the income statement and balance sheet if physical and transition risks materialize – see figure 6.

**FIGURE 6
Potential Impact of Physical and Transition Risk on Client’s Income Statement and Balance Sheet**

		Revenues	Expenses
Income Statement Impact	Transition Risk	<ul style="list-style-type: none"> Changes in demand for goods and services because of consumer demand. Collapse of business model because of changes in government policy, regulations, technology, markets and public sentiment 	<ul style="list-style-type: none"> Increased difficulty or higher costs for accessing debt or equity financing due to investor and creditor concern on realizing appropriate risk-adjusted returns Legal or regulatory fines, litigation costs and damage assessment levied because of carbon emissions
	Physical Risk	<ul style="list-style-type: none"> Reduced or disrupted production capacity Loss of revenue due to disruptions in transportation, hindering the ability to get goods to market Reduced revenue from lower sales or output 	<ul style="list-style-type: none"> Increase in insurance premiums to insure assets in areas prone to climate risk events Increase in operating costs due to disruptions to supply chain because of extreme climate events
		Assets	Liabilities
Balance sheet Impact	Transition Risk	<ul style="list-style-type: none"> Devaluation of assets because of lower expected future cash flows from those assets 	<ul style="list-style-type: none"> Increase in contingent environmental liabilities that can tie up capital Increased regulatory capital costs or other constraints for holding assets or having operations with exposures to climate risks
	Physical Risk	<ul style="list-style-type: none"> Impaired assets, write-offs and early retirement of existing assets Lower real estate and property values 	<ul style="list-style-type: none"> Investors/creditors which suffer losses due to climate events may make a claim against the firm for failing to adequately disclose its exposure to climate-related financial risks

The risks summarized above are difficult to manage and sustainable finance capabilities will need to be built into the fabric of corporate governance with accountability to firms’ board and senior executives. Stakeholders (creditors, investors, employees etc.) will demand information to help them evaluate businesses against the above-noted risks and a proactive plan to mitigate and respond to inquiries will be beneficial to navigate climate risks. A possible approach to climate-related disclosures is discussed in the next section.

Some course of actions to set and achieve climate targets are laid out below. For additional Climate Risk Mitigation efforts, see [Appendix B](#).

Setting and Achieving Climate Targets

The Board of directors and senior management can set climate targets for the firm. These targets should be concrete, significant and achievable. Clients also need to follow through and take action towards achieving their climate targets (e.g. through reforming operations) or risk having their efforts dismissed as a “green washing” exercise by the broader market. Common climate targets adopted include:

- Reduction of GHG Emissions – A commitment to reduce GHG emissions across operations. This would require an examination of operations and supply chains to identify where GHG emissions reductions are possible.
- Carbon Neutrality – A commitment to carbon neutral operations, this can be achieved through lowering GHG emissions and purchasing carbon credits and other offsets.
- Renewable Energy Consumption – A commitment to increase sourcing of electricity from renewable and non-emitting sources.

RECOMMENDATION 2: DISCLOSE

Clients should consider voluntarily disclosing climate-related financial risks and opportunities in accordance with market standards.

Central banks and prudential regulators are pushing for comprehensive climate disclosures to bring climate risk and resilience into the heart of financial decision making and to ensure that the market has the right information to price climate risk and reward climate innovation.

The simple story is that ESG data is being collected on our clients (and their broader industries) by regulators, ESG rating agencies, investors, creditors and counterparties. Depending on the direction regulatory policy takes, a firm’s ESG rating can have outsized importance on their ability to access investment, credit or liquidity. Firms that do not voluntarily disclose climate risks in their business may nevertheless be evaluated on such risks in their operations based on research reports from third party rating agencies. For example, 40% of central banks already use ESG data from sources such as Refinitiv, MSCI, Sustainalytics, and Bloomberg while another 36% of central banks are considering doing so in the future.⁵⁰

In the previous section, we outlined how the cumulative impact of systemic and prudential policy will be that banks will require access to a tremendous amount of data to evaluate and manage climate risks in their portfolio. Therefore, it would be beneficial for our clients to be proactive in disclosing climate-related risks and opportunities in order to increase transparency and control their sustainability narrative. The alternative could be that customers, creditors, investors and other stakeholders will be evaluating our clients’ climate risk using third party data that could lead to inaccurate conclusions. Importantly, the absence

of ESG disclosure could be more detrimental than disclosing unfavourable ESG metrics provided that there is a strategic plan for a path towards sustainability.

