

CLIMATE
CHANGE

GUIDE FOR
BUSINESS

Canadian perspectives
for a changing business
climate **2.0**

GBSR





CLIMATE CHANGE

GUIDE FOR BUSINESS 2.0

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December 2017

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Canadian Business for Social Responsibility (CBSR) is a membership-based, professional association of forward-thinking business leaders across several sectors and across Canada. CBSR has been a thought leader on corporate responsibility and sustainability since 1995. The organization aims to engage Canadians on the evolving social, environmental and economic issues of our time, while showcasing our members and convening opportunities for them to interact, collaborate and learn from one another.

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In 2007, CBSR released its first Climate Change Guide for Business, which was a call to action for Canadian companies to prioritize climate change as a key strategic business risk. Today that goes without saying as the increased international attention, scientific evidence and pace of policy developments have reached a fever pitch.

A decade later, CBSR is calling on the Canadian private sector to shift from managing climate risks toward capitalizing on climate opportunities. This involves de-coupling business growth from the increased production of carbon dioxide and utilizing carbon as an increasingly valuable material in everyday items.

CBSR has engaged some of Canada's leading climate experts to provide insight and help in demystifying the risks and opportunities, policies and regulatory developments, carbon pricing mechanisms, sector-specific best practices, and more.

Please share your feedback with us at info@cbsr.ca

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Introduction

Climate Change is a Business and Investor Issue

Canadian Business for Social Responsibility (CBSR) published the first Climate Guide in 2007 to help corporate responsibility and sustainability practitioners position climate change within their companies as a core business risk.

Today, urgent action is being called for as the increased severity of climate related events has been linked to the concentration of atmospheric greenhouse gas (GHG) emissions. Investors, insurers and consumers are penalizing companies they deem to have too much climate exposure. While some have argued the cost of taking action is too high, the debate has shifted more toward the much greater cost of inaction, which the National Roundtable on Economy and Environment estimates it would cost Canada between CAD \$21 billion to \$43 billion per year by the 2050s.



Since 2007

oil prices have surged and collapsed, challenging beliefs about the economic benefits of low energy prices.

14 of the 15

hottest years have occurred since 2000, with more intense and longer-lasting heat waves.

100 million

more people may be in poverty by 2030 due to impacts of climate change.

British Columbia, Alberta, Ontario and Quebec already have carbon-pricing programs in place.

When the Paris Agreement was signed in 2015, it marked a strong universal commitment toward decarbonization. The Canadian government during the 21st Conference of the Parties (COP21) in Paris announced that “Canada is back” signaling a renewed ambition for Canada to play a leading role on an urgent global matter. The Vancouver Declaration on Clean Growth and Climate Change a year later built on the Paris Agreement and evolved to include a minimum national price on carbon of \$10 a tonne in 2018, rising to \$50 a tonne by 2022. Some provinces have taken early action and found greater public support the longer the systems are in place.

Despite some political opposition and disruption from a cynical American President, the landscape is largely set for the private sector to innovate and invest in the direction toward a low carbon economy. Those who do so will be rewarded and well-positioned ahead of those that try to catch up later. Innovating in this new reality will require a transformational mindset and strong set of Canadian business values.

COP21



From November 30th to December 12th, 2015 the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) occurred in Paris, France. Participants from 196 countries reached a historic agreement, outlining a two-decade framework for tackling climate change globally.

2.0c

The session agreed to keep global temperatures below 2.0C (3.6F) above pre-industrial levels, with a stretch goal of 1.5C. This has been widely celebrated by environmental advocates as a historic achievement.

5 yrs

Each country's contribution to cutting emissions will be reviewed every five years. The 2015 commitments have 2025-2030 as target dates and the commitments made in 2020 will have 2030-2035 as target dates. This process is called the Global Stocktake, assessing action on mitigation, adaptation and support, and revealing countries' climate plans.

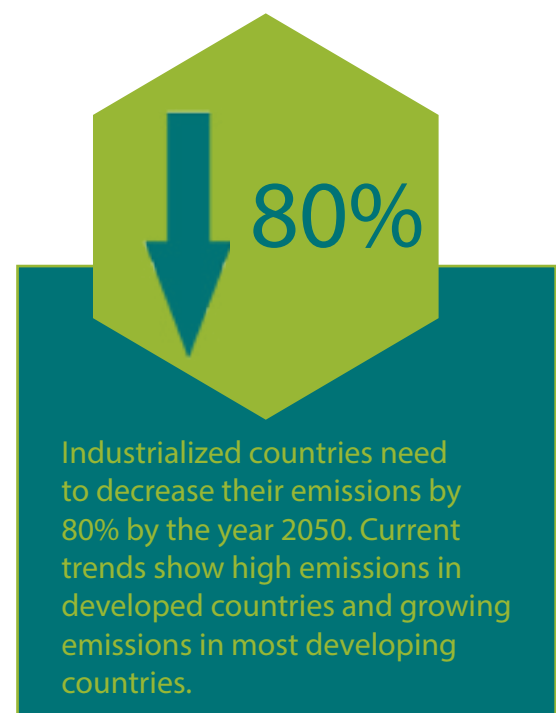
\$100B

Developed countries agreed to contribute \$100 billion per year to support developing countries and their climate change endeavours until 2025.

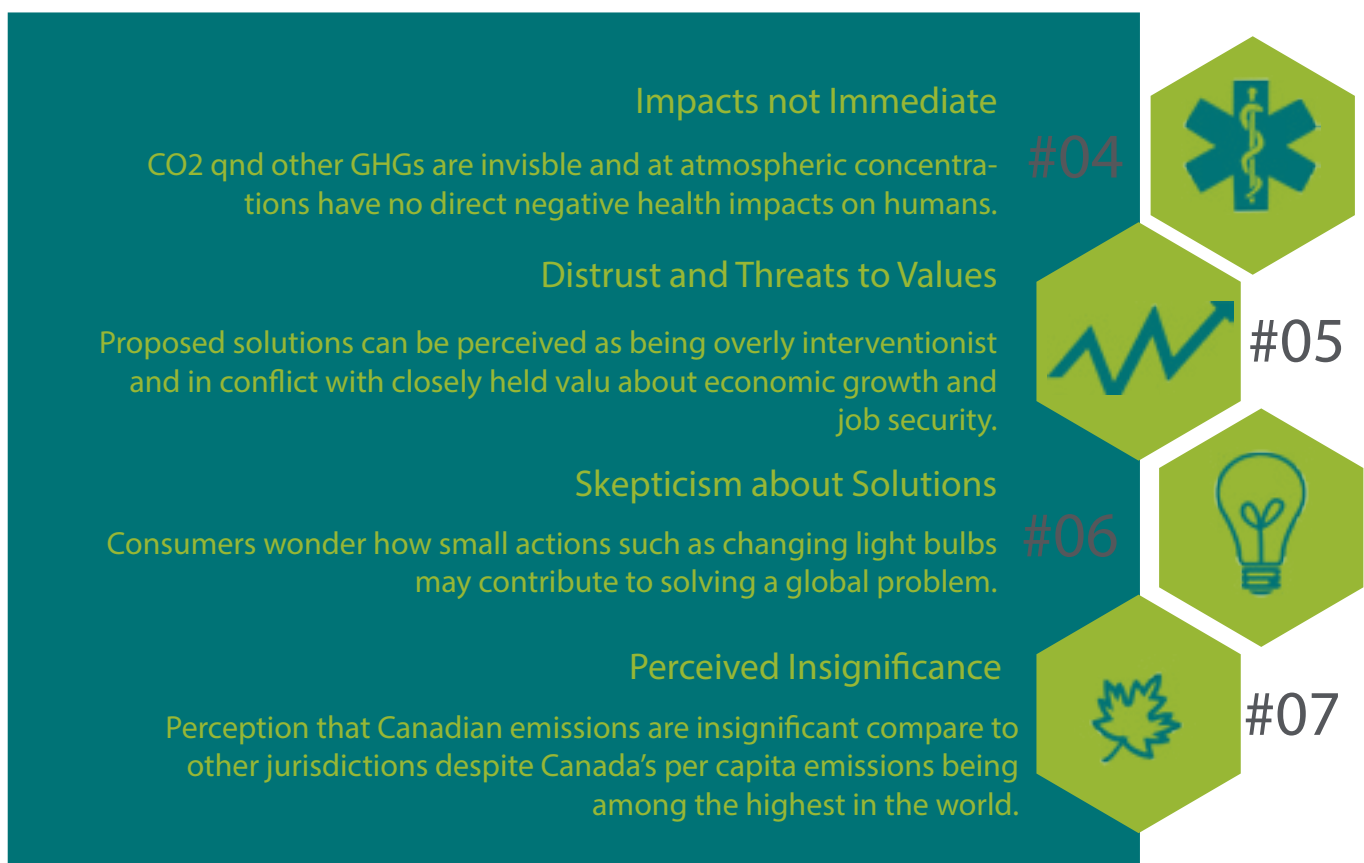


Why is Climate Change so Challenging?

Climate change is not just about warming temperatures. There are far reaching consequences that affect food and water supplies globally. 100 million more people may be in poverty by 2030 due to climate change impacts. It is also causing natural disasters such as hurricanes and wildfires to occur more frequently, last longer and cause more damage. Alberta's recent wildfire in Fort McMurray, for example, will cost an estimated \$10 billion. There are those who challenge some of the key scientific findings connecting all these events. We caution those that alienate people with concerns about the scientific methods used. Let us instead have inclusive discussions about the associated risks and opportunities.



The urgency of climate change is not felt by everyone equally due to many of the following factors.



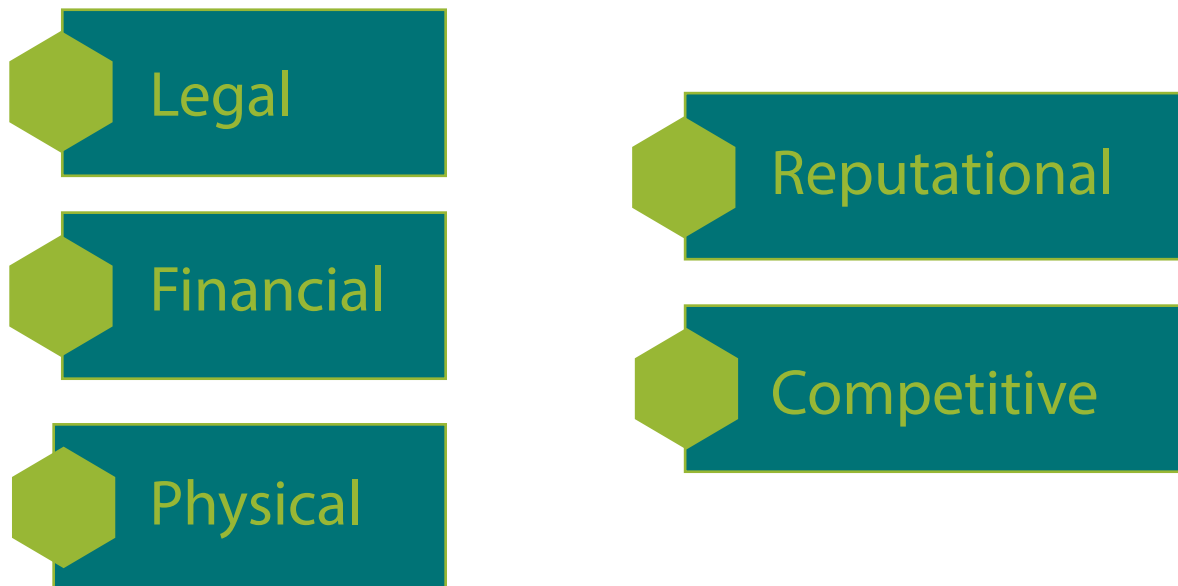
Climate Change Risks

Climate change is a business reality with significant implications for those companies who fail to prepare adequately. Climate strategies can protect valuable infrastructure, reduce risk to investors and save the company money over the long term through energy efficiency programs.

Ultimately, it is through new business opportunities that climate strategies are most likely to be implemented and sustained. This makes sense because most corporate planning processes involve future investments while risk management is largely treated as a governance matter.

For this reason, it is important to review some of the most pertinent risk factors affecting operations, resources, reputation, financial position and competitive advantage.

There are five categories of climate risk:



Legal Risks

Legal risks may arise when companies fail to comply with regulatory requirements (such as laws limiting GHGs), expose themselves to litigation risks related to injuries that may have been prevented with proper consideration of climate change-related harms or fail to disclose material climate risks to their investors.

Regulatory Risks

Governments around the world are passing laws to address climate change by limiting greenhouse gas emissions. Regulations include pricing emissions and controlling the use of carbon-based energy sources.

Companies, typically in industries with high GHG emissions, are now legally obligated to adhere to certain performance standards to help achieve climate change mitigation goals.

In Canada... 

Dec
2016

Canada released the Pan-Canadian Framework on Clean Growth and Climate Change.

In
2018

All Canadian provinces and territories are required to have a carbon-pricing regime - a carbon tax, cap and trade system or a hybrid scheme.

40 to
45%

Target methane emissions cut from 2012 levels by 2025.

2030

Target date to have coal-fired electricity phased out.

11 cents /L

Minimum carbon tax applied to gasoline by 2022 in all provinces.

Litigation Risks

Negligence Litigation/Class Actions Following Extreme Weather Events

Extreme weather has begun to stress infrastructure in Canada, and climate change may increase the risk of negligence claims, as more frequent and intense extreme weather events such as flooding increase the risks of harm.

Following industry standards may help prevent liability, but only when these practices themselves are not inherently risky. As climate predictions become more sophisticated, courts could find that extreme weather should have been protected against.

In previous cases, the court has considered weather forecasts and expert climatological evidence to show that a defendant should have known that there was a real risk of an accident happening. Businesses may be expected to make new or different decisions in light of climate change and could face liability if they fail to adapt to new climate information.

Global Warming Tort Litigation

Businesses could be exposed to claims in nuisance or negligence where plaintiffs claim they have suffered loss or damage due to climate change and that those businesses contributed to climate change through high GHG emissions.

No such action has been brought to a Canadian court yet, and it is likely that a plaintiff would face challenges establishing a connection between their loss and the actions of the defendant.

Despite these challenges, such lawsuits may still occur and could cost companies legal fees and their reputation.

Litigation to Force Government Action

2

applications for review of decisions on the Minister of the Environment's Climate Change Plan and the government's withdrawal from the Kyoto Protocol were dismissed.

25%

of 1990 GHG levels by 2020 was forced on the Dutch government by the Hague District Court after it deemed the original pledge of 17% insufficient.

21

American youths filed a suit against the U.S. government alleging that their constitutional rights were being violated by the government's inaction on climate change.

Litigation Risks

Disclosure and Duty to Shareholders

Corporate disclosure obligation ensures that information that may affect an investor’s decision to buy or sell is available. As understanding of climate impacts increases, investors have raised concerns that long-term shareholder value could be at risk, and seek transparency from companies on risk management strategies. Risks could include:

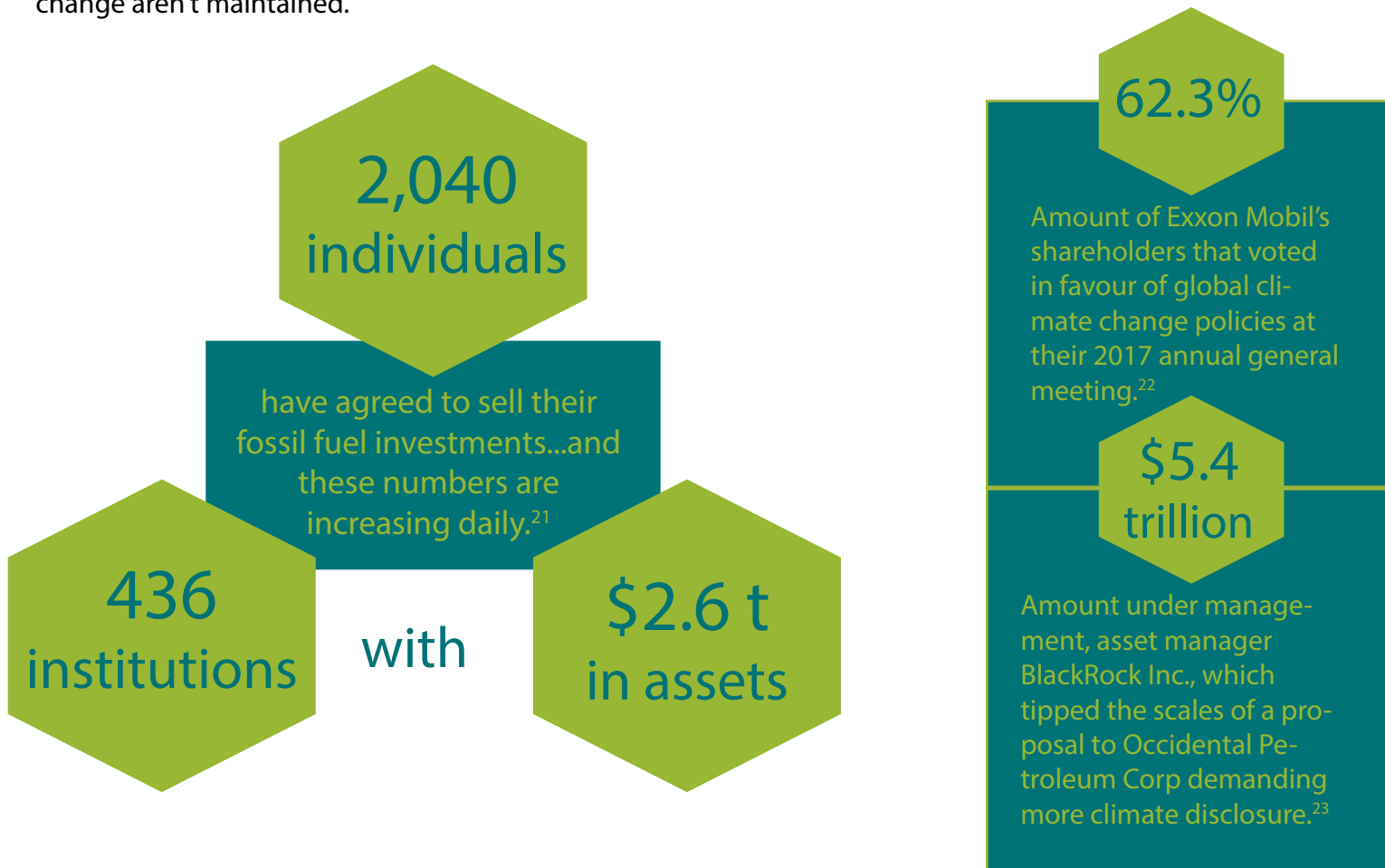
Extreme weather or climatic variation causing damage to physical assets

Profit loss due to changes to regulatory standards, needing to be disclosed

Untrue statements and omissions could cause civil liability, and mandatory disclosure has legal compliance and reputational risks if a company doesn’t comply. The Canadian Securities Administrators has announced plans to review climate-related disclosures among Canadian-listed organizations, in part due to heightened scrutiny.

Shareholder Resolutions

Some shareholders submit resolutions to companies, threatening to divest if commitments to climate change aren’t maintained.



Financial Risks

Climate change is likely to drive increases in the cost of energy, raw materials, insurance premiums and capital expenditures. Additional operational costs are expected as businesses adapt to mitigate the impacts of climate change. Revenues will be impacted by the inability to pass these costs onto consumers while exploiting new market opportunities and maintaining market share. Significant emissions in any industries supply chain may still result in increased costs (upstream) or reduced sales (downstream). As payment for GHG emissions may be directed through a carbon tax or emissions trading scheme, or indirectly through increased energy prices, a company's financial liability can be minimized by reducing absolute emissions and energy use.