As already mentioned, the TCFD recommendations are the gold standard for climate-related financial disclosure. Additionally, governments, including the Canadian government, are currently evaluating whether TCFD disclosures should be made mandatory.⁵¹ The Bank of England has set a 2021/2022 target for a full set of TCFD disclosures. Such disclosures should include a strategy for reducing emissions, embedded through appropriate board-level governance structures and linking outcomes to compensation.⁵² The TCFD has also received support from governments and financial regulators in Australia, Belgium, France, Hong Kong, Japan, the Netherlands, Singapore, South Africa, and Sweden.⁵³

In addition to the TCFD recommendations, clients should also consider incorporating the complementary Sustainability Accounting Standard Boards (SASB) standards which focus on disclosing financially material information on industry-specific sustainability issues. See figure 7 for TCFD Recommendations and [Appendix C](#) for more details on SASB standards.

FIGURE 7
TCFD Recommended Disclosures

Area	TCFD Recommendation	Area	TCFD Recommendation
Governance 	<ul style="list-style-type: none"> Disclosure of the organization’s governance around climate risks and opportunities, including board oversight and management’s role in assessing such risks and opportunities. 	Risk Management 	<ul style="list-style-type: none"> Disclosure of how the organization identifies, assesses, and manages climate risks.
Strategy 	<ul style="list-style-type: none"> Disclosure of the actual and potential impacts of climate risks and opportunities on the organization’s businesses, strategy, and financial planning where such information is material. 	Metrics and Targets 	<ul style="list-style-type: none"> Disclosure of the metrics and targets used to assess and manage relevant climate risks and opportunities where such information is material.

 **Implementation of TCFD recommendations in Canada**

As mentioned previously, the Canadian federal government convened the Expert Panel on Sustainable Finance (EPSF) in 2018 to explore how the financial sector can help direct investments to fund Canadian low-carbon initiatives. The EPSF ran consultations across Canada, engaging with hundreds of stakeholders including those from industries, governments, regulators, think tanks and academia. The EPSF published its final report in June 2019 and presented fifteen recommendations for sustainable growth.

The EPSF recommended that Canada should adopt the TCFD recommendations with a phased “comply-or-explain approach.” This would require Canadian firms to disclose in line with the TCFD recommendations or explain why they see themselves as being materially unaffected by climate change.⁵⁴

RECOMMENDATION 3: ADAPT

Clients should develop products and services that will hold up well to regulatory and stakeholder scrutiny on ESG metrics. These can be a source of competitive advantage.

Regulators are integrating ESG principles into their own portfolio management practices – something which is already central to RBC’s business and to our stated purpose, which is to help clients thrive and communities prosper.

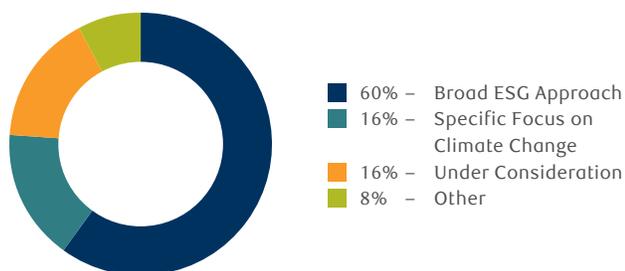
The fight against climate change and the transition to a low carbon economy also presents a significant economic opportunity. The Global Commission on the Economy and Climate estimates that the global market for low-carbon solutions will be worth \$26 trillion and create an estimated 65 million jobs by 2030.⁵⁵ Global investment in climate-resilient infrastructure is estimated to be US \$90 trillion over the next 15 years.⁵⁶

“The financial sector is not going to solve climate change, but the things that are—innovation, clean electricity, deep building retrofits, climate-resilient infrastructure and more—all require investment, and that’s where finance is critical. For Canada to be competitive in a world that is increasingly concerned about sound environmental stewardship, sustainable finance needs to become business as usual in the Canadian financial services industry.”⁵⁷

– Tiff Macklem, Chair of the Expert Panel on Sustainable Finance

Central banks and supervisors are also aiming to be the catalyst for sustainable investment to become mainstream. 76% of NGFS members have incorporated ESG principles into their portfolio management practices (with 16% having a specific climate change focus) and an additional 16% are considering adoption – see figure 8.⁵⁸

FIGURE 8
Percentage of NGFS Members that have incorporated ESG Principles into Portfolio Management



In October 2019, NGFS published *A sustainable and responsible investment guide for central banks’ portfolio management*, a guide for central banks to incorporate ESG Principles into their portfolio management practices. This report provides a blueprint that clients can follow to remain or become eligible for central bank investment. Central banks are expected to adopt a range of measures including screening mechanisms, such as best-in-class screening to increase investments in firms that perform well on ESG metrics or when compared to peers in the same industry/jurisdiction). Another measure is the integration of ESG criteria into the analysis of portfolios, where a Central Bank would determine if an investment provides sufficient return after consideration of climate risks. Central Banks can also use their votes as investors to directly influence a firm’s strategic direction towards a path of lower carbon output.⁵⁹

Publicly listed clients should also be aware that stock exchanges globally are working towards policies that encourage sustainable investment and performance on ESG metrics.

The Sustainable Stock Exchange (SSE) Initiative was launched in 2009 to explore how exchanges, in collaboration with investors, companies (issuers), regulators and policy makers can enhance performance on ESG issues and encourage sustainable investment.⁶⁰ Working with the World Federation of Exchanges (WFE, comprised of over 250 exchanges and clearing houses from around the globe), the SSE recognizes the leadership role exchanges have in promoting sustainable finance. The SSE has worked with exchanges to develop guidance on ESG Disclosures (53% of stock exchanges tracked by the SSE have published ESG reporting guidance for their listed companies),⁶¹ promote green finance,⁶² advance gender equality⁶³ and grow Small and Medium Sized Enterprises (SME)⁶⁴ on their platforms. More recently, the SSE set out a blueprint for its members to better integrate sustainability in their governance and operations. This measures include incorporating ESG in the governance and risk management (including engaging senior leadership), assessing the ESG impact of operations, and making sustainability part of the exchange's strategic direction.⁶⁵ In February 2019, Canada's TMX Group (which includes the Toronto Stock Exchange and TSX Venture Exchange) joined the SSE.⁶⁶

We expect that our clients will see demand to develop products and services that perform well on ESG metrics. These pressures to adapt will come from both the public (regulators and government entities which manage large portfolios) and private sector (exchanges, clearing houses and investors). Firms that are early adopters will be well positioned to take advantage in the opportunities in the transition to the low carbon economy.

“Achieving net zero will require a whole economy transition – every company, every bank, every insurer and investor will have to adjust their business models. This could turn an existential risk into the greatest commercial opportunity of our time.”⁶⁷

– Mark Carney, Former Governor of the Bank of England

CONCLUSION

RBC can help clients navigate the transition.

Central banks and prudential regulators view climate change as a significant risk to global financial stability and will play a leading role in transitioning towards a sustainable financial system. Market conduct regulators are focused on improving investor protection and market fairness in the growing sustainable finance markets, while addressing emerging conduct issues like greenwashing. We expect regulators to adopt three main measures: (i) integrate climate risks into financial stability monitoring, and supervision of banks, (ii) require or incentivize comprehensive climate risk disclosures to bring climate risk and resilience in the heart of financial decision making, and (iii) integrate ESG principles into their own portfolio management. If implemented, these measures will impact banks and, by extension, our clients.

To remain competitive in this changing market that is becoming increasingly sensitive to climate risk considerations and ESG principles, clients should consider implementing the recommendations we have set out in this report.