Divestment Risks

Fossil fuel divestment campaigns encourage investors to drop fossil fuel-based company shares in their portfolios. As a result, many business models are being questioned and branded unsustainable.

Divestment campaigns are now considered to be part of standard risk mitigation. Other alternative investment strategies have also been developed to achieve optimized, low-carbon portfolios without completely avoiding the fossil energy sector.

Rather than see this as an existential threat, the oil and gas industry can see this as an impetus to win back trust through transformation into energy companies and investments in carbon utilization.



Positive Screening

A sustainable strategy that refers to investment in companies, sectors or projects that are committed to environmental, social and governance (ESG) criteria in their practices.²⁴



Thematic Investing

Companies investing in renewable energy, low-carbon other environmental innovations can be added as a positive thematic element to counterbalance investments in carbon-intensive sectors.



Selective Divestment

Companies with the highest levels of carbon reserves can be sold selectively. Carbon footprints and regulatory risks may also be taken into account.



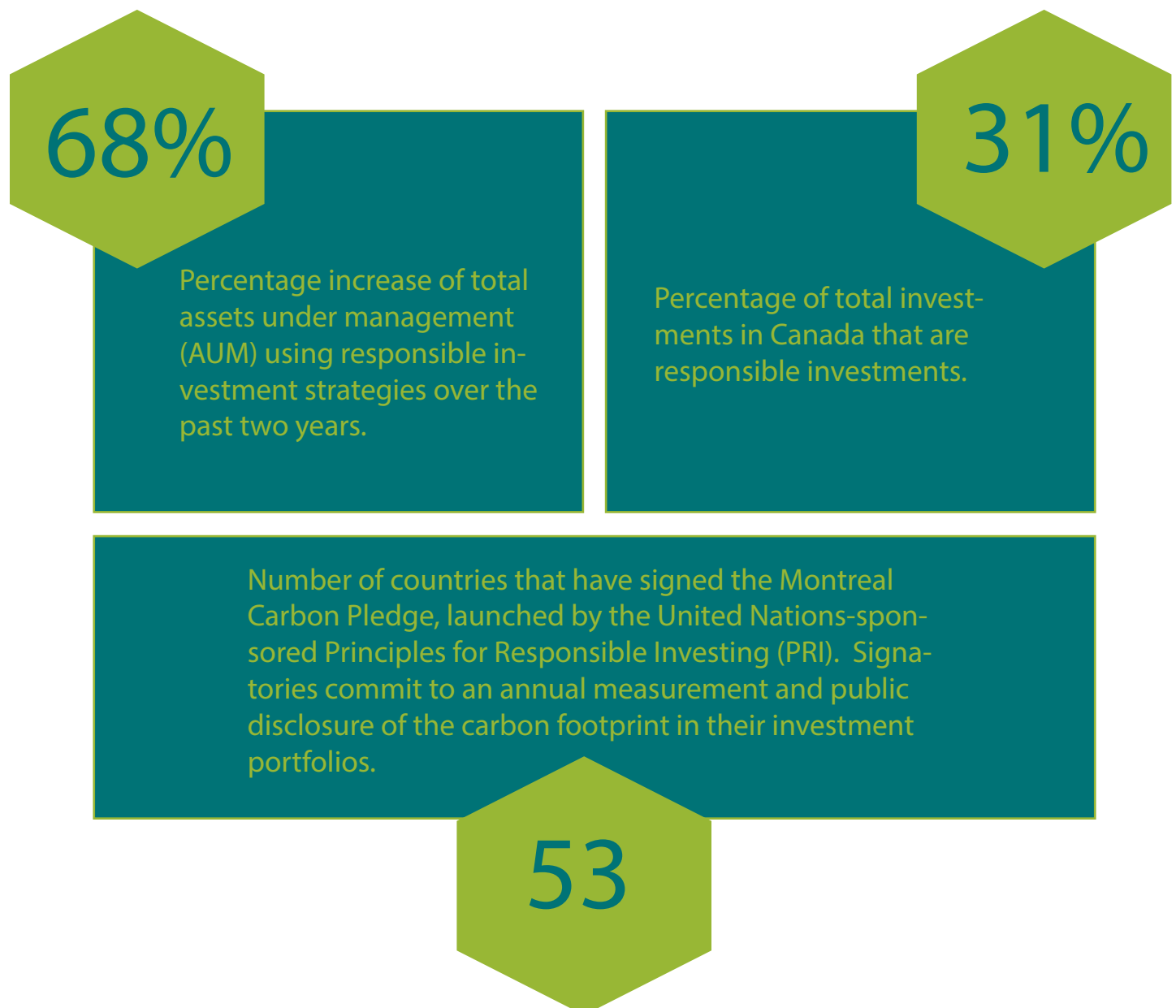
Carbon Tilts

Instead of eliminating companies completely from the portfolio, investors can underweight those with carbon-reliant assets and overweight those with a smaller carbon footprint.

Responsible Investment Trends

A recent report by the Responsible Investment Association shows that Environmental, Social and Governance (ESG) criteria are increasingly being used to help managers identify risks that are not addressed by traditional investment analysis. Sustainability-themed funds are helping investors identify sustainable businesses that are involved in energy efficiency, green infrastructure, clean fuels and other sectors that provide adaptive solutions to some of the most challenging issues of our time.

A growing number of investors are making the link between a company's climate performance and their broader risk management policies and frameworks. Failure to communicate climate performance and demonstrate climate leadership can lead to negative screening by institutional investors.



Physical Risks

Physical risks are those that arise from the changing climate itself, like damage to property from extreme weather events. Vulnerable industries include agriculture, fisheries, forestry, tourism, water, real estate and insurance.

The average rise in temperature between 1948 and 2007 in Canada - twice the global average.



1.3C

Flooding

↑ 12%

Mean precipitation increase across Canada over the past 50 years³⁰

The estimated financial cost of recent flooding in Alberta³¹

\$460 M

+20 Average number of days of rain per year nationally vs in the 1950s

Insurance

Real estate is a major component to many insurer portfolios, and is directly affected by adverse weather.

Agriculture

Increasing amounts/variability in precipitation, widespread flooding, more frequent extreme weather, seasonally dry conditions, and changes to biological and ecological interactions negatively impact crop yields and livestock management. They also affect the use of fertilizers and pesticides, which cause further harm.

\$6.3 M

in damages were claimed through production insurance in 2010 by field vegetable producers after unusually wet conditions made it impossible to harvest crops.

Forestry

Forest fires, drought, storms, damaging insect/disease attacks and a change in timing of spring bud burst are becoming increasingly common. An increase in precipitation will not be sufficient to keep up with the increased evaporation from rising summer temperatures. This leads to a decrease in soil moisture, causing drought-resistant species to displace and change the composition of existing ecosystems. This will add a level of uncertainty to forest management.

Fishing

Most fish species need a distinct set of environmental conditions to reproduce and survive, and climate factors disrupt these conditions. Climate change is likely a factor in the declining salmon stocks on the Pacific coast. Ocean acidification affects shellfish operations, that now have to modify the pH of the water they use to raise shellfish in their tanks. These factors will influence the predictability and profitability of commercial fisheries in the future.

Reputational Risks

Companies that have projects and practices that contribute to climate change or actively reject it risk being the target of campaigns that can influence profitability. Stakeholder groups are ever more interconnected, meaning that a local community issue can become of global concern, unimaginable ten years ago.

Reputational risk can also adversely affect a company's ability to recruit and retain qualified and skilled employees. Edelman, one of the world's largest public relations firm, lost four executives who lead its corporate-responsibility practice – at least in part because of the company's unwillingness to take a strong stand on climate change. Two influential clients have also left the firm over the climate issue.

11
million

The number of Volkswagen diesel cars in America that had software that could detect when they were being e-tested, and change performance to improve results. The company's stock price has fallen, and it is projected Volkswagen will not be profitable for another two years due to legal costs.

Research by Brand Finance suggests that, due to the scandal, Volkswagen's brand value has dropped by

\$10
billion

Climate Change Opportunities

Climate change has created new business opportunities, including:



Canada's Approach to Carbon Pricing

Carbon pricing exists because the prices of goods and services do not reflect the costs that GHG pollution from production place on society. A carbon pricing policy aims to hold companies accountable for their emissions and for the effects that they have on society.

Carbon Tax

Under a carbon tax, a fixed tax or fee is set per unit of carbon equivalent emitted. It can be levied upstream at the point of fossil fuel production, or downstream at the point of sale for the product.

Example: British Columbia's carbon tax is a downstream tax, set at \$30/tonne.

Cap and Trade

In a cap and trade system, the amount of emissions that all regulated entities can emit is fixed. Each regulated emitter submits an allowance for each tonne of carbon emitted. Allowances can be traded; emitters who reduce their emissions can sell theirs to emitters who need more.

Governments can (1) Allocate all allowances for free then auction at a greater % over time, (2) Start 100% auctioning but expand coverage of sectors under the system, (3) Have a mixed system.

Example: Quebec has a system under the Western Climate Initiative (WCI). Ontario launched theirs in 2017, also linked with the WCI. Manitoba also has plans to join the scheme in the future.

Regulation Standards

In this type of system, the regulator establishes an emissions rate per unit of output or input. There is no absolute limit on emissions. Emitters emitting below the target intensity earn credits, and those emitting over require credits, creating the potential for trading.

Example: In Alberta's Specified Gas Emitters Regulation (SGER), firms can pay a penalty for every tonne over their target with proceeds transferred to a low carbon technology fund. The SGER was in effect until the end of 2017. Alberta has also introduced an economy wide carbon levy.

Nine Considerations for Carbon Pricing

#01 Stringency

Stringency is the level of change a policy requires for covered sources. In cap & trade and intensity-based systems, stringency is the size and pace of the emission reduction commitment. In a tax system, stringency is the tax's rate of increase over time. More stringency produces a higher carbon price and greater reductions. Policy makers may wish to design policies that increase in stringency over time, as British Columbia's carbon tax did in its first several years.

#02 Coverage

Coverage refers to who (or what) is subject to the carbon price. Which greenhouse gases, sectors and entities are part of the system? Together with stringency, it defines the policy's emission reduction ambition. Wider coverage enables a more ambitious reduction goal. Broader coverage also typically delivers a more cost-effective policy (by sharing the burden more widely).

#03 Revenue Generation & Recycling

Taxing, auctioning allowances and fees collected all create a public revenue stream. Governments use this revenue to offset other taxes (like BC does), rebating revenues directly to covered entities, investing in carbon-reducing infrastructure or climate adaptation measures and supporting clean projects (like Alberta and Quebec).⁴⁶ The use of carbon revenues helps to determine the cost-effectiveness of the policy and influences public acceptance. Reducing other taxes is the most cost-effective option, but support for clean technology can be effective if well-designed.

Nine Considerations for Carbon Pricing

#04 Distributional Impacts

Some studies suggest that a carbon price may disproportionately affect low-income households, since they spend a larger portion of their income on energy. To mitigate any such impacts, governments can use carbon revenues to compensate those disproportionately affected. In B.C., for example, the government has created tax credits for low-income households and rural communities as compensation (using about 23% of total carbon revenues).

#05 Competitiveness Impacts

Some sectors are disproportionately affected by a carbon price. Competitiveness impacts are typically small for current carbon prices (under \$30/tonne), and recent analysis by Canada's Ecofiscal Commission provides province-specific information regarding potential competitiveness impacts of carbon pricing.⁴⁷ Governments can use policy to address competitiveness concerns; a commonly-used approach, in a cap-and-trade system, is to provide some (or all) free allowances initially. A tax system can also address competitiveness concerns by recycling revenues through targeted tax cuts or clean technology incentives. Government support of carbon-sensitive industries requires long-term strategies to help businesses adapt and innovate.

#06 Jurisdictional Links

Carbon pricing systems can be linked between jurisdictions; Quebec and California are currently linked, with Ontario on board to join. Linking allows for allowances to be traded to regions that may be more energy-needy, and is advantageous because with a greater pool, supply of allowances creates lower prices. Since any reduction in emissions, regardless of location, contributes to mitigating climate change, the ability to link delivers economic benefits without sacrificing direct environmental change. Because the marginal cost of emissions reduction will equalize across jurisdictions, participants agree to a common level of stringency.

Nine Considerations for Carbon Pricing

#07 Offsets

Offsets are emission reduction activities that occur outside of a sector, but which can be measured by the system. Offsets include considering activities like renewable power projects or capture of carbon emissions like forest planting. Alberta and Quebec's systems allow for offsets. BC's system does not. Offsets can reduce the costs of GHG reduction by providing greater flexibility, and bring in activities not normally covered by carbon pricing (like forestry and agriculture). Offsets also present challenges, such as ensuring reductions are permanent and real.

#08 Targeting Price or Quantity

Both a cap and a tax have advantages. A cap ensures that an overall emission target will be met, while a tax provides a predictable carbon price. This helps to make carbon-lowering investments (in cars, technologies, etc.) with greater certainty. Prices can fluctuate in a cap-and-trade system, creating uncertainty for low carbon investments. A tax is more predictable, which can help in revenue recycling (tax cuts, incentives, investments). A hybrid system can balance the trade-offs, giving a well-rounded and effective approach.

#09 Administrative Issues

A carbon tax system is easier to develop and administer, so carbon pricing (and revenues) can begin sooner. It only took BC five months from announcing to implementing its tax. Cap-and-trade systems take longer to establish; a jurisdiction join can make it easier if one party already has an existing system. There are ways to simplify the implementation of a cap-and-trade system, such as starting with a fixed price system for the first years while the details are developed.

A Price on Carbon Opens New Possibilities

Carbon utilization is an exciting new area with significant applications:

The NRG COSIA Carbon XPrize and Alberta's new Carbon Conversion Technology Centre are uncovering some amazing new technologies to reurpose CO₂ from just a waste gas to a valuable input product for all kinds of practical application.

Concrete

Cement production typically accounts for 5% of the world's CO₂ emissions but injecting CO₂ into cement sequesters the CO₂ while reducing material costs and giving additional strength to the resulting concrete.

Batteries

CO₂ can be transformed into "carbon nanotubes," which have properties of conductivity enabling the production of higher capacity batteries and other electronics.

Yoga Mats

Yoga mats are only just one example of the exciting new developments associated with the conversion of CO₂ into nanoparticles, which can be used to design clothing and all kinds of everyday consumer items.

Sector-Specific Considerations



Transportation

Transportation energy use and emissions are dependent on a combination of three factors: vehicle efficiency, fuel carbon intensity, and vehicle demand. Due to the relationship between these three factors, all three of these factors need to be considered to reduce total transportation impact. Despite current initiatives, Canada will fall short of the 80-by-50 target, or of achieving an 80 per cent reduction in emissions by 2050.

Transportation is the most difficult to decarbonize because replacing fossil fuels is economically challenging. The current global transportation energy mix is still dominated by petroleum fuels like gasoline and diesel (approximately 90%) but we are now seeing a more diversified mix as natural gas, liquid biofuels, electric vehicles, and hydrogen fuel cells are gaining an ability to compete on price, range, and market share.

In order for Canada to achieve its emissions goals, we must diversify beyond oil, innovate new technologies, take political action and take leadership. Corporate responsibility leaders have to jumpstart engine and fuel markets. Otherwise, they will develop too slowly. From Walmart to Interface, big businesses are taking leadership on climate change and placing it high on the policy agenda, where it should be, and other businesses need to follow suit.

28%

Transportation makes up 28 per cent of Canada's inventory of energy-related GHGs. We won't limit the average temperature rise to less than 2C by 2050 without including the transport sector, which accounted for more than half of the increase in Canada's emissions from 1990-2013.



Learn

Your transportation footprint - how does freight and passenger mobility affect your company? BSR's Future of Fuels has a suite of research initiatives that explore transportation's sustainability impacts.

Use

Take advantage of new tools and opportunities to collaborate. BSR is developing a Commercial Fuel Sustainability Tool, CALSTART, and there are also many others, listed at the end of this report.

Create

Pilot new technologies, including electric vehicles, natural gas, hydrogen and biofuels, in order to understand how a poly-fuel economy will affect your business - and how these technologies actually work on the ground.

Talk

Engage with local communities that care about shared mobility solutions, and work with them to create community-friendly initiatives.

Tell

Tell policymakers that transportation matters, and emphasize that the climate agenda needs to include strong incentives for low-carbon fuels and vehicles.

Built Environment

Almost 70 per cent of all electricity produced is used to operate buildings, and the building sector accounts for nearly 40 per cent of all CO₂ emissions. Energy impacts are even higher when taking Scope 3 emissions into account. According to the International Panel on Climate Change (IPCC) Fifth Assessment Report, one way to phase out CO₂ emissions produced by this sector is to transform the way buildings are designed, built and operated.

Since buildings stay in the “operational” phase of much of their lives, we need to look at ways to improve daily performance. Performance includes a range of elements, including energy use, water and waste management, and emissions and effluents.

BOMA BEST® is Canada’s largest green building and environmental management program designed by the commercial real estate industry. It has a collection of time-tested and practical best practices that focus on how buildings are managed on a daily basis. These practices can be applied to any building type, including offices, retail, light industrial, multi-unit residential and health care facilities. Creating management plans and resource tracking based on these best practices will help your business minimize its carbon footprint and impact on climate change.

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Best Practices to Minimize Carbon Footprint

1. **ENERGY ASSESSMENT:** You can’t fix what you can’t see or measure. Audits identify low-cost improvements and red flag issues to be addressed.
2. **ENERGY MANAGEMENT PLAN:** Develop a plan to address the issues that came up in the audit. Be strategic to maximize your ROI. Short to medium term targets can help buy time for longer term measures.
3. **PREVENTATIVE MAINTENANCE PROGRAM**
4. **WATER REDUCTION POLICIES**
5. **WATER ASSESSMENT**
6. **WASTE DIVERSION PROGRAM**
7. **CONSTRUCTION WASTE REDUCTION POLICIES**
8. **MANAGEMENT PLAN FOR OZONE DEPLETING SUBSTANCES**
9. **PHASE OUT OZONE DEPLETING REFRIGERANTS**
10. **HAZARDOUS PRODUCTS MANAGEMENT PLAN**
11. **TENANT FEEDBACK PROGRAM**
12. **SUSTAINABLE BUILDING MATERIALS PURCHASE PLAN**
13. **TENANT COMMUNICATION PLAN**

Oil & Gas

Canada's oil and gas industry drives economic activity in 12 of Canada's 13 provinces and territories, and is the largest private industry sector in the country. In 2014, it was responsible for approximately \$81 billion in capital, and contributed around \$17 billion to governments in royalty payments, land payments and income taxes.

Because it produces approximately 25 per cent of Canada's GHGs, the industry is finding ways to reduce its emissions through investments in technologies that improve environmental performance and produce lower emissions per barrel. Organizations like Canada's Oil Sands Innovation Alliance (COSIA) are driving collaboration among members, which has caused a 30 per cent reduction in pre-barrel carbon emissions since 1990.

COSIA has identified Environmental Priority Areas, including tailings, water, land, GHGs and monitoring. A COSIA challenge is issued to external companies, research agencies, academic institutions and other stakeholders to submit solutions, which are evaluated and grants are given to the successful bids. The development of Direct Hot Water Production, which can improve the environmental performance of mineable oil sands by replacing hot water production with water-use economizers or low-grade steam is one of these solutions that received COSIA's support.