First, clients should evaluate their exposures to climate risks, both physical and transition. We anticipate that these risks will have material impacts on operations, assets and finances. Clients should consider building in-house expertise to make these evaluations and respond to stakeholder inquiries on climate-related risks in their businesses. Managing climate risks should be built into the fabric of corporate governance with accountability to the firm's board and senior executives.

Clients should also consider making voluntary disclosure of climate-related financial information. ESG data is being collected on firms (and industries) by regulators, ESG rating agencies, investors, creditors and counterparties. This data is being used to make evaluations about our clients, their products and operations. Disclosing climate-related risks and opportunities specifically, and ESG performance more broadly, will enable our clients to take control of their sustainability narrative. Such disclosures should align with market standards and frameworks, most notably the TCFD and SASB.

Finally, clients should develop products and services and manage their operations in such a way that will hold up well to regulatory and stakeholder scrutiny. As ESG principles are incorporated into the portfolio management practices of central banks and the operations of market infrastructures (exchanges, central counterparties, clearing houses, etc.), there may be a shift in the allocation of capital towards firms that perform highly on ESG metrics.

Canadian businesses are uniquely positioned to be leaders in the transition to a low carbon economy. Canada can help develop pathways to support industries (e.g. natural resources) through the transition and set them up for success. This can be achieved through collaboration between the public and private sectors, and smart regulation which allow industries to develop innovative solutions.

RBC has developed a [Climate Blueprint](#) (see [Appendix D](#)) to guide us, work with our clients and communities, to contribute to a healthier planet and a more prosperous economy for the 21st century because we believe this is the smart choice. The five pillars of this blueprint are:

- Support clients in the low-carbon transition with our products, services and advice
- Advance our capabilities in climate risk management and publish annual TCFD disclosures
- Achieve net-zero carbon emissions in our global operations annually
- Speak up for smart climate solutions
- Invest in technology to address complex environmental challenges

Sustainable finance represents a growth opportunity for our business and our clients and we have set a business target: CAD \$100 billion in sustainable finance by 2025. Our Sustainable Finance team within Capital Markets supports the growing number of corporate and institutional clients globally who view ESG factors as important considerations in their corporate strategy and investment process. The Sustainable Finance team has the expertise and experience to help our clients work through the evolving regulatory and market landscape, identifying the ESG-related risks and opportunities for their firm. We encourage our clients to continue to be engaged on this matter. Additional resources on sustainable finance, disclosures and ESG implementation can be found in [Appendix E](#).

APPENDIX A — RECOMMENDATIONS IN EPSF FINAL REPORT⁶⁸

Pillar	Recommendation
Pillar 1 – The Opportunity Canada should put forward a renewed long-term vision for its transition, with focused policies to help businesses and investors respond to the economic opportunity.	Recommendation 1: Map Canada’s long-term path to a low-emissions, climate-smart economy, sector by sector, with an associated capital plan.
	Recommendation 2: Provide Canadians the opportunity and incentive to connect their savings to climate objectives.
	Recommendation 3: Establish a standing Canadian Sustainable Finance Action Council (SFAC), with a cross-departmental secretariat, to advise and assist the federal government in implementing the Panel’s recommendations.
Pillar 2 – Foundations for Market Scale Public and private investments are needed in the essential building blocks needed to scale the Canadian market for sustainable finance to become mainstream.	Recommendation 4: Establish the Canadian Centre for Climate Information and Analytics (C3IA) as an authoritative source of climate information and decision analysis.
	Recommendation 5: Define and pursue a Canadian approach to implementing the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD).
	Recommendation 6: Clarify the scope of fiduciary duty in the context of climate change
	Recommendation 7: Promote a knowledgeable financial support ecosystem.
Pillar III: Financial Products and Markets for Sustainable Growth Develop and scale market structures and financial products to facilitating the transition and adaptation of Canada’s economy and key industries (clean technology, oil and natural gas, infrastructure, energy generation, etc.).	Recommendation 8: Embed climate-related risk into monitoring, regulation and supervision of Canada’s financial system.
	Recommendation 9: Expand Canada’s green fixed income market, and set a global standard for transition-oriented financing.
	Recommendation 10: Promote sustainable investment as ‘business as usual’ within Canada’s asset management community.
	Recommendation 11: Define Canada’s clean technology market advantage and financing strategy
	Recommendation 12: Support Canada’s oil and natural gas industry in building a low-emissions, globally competitive future.
	Recommendation 13: Accelerate the development of a vibrant private building retrofit market.
	Recommendation 14: Align Canada’s infrastructure strategy with its long-term sustainable growth objectives and leverage private capital in its delivery.
	Recommendation 15: Engage institutional investors in the financing of Canada’s electricity grid of the future.