Oil & Gas Transportation

Resource extraction takes place far away from refineries, and the industry relies heavily on pipelines and rail to transport products. Pipelining is the most reliable and energy efficient option.

Pipelines rely on electric-powered motors or natural gas-fired turbines. Canadian Energy Pipeline Association (CEPA) member companies transport around three million barrels of oil per day, equivalent to 4,200 rail cars or 15,000 tanker trucks. They generate just a fraction of overall emissions.

Low commodity prices, reduced demand and climate change policies have transformed the industry. The International Energy Agency (IEA) predicts that it will peak in 2040 with a sustained level of demand for the near future. There Wind, solar and geothermal use is increasing, with natural gas as a reliable support.

Fugitive emissions in natural gas are now being addressed to increase efficiency, and targets are set so we can reap the benefits of this clean hydrocarbon.

Lower-Carbon Options

Mining

4%

of Canada's total GHG emissions come from the mining and metals sector.⁵² Most of these emissions come from transportation, processing and fugitive methane emissions from coal mining.

As the world transitions to a low-carbon future, the demand for natural resources will be influenced, with some more impacted than others. Steelmaking coal will be needed for low-emission, high-density housing, copper for electric vehicles and alternative energy and zinc for galvanization to extend material life cycles. Companies will have to understand the changing markets and respond accordingly if they are to survive the transition to a low carbon reality.

Carbon regulations have emerged across the globe. British Columbia and Alberta now have carbon costs in provincial regulation, these kinds of changes need to be integrated into the decision making process for companies.

Engaging with governments is critical for the mineral sector because it is so emissions-intensive and a trade-exposed industry. Ineffective carbon policies could create a competitive disadvantage and carbon leakage, so government and business need to work together to both incentivize carbon reduction practices and increase global competitiveness.

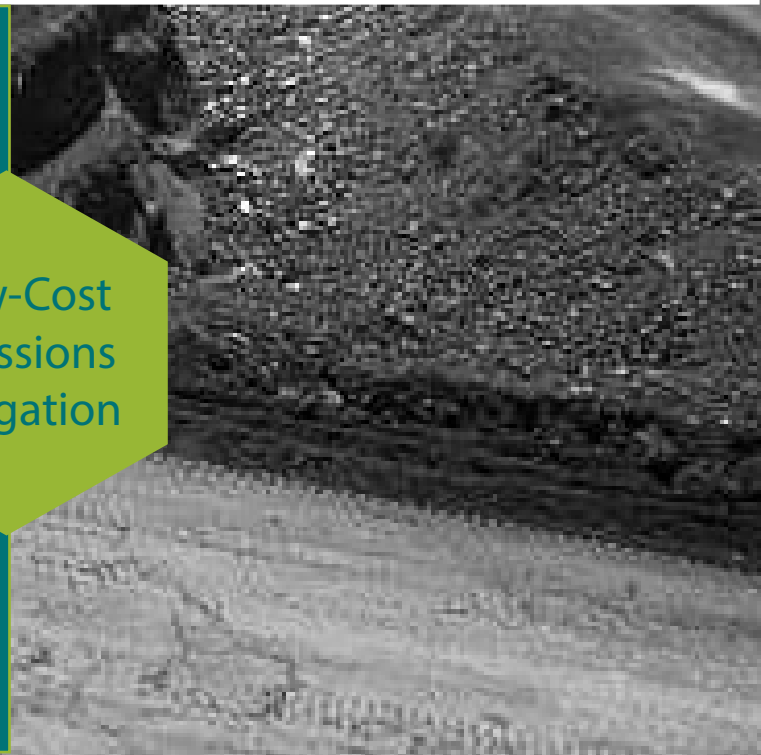
Changes in technology will need to happen to improve efficiency not only in the operations, but also down the supply chain. Understanding and addressing risks associated with their supply chain will help companies move forward.

Physical risks of climate change are also affecting the mining sector, including rising sea levels, rising temperatures and changes in precipitation. These can result in increased intensity of severe weather, and can cause flooding and drought in mined areas. Tracking climate data can ensure that these factors are integrated into project designs and environmental management plans.

To reduce emissions, the mining sector needs to tackle both efficiency improvements and implementation of low-carbon technologies. Companies should target the lower half of the cost curve to withstand the impacts of higher carbon prices and demand shifts. Electrification is a potential way to reduce emissions, cost and carbon exposure.

Using liquefied natural gas instead of diesel is one way to do this. A 2015 Teck Resources Ltd project used a diesel/natural gas hybrid at a steelmaking operation and reduced GHG emissions by up to 20 percent, producing virtually no sulphur dioxide emissions. This can reduce fuel costs by more than \$20 million and eliminate about 35,000 tonnes of emissions annually.

Low-Cost
Emissions
Mitigation



Manufacturing

Support for clean energy investments and long-term strategies that help industry players plan for the future are driving manufacturers to consider the climate impact of their operations and to make changes that will ultimately reduce their emissions.

Manufacturing is an energy-intensive sector. The cost and reliable supply of energy are key consideration for manufacturers due to their impact on current margins and on future volatility. Risks of rising energy costs and power supply disruption has to be managed, and one way to accomplish this is to improve the energy efficiency of individual operations.

Government programs like the Canadian Industry Program for Energy Conservation help to promote voluntary actions to decrease energy use. Private consultants and trained coordinators also support companies looking to make a change through internationally recognized standards like the ISO 50001 Energy Management Standard.

Renewable energy sources should be prioritized, The biggest GHG reductions come from using carbon neutral fuel sources such as biomass, hydroelectric power, wind, solar and other renewable sources.

Energy efficiency programs will continue to play a key role in reducing the manufacturing sector's GHG emissions and carbon footprint. The use of alternate and renewable energy resources will be another driving factor in improving the sector's sustainability performance.

10%

of Canada's GDP comes from manufacturing. The sector provides nearly 10 per cent of all Canadian jobs, employing 1.7 million people in 2015, and makes up the majority of the country's exports.

11%

The decrease in overall energy use by the manufacturing sector between 1995 and 2013, due to productivity improvements and energy efficiency initiatives. A 2013 study found a 24 per cent increase in efficiency since 1995, yielding millions of dollars in savings.

\$50
million

The amount of money saved by Resolute Forest Products after developing an Energy Blitz program in 2009. Using the Kaizen approach, the company's total energy costs were reduced by 6.7 per cent in its first year. The approach was applied across all operations, where continuous improvement managers were responsible for identifying best practices and sharing models with other facilities.



Retail

Retailers rely on all kinds of energy to power their enterprises and provide clients with products. Leadership could include placing a shadow price on carbon and emissions monitoring to ensure resources are devoted to addressing “hot-spots” in the supply chain. Climate change directly affects consumer decisions. Even high end fashion is undergoing some transformative change as consumers are increasingly demanding more information on how their clothes affect the planet and people in the supply chain. Retailers are responding with innovative ideas to remain competitive in this new reality.

Retailers measure areas associated with their carbon footprint, including product transport, facilities energy consumption and waste.

Product Transport

Transportation accounts for up to 60 per cent of all carbon output, and more efficient freight management significantly reduces both shipping costs and overall carbon footprint. Sustainability leaders consistently set product transport goals as part of an overall sustainability plan.

Direct Operation

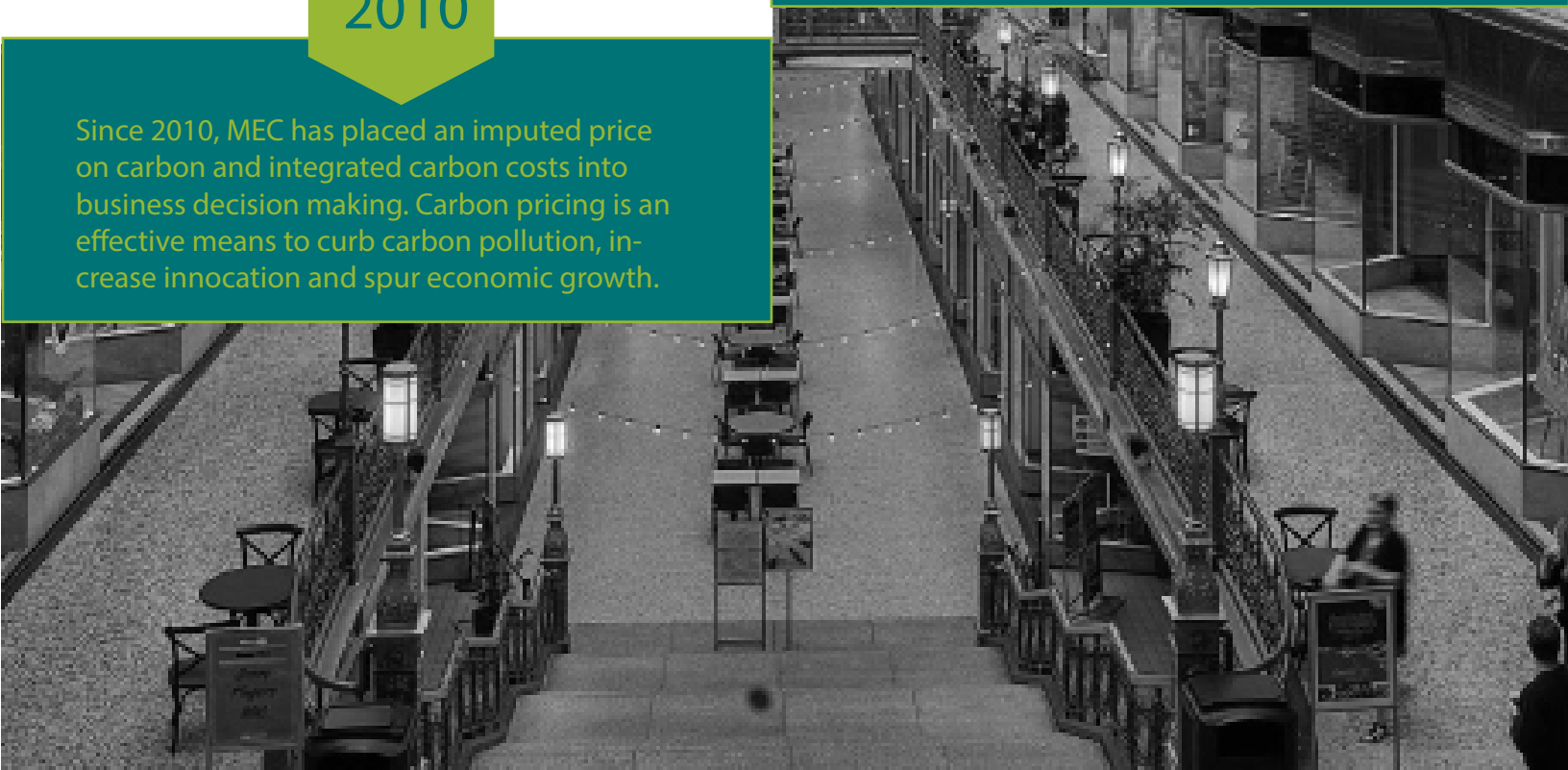
Retailers can minimize direct operations GHG emissions through energy conservation and efficiency measures. Setting a LEED Gold certification policy is one strategy that can help; high-performance green buildings save up to 50 per cent of energy compared with conventional commercial buildings.

Waste

Producing life-cycle assessments and pursuing environmental product declarations are strategies that can help companies understand the “hot-spots” across all stages in a product’s life. Producing sustainability purchasing guidelines for product development also helps reduce GHG emissions.

2010

Since 2010, MEC has placed an imputed price on carbon and integrated carbon costs into business decision making. Carbon pricing is an effective means to curb carbon pollution, increase innovation and spur economic growth.



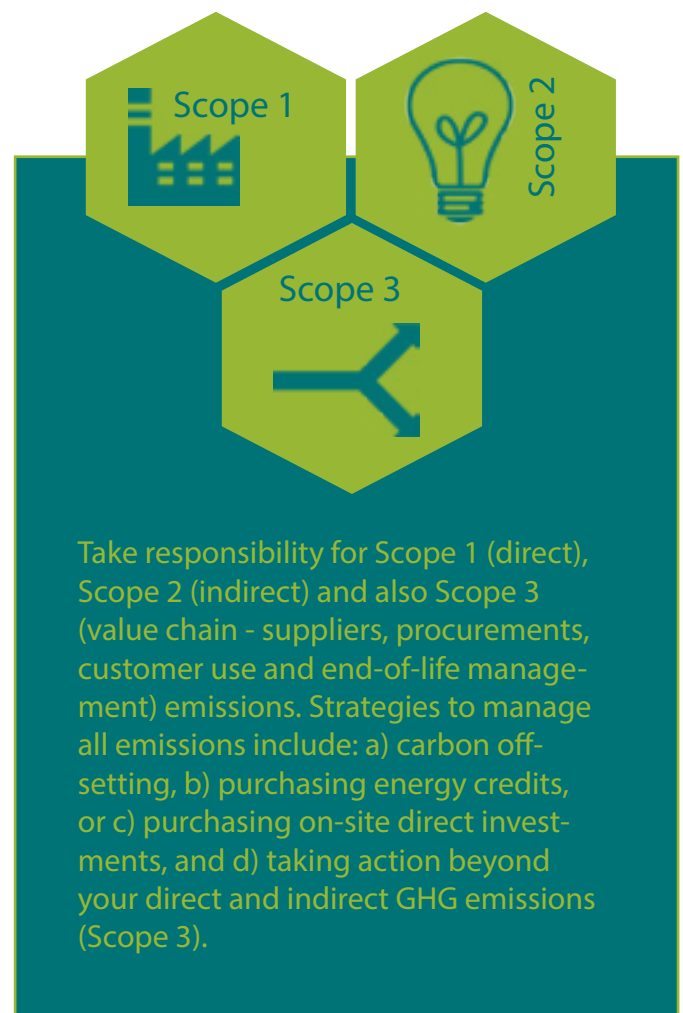
Developing a Climate Change Action Plan

When creating a climate change action plan, start first by conducting a scan of the organization's 'hot-spots', and identify any 'low-hanging-fruit' (opportunities with a substantial financial return and a quick pay-back period). Prioritize and make a plan to address as many of these as possible. Analyze the embedded emissions in electricity, heating and transportation. Strategize and create roadmaps to minimize emissions over time using efficiency gains, process improvements, or new technologies.

Carbon Offsetting

Carbon offsetting is one established method for becoming carbon neutral. Paying another company with lower emissions to absorb the release of CO₂ balances out the equation: climate change is a global problem and greenhouse gases spread evenly throughout the atmosphere, so reducing them anywhere helps in protection.⁵³ The exchange of money allows for investments in green technologies and other initiatives that keep on contributing to lowering emissions.

The reductions achieved by an offset project need to be more than what would have happened had the project not taken place. If a project is viable in its own right through the sale of electricity or through government funding, for example, it cannot be used as an offset project since it would have happened regardless of investments from carbon markets. This is the concept of additionality: if carbon credits are awarded to activities that would have happened anyway, emissions are allowed to rise without a cut elsewhere, making the process meaningless. Instead, a carbon offset needs to achieve reductions IN ADDITION to reductions from usual business activities.



Some other criteria for offsetting includes: validation and verification of the project by third-parties, listing the offsets on a public registry, and systems to control “leakage”, where the creation of a GHG reduction in one region causes an unintended increase in GHG emissions somewhere else.

Sustainable Energy Providers

Another proven strategy is to purchase green energy from sustainable energy providers. When you choose renewable energy (electricity or gas), renewable sources are produced on your behalf. This helps reduce the amount of energy needed from fossil fuel based sources.⁵⁴ Purchasing green energy avoids the large, upfront costs of owned energy assets.



100%

Mountain Equipment Co-op (MEC), recently partnered with Bullfrog Power, purchasing 100% of its current and future needs. MEC chose to use both green electricity and green natural gas for all of its current and future facilities, which presently includes 17 stores, its head office and distribution centre.

Direct Investments

Lastly, companies interested in taking a longer time-horizon can opt for on-site direct investments. Hewlett-Packard, Kaiser Permanente, Bloomberg, Dow Chemical, Google, and Amazon Web Services have all made investment announcements around renewable energy project purchases in recent months.⁵⁶ Many companies with a history of purchasing Renewable Energy Certificates (RECs) have transitioned instead to favoring Power Purchase Agreements (PPAs) and on-site direct investment, driven by longer-term commitments to emissions reductions and renewable energy. These companies are looking to capture the long-term value of renewable energy, like electricity price certainty. In some cases companies are able to get closer to cost parity (the price at which renewable energy is cost competitive with fossil fuel) with long-term PPAs or on-site direct investment. 24 companies from the Fortune 100 and Global Fortune 100 have set specific targets — either percentage of energy, capacity (MW) or level of investment — for buying and investing in renewable energy for their own operations.⁵⁷ Unlike GHG offsets, RECs are not held to additionality standards. Regardless of what causes the project to be built, the energy attribute certificate, like offsetting, holds companies accountable for their energy use and directly impacts their reputation in the market.⁵⁸

Quantifying GHG Emissions

Businesses have different environmental impacts but GHG emissions occur everywhere. Management programs are influenced by industrial sector, types of emissions, business growth, geographic distribution of operations and corporate culture.

A GHG emissions inventory exercise can promote wider analysis of the strategic risks and opportunities posed by emissions.

A well designed and maintained GHG inventory can serve several business goals including managing risk and identifying reduction opportunities, assisting with public and mandatory reporting initiatives, participating in GHG markets, gaining recognition for early voluntary action and subsequently measuring and reporting progress. Generally accepted financial accounting and reporting principles influence and drive GHG emissions accounting and reporting to ensure that the disclosed information represents a true, accurate and fair account of an organization's emissions. The GHG Protocol Corporate Accounting and Reporting Standard is the most widely accepted and used standard for mandatory and voluntary GHG programs.

The standard and guidance were designed to achieve the following objectives:

- To help companies prepare a GHG inventory that represents a true and fair account of their emissions, through the use of standardized approaches and principles;
- To simplify and reduce the costs of compiling a GHG inventory;
- To provide business with information that can be used to build an effective strategy to manage and reduce GHG emissions;
- To provide information that facilitates participation in voluntary and mandatory GHG programs; and
- To increase transparency in GHG accounting and reporting among various companies and GHG programs.

An emissions inventory will make an explicit link between an organization's climate impact and energy use as energy consumption patterns are also disclosed. Companies should be aware of the range of possible emissions categories and the extent to which their business activities contribute to each one.

Steps for a comprehensive emissions inventory

- Defining operational and organizational boundaries
- Identifying direct and indirect emissions
- Selecting a data year
- Collecting data
- Gathering emissions factors for each activity
- Calculating emissions
- Setting goals and targets

Establishing Goals and Targets



To succeed in reducing carbon emissions, an organization will need both targets and technology. Goals and targets need not be limited to GHG reductions but can also include strategic initiatives and climate adaptation strategies. Ultimately, the goals must fit the company's capabilities, culture and business model.

Most companies develop goals by analyzing risks and opportunities within their many business units. Energy efficiency targets and GHG reduction targets are often developed in parallel. However, many organizations also link broader environmental goals such as water and waste minimization, to efficiency improvements and climate mitigation efforts. Energy efficiency offers near-term realized financial benefits while the value of GHG reductions are more difficult to quantify and connect to a company's bottom line. In making the business case for climate mitigation, companies typically focus on cost reductions

and operational improvements associated with the energy efficiency projects.

Climate targets should be sensibly linked to organizational goals and companies should avoid creating one universal reduction target. Developing a set of diverse targets related to emission reductions, cost savings, operational improvements among others across different business units that all contribute to overall business objectives will be most effective.