APPENDIX B – EXAMPLES OF CLIMATE RISK MITIGATING MEASURES

Climate Risk Mitigating Effort	Description	RBC Action
Efforts to Reduce GHG Emissions 	Firms can commit to reducing GHG emissions of their operations. This would require an examination of operations and supply chains to identify where GHG emissions reductions are possible.	In 2017, RBC committed to reducing the GHG emissions of its operations by 2.5% annually to reach a cumulative 15% reduction by 2023.
Carbon Neutrality 	Firms can commit to carbon neutral operations, this can be achieved through lowering GHG emissions and purchasing carbon credits and other offsets.	RBC has been carbon neutral in its operations since 2017.
Renewable Energy 	Firms can increase sourcing of their electricity from renewable and non-emitting sources.	RBC has committed to having 100% of its electricity come from renewable and non-emitting sources by 2023.
Increased Offering of Sustainable Finance and Services 	Firms can increase offerings of sustainable finance and services. Firms should develop policies and methodologies to determine which of their products and services qualify as green.	RBC has committed to \$100bn in sustainable finance by 2025. Eligible activities are determined by RBC's Sustainable Finance Commitment Methodology.
Integration of Climate Risk into Internal Risk Policies 	As discussed in <i>Recommendation 1 – Integrating Climate Risks into Financial Stability Monitoring and Supervision</i> , clients should include the analysis of climate risks into their risk policies. This would look at threats to their operations, their exposures to companies and geographies and the climate risk sensitivities of clients.	RBC has included climate considerations into its internal risk policies. The firm leverages scenario analysis and geo-spatial analytics to assess its exposure to various climate risks (e.g. extreme weather events).
Transparency and Climate Disclosures 	Firms could disclose how their products and operations perform on ESG metrics. These disclosures should follow established market standards, such as those set by the Task Force on Climate Related Disclosures (TCFD).	RBC is committed to transparency on its environmental performance metrics and targets. It has produced annual environmental performance reports since 2003 and published its first TCFD annual disclosure in 2019.
Support initiatives to find solutions to address climate change 	Firms could fund local research and development initiatives to find solutions to climate change issues.	RBC's Tech for Nature Program provides up to \$10 million in annual support for universities and charities to develop technological solutions to climate change and related environmental issues.

APPENDIX C - SUSTAINABILITY ACCOUNTING STANDARDS BOARD

The Sustainability Accounting Standards Board (SASB) standards focus on disclosing financially material information on industry-specific sustainability areas. SASB has received support from significant market participants, such as BlackRock.⁶⁹ The SASB reports are seen as complementary to the TCFD disclosures, providing information on social and governance issues beyond climate risks and environmental impact.

SASB highlights different reporting areas and issues for each industry. A brief summary of the SASB Materiality Map issues are summarized in the figure 13 below.