More than any other action, setting public emissions targets is the best indicator of a serious commitment and while they are not legally binding, they do put real pressure on companies to perform. Leading organizations realize that reducing climate impacts is just one component of how they raise overall corporate performance and reputation.

Evaluating Carbon Management Alternatives

With no shortage of options to reduce carbon emissions and address climate change, perhaps the more difficult ask is determining which solutions, or mix of solutions will reduce emissions on the scale of what is needed to avoid disastrous climate change impacts. The evaluation of options is often conducted in an iterative fashion with goal setting. Some companies set goals and then search for ways to achieve them while others consider options for reducing emissions and then set goals accordingly. Ultimately, the goal is to find ways to reduce GHG emissions in a manner that supports other business objectives.

An increased emphasis on energy efficiency can help slow the pace at which climate change risk increases, no reverse the trend. For companies who have not actively pursued energy efficiency and operational improvements, there is likely to be much “low-hanging fruit” and opportunities to make immediate progress against stated emissions reductions goals. Increasing energy efficiency applies to all aspects of a company’s operations from product design, raw material sourcing, infrastructure, production, processes and other useful end life of products.

Criteria to evaluate and prioritize reduction activities

- Materiality to business (i.e., level of importance to key internal and external stakeholders)
 - Costs to implement
 - Collateral benefits to the company, the environment and the community
 - An understanding of the opportunities inherent in the emissions inventory
 - Net return on investment (not only financial but also efficacy in terms of GHG reduction potential)
 - Time to implement
 - Contribution to the core business strategy, priorities and goals
 - Contribution to the reputation and brand image
 - Benefit to customers, suppliers, business partners
 - Barriers to implementation (including technical and technological)
- Other derived indirect GHG reductions such as water efficiency standards and recycled

Top 10 Considerations - Carbon Risks and Benefits Disclosure

#01

Respond to the yearly CDP (Carbon Disclosure Project) climate change questionnaire. Investors want to know risks and benefits so they make the right investing choices.

#02

Climate risk needs to be strategically managed and treated as carefully as any other. Stakeholders want to know how your business assesses and manages risk.

#03

Describe how opportunities are integrated into corporate strategy.

Report on climate and carbon issues in the context of your business.

#04

#05

Understand the information to fit your business operations. Emissions intensity and climate change-related risks vary between sectors and countries of operation.

#06

Pick a knowledge standard to report your carbon footprint.

Engage investors on emissions issues.

#08

Use your position on climate change to gain competitive advantage.

#07

#09

Report forward-looking information, focusing on the expected financial implications of climate change and potential risks.

#10

Participate in industry/regional collaboration and engaging key stakeholders such as employees, customers, and suppliers in your impact reduction efforts.

Engaging Stakeholders

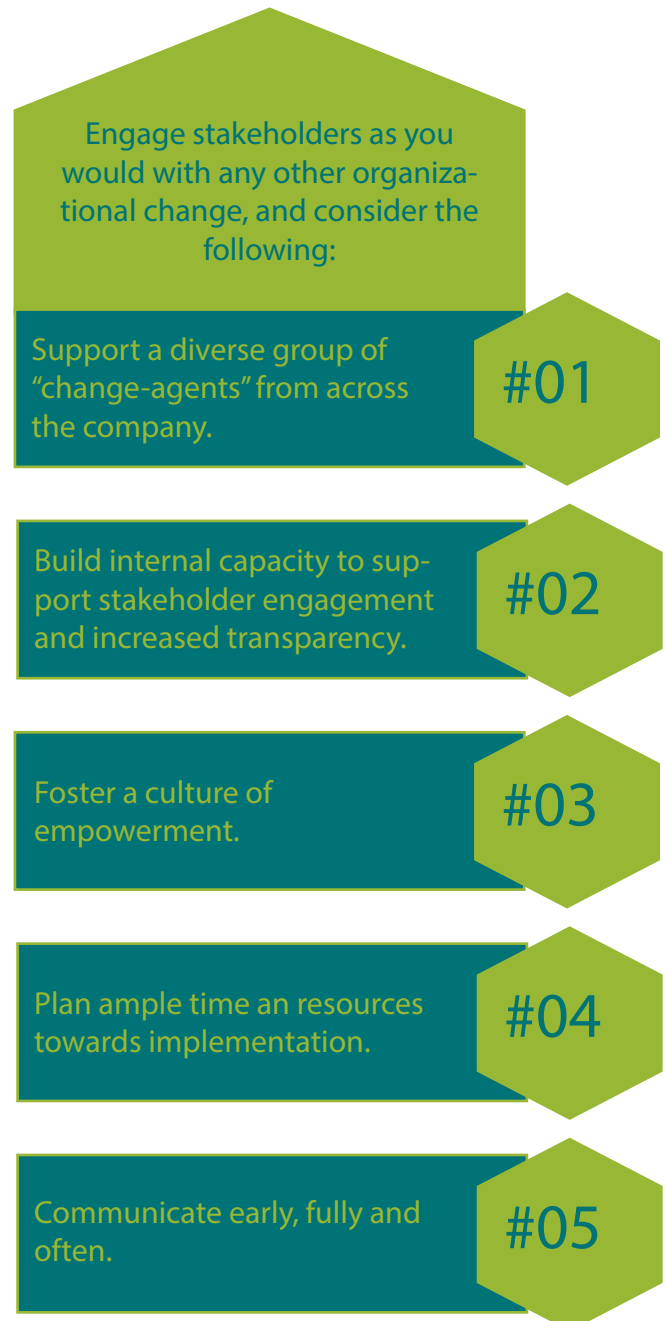
Stakeholder engagement is essential in the age of accountability. Organizational change can be a complex process and support from employees, investors and others is essential for a company to achieve its climate goals.

It is important to develop a dialogue with stakeholders around climate change that focuses on solving climate issues. Stakeholders typically include employees, shareholders, customers, suppliers, NGOs, the public, government, stock analysts, industry associations and insurance providers.

A business' external reputation needs to align with internal reality. In order to achieve this, communication and transparency are key. If they understand the connection between climate goals and their company's (and their own) vision and values, employees will come up with innovative ways to help achieve them.

It is also essential to get the support of the board and senior executives. Not only are these the movers of the company at large, but they are also the role models for the other employees, who are more likely to be on board with a changing business model if they see support from the top.

The initial champions of climate changes were leaders within environmental or CSR departments, but this cause is increasingly being shared with other departments such as corporate affairs, business development, strategic planning, marketing and engineering or maintenance operations.



10 Tips: Motivating Employees

#01

Ensure employee engagement is aligned with climate commitment to prevent mixed messages on what they should be doing.

#02

Provide an incentive. Encourage behaviours that will help reach both your corporate climate goals and your employees' personal lives.

#03

Choose an initiative that is meaningful to everyone.

Provide meaningful feedback.

#04

#05

Monitor progress. Monitoring the actual outcome will demonstrate that employees are contributing to making corporate commitments and is encouraging.

#06

Allocate resources to support employee engagement.

Keep the momentum going.

#08

Be imaginative and capture the imagination of employees.

#07

#09

Always look for ways to improve progress.

#10

Empower people to get and stay involved. Identify internal champions not only to be active participants in existing initiatives but also to encourage others to be part of the process and create new ones.

Supply Chain Engagement

Current climate mitigation efforts have focused on internal operational improvements, cost reductions and energy efficiencies. Although some success can come from this, the largest negative climate impact comes from beyond a company's Scope 1 and Scope 2 emissions. Successful companies are looking beyond their own operations and reaching out to their supply chains to determine the cost of their Scope 3 emissions.

Both upstream (suppliers) and downstream (customers) stakeholders contribute to an organization's Scope 3 GHG emissions. Engaging the supply chain is an important initial step toward better management of emissions. This is becoming an expectation and business priority, with increasing demands for transparency and improved guidance on reporting (e.g., GHG Protocol Corporate Value Chain - Scope 3 Standard).

For businesses in early stages of sustainability or Scope 3 accounting and supplier engagement may be a daunting task. Take things slowly and focus on the details. Determine which product and services are most material and prioritize products that are at the highest cost. Start with the suppliers who provide these high-cost products.

Companies can review purchased goods and services with their suppliers, including processes for natural resources and producing materials, energy use, transportation of materials, outsourcing of services, machinery, buildings, and usage and disposal of products by final customer.



Climate Reporting and Communications

Most companies acknowledge that climate change is an important business issue and communicate their mitigation goals online, through sustainability reports and in public addresses. Some organizations use a narrative approach which provides the rationale for their actions and demonstrates a willingness to engage in dialogue while others issue formal position statements on climate change that are used as baseline references.

Effective Climate Change Communication

#01

Public acknowledgement of climate change.

#02

Provide climate change material to your industry and business

#03

Link to and integrate climate change with business strategy.

#04

Be transparent on company performance to stakeholders.

#05

Be transparent on company's position on public policy.

Companies need to discuss climate change issues relevant to their industry. New product development and improved energy efficiency should be highlighted to demonstrate how climate change can positively impact business value.

Climate change reporting is most prevalent in the energy and financial services sector. This trend is not surprising because GHG emissions and emerging energy technologies impact and are impacted by financial services and the growth of new services, like certain insurance policies.

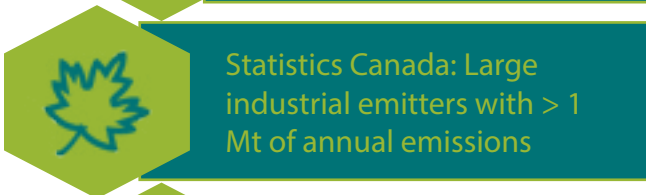
Reporting Frameworks

To track progress, companies publish year over year data on GHG emissions. A performance review is included to help break down the steps taken to achieve emissions targets. The communication of these reports help business leaders contribute to the discussion on climate regulation, engage in public policy dialogue and assert how their companies can contribute meaningfully. Transparency of corporate influence on climate policy is becoming a CSR issue, and lobbying efforts are now a measure of CSR performance.

International GHG reporting standards:



Canadian GHG reporting standards:



Best Practices for Communicating Climate Change

#01

Recognize that HOW information is communicated and the format are crucial. People do not learn alone, and learn in different ways. Enabling people to change means changing what is socially acceptable.

#02

Balance the solution to the scale of the problem. The communication for business should come from senior management. This will demonstrate the level of accountability within the company.

#03

Find ways to make positive behaviours into unconscious habit.

#04

Simplify messages and prioritize action steps that may be tied back to business priorities.

#05

Make it a pleasure – associate positive behaviour not with duty but with leisure, health or fulfillment.

#06

Help people move beyond small, insignificant or token behavioural change.

#07

Help people to understand that they are making a difference. Within a business, climate change management is the responsibility of every employee. Empower people and provide guidance and incentive to foster innovative solutions.

#08

Motivate change as individuals and teams. Providing incentives to encourage employees to mobilize and contribute to business goals. This benefits community engagement, shows leadership, and builds brand reputation and trust among stakeholders.

#09

Determine who should communicate, what should be communicated and how frequently to communicate. "Reporting fatigue" is an issue and a strategy coordinating formal reporting with less formal communication is the key to success.

TRANSFORMATIONAL CORPORATE CLIMATE LEADERSHIP

Transformational Corporate Climate Leadership involves committing to substantial carbon reductions in company operations and value chains and collaborating with stakeholders to enable the transition to a low-carbon economy. The following criteria build upon the nineteen Qualities of a Transformational Company.

- 

1. Sustainable Purpose Incorporate the intent to accelerate the transition to a low-carbon economy into the core mission and mandate of your company.
- 

2. Sustainable Customer Offerings Reduce the embodied carbon of your products and / or convert carbon into durable products. Offer your customers products that help them reduce their carbon emissions and adapt to climate change.
- 

3. Solutions-Oriented Engage stakeholders and conduct research and development to identify ways that your company can create innovative climate solutions through its core operations, products and services.
- 

4. Restorative Pursue restoration of the climate system by becoming a net positive carbon emitter. Go beyond carbon neutral and sequester or convert more emissions than your company produces.
- 

5. Long-Term Vision Adopt bold, long-term goals to eliminate all forms of GHG emissions from your company's operations and value chain. Set ambitious science-based GHG emission reduction targets.
- 

6. Sustainability Governance and Culture Adopt an enterprise-wide climate change policy with board-level oversight, integrate these commitments into executive and staff remuneration and align business decisions with these policies.
- 

7. Enlightened Leadership Engage the CEO and senior leaders to publicly endorse, champion and advocate for climate action within your industry and beyond.
- 

8. Employee Engagement Engage employees as climate ambassadors at work, home and in their communities. Help employees understand the linkages between their individual actions, investments and consumption, and climate change impacts.
- 

9. Inclusive Business Recognize that vulnerable populations depend on their local environment and develop initiatives to build local climate resiliency.
- 

10. Closed-Loop Obtain raw materials from recycled sources and take back and repurpose products that customers no longer need to avoid GHG emissions from raw material extraction and production, and landfills.
- 

11. Resource Productivity Pursue measures to significantly reduce the material and energy that go into your products and services to reduce their carbon intensity.
- 

12. Value-Chain Influence Work with your suppliers and customers to significantly reduce the carbon intensity of your shared value chain.

TRANSFORMATIONAL CORPORATE CLIMATE LEADERSHIP



13. Stakeholder Accountability and Transparency

Disclose carbon risks, mitigation and adaptation strategies. Communicate the carbon impacts of your products to customers through product labeling and other measures.



14. Customer Engagement

Provide information, tools, and incentives to help customers reduce the carbon impacts from using your products. Enable them to become climate ambassadors.



15. Industry Standards

Join or lead industry association initiatives to set low-carbon standards for your sector.



16. Multi-Stakeholder Collaboration

Join or lead partnerships to develop climate solutions by collaborating with industry groups, governments, environmental organizations, and academic institutions.



17. Finance Community

Proactively engage your finance stakeholders on the business imperative of transitioning to a low-carbon economy. Issue green bonds to attract financing for low-carbon investments.



18. Public Engagement

Engage the public on the importance of the low-carbon transition and the role they can play to reduce their impacts and become climate ambassadors.



19. Public Policy Advocacy

Advocate for public policy solutions to climate change, including support for carbon pricing. Veto industry associations that lobby against climate solutions.

Leading Publicly on Climate Change

Private sector leadership started the conversation about global climate action in 1992 after the Rio Earth Summit, but the problem has not yet been solved.⁵⁹ There is hope: the Paris Agreement has become the new reality for business as commitments to it have begun to inform investors and other stakeholders in their decisions. The problem is too vast for any single business or industry to solve climate change, and the spirit of collaboration is finally starting to take hold. It is currently projected that we will surpass a 2C temperature rise since pre-industrial times by 2050, and we are now racing against the clock to reverse the damage we have done.

How can organizations lead publicly on climate change?

#01 Collaborate with Policy Makers

Climate change requires a systemic solution, which only governments can provide. If firms are serious about climate change, they must move beyond greening their own operations to support the larger picture. A leading role for business is to empower climate change legislation and insist that trade groups prioritize climate policy activism.⁶⁰ Businesses that claim to be green but aren't loudly making their voices heard on the need for government action on climate change are dodging the critical challenge of sustainability.

#02 Change the Rules of the Game

The triple bottom line approach to sustainability with separate "prongs" for social, economic, and environmental impact has been challenged as more influencers connect the repercussions of a changing climate with issues like poverty, urbanization, over-consumption, economic standards, and community development.⁶¹ Expect more business leaders to step out and publicly call for more sustainable business practices whether through regulation, investor-led demands, strategic partnerships or new business models.

#03 Make Bold Committments

The private sector accounts for about 50% of the world's electricity consumption. Switching to renewables will accelerate the global energy market transformation and the transition to a low-carbon economy. Global initiatives are emerging, such as the RE 100 (members include IKEA, Google and Starbucks) and the Science Based Target initiative (CDP, UN Global Compact, World Resources Institute and the World Wildlife Fund). The latter supports emissions targets that align with the commitments of the Paris Agreement, and it hopes that by 2018, science-based target setting will become standard business practice.⁶²

#04 Forge Unexpected Alliances

NGOs in Canada work internationally on climate science, policy solutions and lobbying. Collaboration with corporations are on the rise, showing governments technological and economic possibilities.⁶³ For example, the Environmental Defense Fund, an NGO with partnership with many Fortune 500 companies, used its alliances to initiate a series of 16 studies to assess and solve the issue of atmospheric methane. The studies culminated in a Canada-United States joint announcement to reduce methane emissions by 40-45 per cent below 2012 levels by 2025.

#05 Create New Job Functions

National climate action plans will change the global regulatory landscape, but the implications for business will vary from market to market. Climate action plans may transform an organization's supply chain, energy use, logistics and business model. Organizations will be looking for "change-makers with influence" on policy, regulatory frameworks, employees, academics, NGOs and climate activists. An executive tasked with overseeing climate change activities will need a diverse skill set beyond the traditional sustainability professional.

#06 Talk About Climate Change

Climate change presents a communications challenge including public misunderstanding, transitioning from awareness to action, highly polarized and politicized environments and dealing with a growing sense of hopelessness. Businesses have well-established communication platforms that offer opportunities for discussions about risk and opportunity. The foundation for any communication effort must be raising awareness about what climate change means for business and what future initiatives are planned. The ultimate goal for any organization is to become an established thought leader that can affect wider change.

Closing Thoughts

Climate change is both the challenge and opportunity of our lifetime. Businesses should be putting strategies in place to reduce their greenhouse gas emissions and build more climate resilient infrastructure. Equally, the transition to a low carbon economy presents businesses with \$20 trillion in new opportunities in emerging markets alone between now and 2030. Businesses are well-positioned to seize the opportunities that clean growth presents resulting in new jobs, new technologies and less pollution.

It is time to go beyond “climate change as usual” schemes and adopt the Qualities of a Transformational Company - a 19 point plan to operationalize climate action. It is time to “Do Business Like a Canadian.” Our country and the amazing companies that are based here are incredibly influential internationally and the world is ready to see Canadian innovation at its best. It begins with a strong purpose and an open mind.

Corporate climate leadership today means being restorative, carbon productive and utilizing CO2 for all kinds of applications that spring new innovative products, business models, jobs, and solutions.

Let us adopt bold, long-term goals to be carbon-free and champions of low-carbon standards within our industry and beyond. Doing so will open new opportunities to engage investors, shareholders, suppliers, governments, employees, and consumers and build trust and excitement.

CBSR is calling on the private sector to adopt a set of Canadian Business Values, which include being eco conscious, collaborative, inclusive and globally minded to meet the climate challenge with exciting new solutions that can scale.

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References We Recommend

Exclusion of anyone from this list is not indicative of our respect for so many in this space but CCSR wishes to highlight some of the networks that we follow and draw inspiration from

Ecofiscal Commission - <https://ecofiscal.ca>

Energy Futures Lab and The Natural Step - <http://energyfutureslab.com>

Emissions Reduction Alberta - <http://eralberta.ca>

Carbon Productivity and Volans - <http://carbonproductivity.com>

Carbon XPrize - <https://carbon.xprize.org>

Climate Action Network - <https://climateactionnetwork.ca>

Imaginea Energy - <https://imagineaenergy.com>

Interface and Climate Take Back - <https://www.interface.com/US/en-US/campaign/climate-take-back/Climate-Take-Back>

International Emissions Trading Association - <http://www.ieta.org>

International Institute for Sustainable Development - <https://www.iisd.org>

Pembina Institute - <https://www.pembina.org>



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