FIGURE 13
SASB Materiality Map: General Issues Categories

Dimension	General Issue Category	
Environment 	<ul style="list-style-type: none"> • GHG Emissions • Air Quality • Energy Management 	<ul style="list-style-type: none"> • Water & Wastewater Management • Waste & Hazardous Materials Management • Ecological Impacts
Social Capital 	<ul style="list-style-type: none"> • Human Rights & Community Relations • Customer Privacy • Data Security 	<ul style="list-style-type: none"> • Access & Affordability • Product Quality & Safety • Customer Welfare • Selling Practices & Product Labeling
Human Capital 	<ul style="list-style-type: none"> • Labor Practices • Employee Health & Safety • Employee Engagement, Diversity & Inclusion 	
Business Model and Innovation 	<ul style="list-style-type: none"> • Product Design & Lifecycle Management • Business Model Resilience 	<ul style="list-style-type: none"> • Supply Chain Management • Materials Sourcing & Efficiency • Physical Impacts of Climate Change
Leadership and Governance 	<ul style="list-style-type: none"> • Business Ethics • Competitive Behavior • Management of the Legal & Regulatory Environment 	<ul style="list-style-type: none"> • Critical Incident Risk Management • Systemic Risk Management

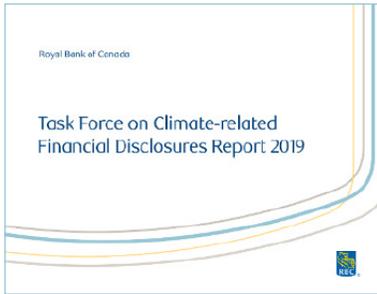
APPENDIX D – RBC’S CLIMATE BLUEPRINT, 2019 TCFD DISCLOSURES AND 2019 ESG REPORT

RBC’s Climate Blueprint



- RBC’s Climate Blueprint outlines our approach to working with our clients and communities to address the issue of climate change while contributing to a healthier planet and a more prosperous economy.
- The Climate Blueprint outlines RBC’s commitment in 5 key areas: (i) supporting clients in the low-carbon transition, (ii) advancing our climate risk management and publishing TCFD disclosures, (iii) achieving net-zero carbon emissions in global operations, (iv) advance smart climate solutions, and (v) investing in technology that addresses environmental challenges.

RBC’s 2019 TCFD Disclosure



- RBC’s 2019 TCFD disclosures outlines RBC’s approach to managing climate risks and opportunities.
- The TCFD disclosures provides an overview of RBC’s: (i) governance framework, (ii) strategic approach, (iii) risk management practices and (iv) metrics to measure progress.

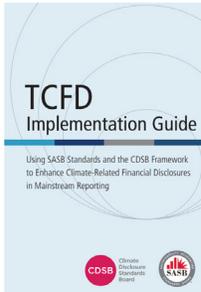
RBC’s 2019 ESG Report



- RBC’s 2019 ESG Report provides an overview of RBC’s ESG priorities, how it has performed towards achieving these goals and the value it provides for employees, clients, society and the planet..

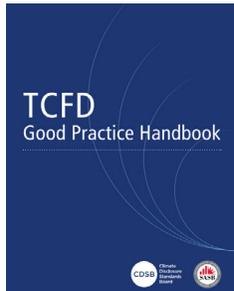
APPENDIX E – ADDITIONAL RESOURCES

TCFD Implementation Guide



- The guides provides an overview of the TCFD reporting standards, their purpose and how a firm can implement them.

TCFD Good Practices Handbook



- RBC's 2019 TCFD disclosures outlines RBC's approach to managing climate risks and opportunities.
- The TCFD disclosures provides an overview of RBC's: (i) governance framework, (ii) strategic approach, (iii) risk management practices and (iv) metrics to measure progress.

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Prepared by: RBC Capital Markets' Regulatory Strategy and Engagement Team

Srijan Agrawal
Director
Regulatory Strategy and Engagement
416.842.4684
srijan.agrawal@rbccm.com

Joseph Guiyab
Associate
Regulatory Strategy and Engagement
416.842.2358
joseph.guiyab@rbccm.com

Contributors:

Lindsay Patrick
Managing Director and Head
Sustainable Finance
416.842.5017
lindsay.patrick@rbccm.com

Sarah E Thompson
Director
Sustainable Finance
416.842.2692
sarah.e.thompson@rbccm.com

Nicola Milne
Vice President
Sustainable Finance
416.974.9304
nicola.milne@rbccm.com

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