

Climate Change Assessment










in alignment with TCFD guidelines

2020

Building for the Future



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About this report

This report contains forward-looking statements which are based on certain factors, assumptions, and expectations and are subject to certain risks that could cause actual performance and results to differ materially. For more information on forward-looking statements, please refer to "Forward-looking Statements and Forward-looking Information" in the Appendix on p. 37.

- * Unless otherwise indicated herein, the data in this report is provided as at December 31, 2019.
- * All dollar references in this report are to US dollars unless otherwise indicated.

Executive Summary

The Task Force on Climate-Related Financial Disclosure (TCFD) recommendations were created in response to growing demand for more thorough private sector climate disclosures. While supported by the Financial Stability Board and the G20, investors have been a driving force behind corporate uptake of the TCFD recommendations. This is our first TCFD-aligned disclosure, and it lays out how climate-related considerations intersect with our value proposition to the communities we serve and to our shareholders.

In 2020, we publicly signed on as a supporter of the TCFD recommendations. Our enterprise-wide environmental, social, and governance (ESG) goals include a commitment to publish a TCFD-aligned strategy report in 2020. With the publication of this disclosure, we are achieving one of three governance-related sustainability goals as published in our 2019 inaugural sustainability report.

This TCFD-aligned disclosure is informed by emerging industry best practice, TCFD guidance, expert external consultants, and internal experience. It contains information touching on all four TCFD categories; Governance, Strategy, Risk Management, and Metrics and Targets.

This disclosure is an important milestone in our long history of sustainability. We expect these disclosures to evolve over time in line with our capabilities to quantify and analyze climate-related risks and opportunities, and industry best practice.



Letter from Arun Banskota, President & Chief Executive Officer



Everything we do is directed towards making a positive lasting difference for the people we serve – our customers, our employees, and our shareholders. Our company's very purpose is sustaining energy and water for life.

Algonquin's roots go back 32 years. We started the company with the development of small hydro plants. This commitment to generating clean energy for our customers, communities, and planet continues, and today we have invested in over 3,000 MW of renewable generation assets. To date, all of our self-development has been in renewable energy, and therefore the assets we have developed do not add to the stock of global emissions.

Of the 1,798 MW of cogeneration and natural gas thermal assets acquired

to date, we have closed or sold 410 MW, thereby reducing our GHG emissions by approximately 1 million tonnes of carbon dioxide equivalents (CO₂e) every year and meeting our 2023 emissions reduction goal – well ahead of schedule.

We recognize that Algonquin has a leading role to play in the energy transition towards greener solutions. We understand that having a clear perspective on the risks and opportunities associated with climate change is essential to our success and enables us to build a business strategy that can create long-term value and foster meaningful change.

As a solutions company in the transition to a low-carbon economy, our climate competency allows us to help like-minded corporate citizens and clients.

We are releasing our first report aligned with the TCFD recommendations to help our stakeholders better understand how our business strategy and risk management plans are responsive to many of the climate-related risks and opportunities brought to light during our climate scenario analysis. This represents a major milestone on our journey of sustainability and has been mapped out in both the 2019 and 2020 sustainability reports.

Our 2023 Sustainability Goals, set out in our sustainability reports, guide us in building the foundation for a sustainable and prosperous future. The environment-related goals we set have been built into our business strategy to ensure we address the risks and opportunities that climate-change brings to our industry.

Our environmental goals reflect our active leadership in the transition from fossil-fuel sources to renewable generation. We are well on our way to achieving our goals with the early retirement of our Asbury coal generation facility and the build out of projects

in our 2,000 MW renewables pipeline. In addition, we have stepped beyond addressing our own needs for portfolio decarbonization and are intentionally partnering with, and working alongside, like-minded commercial and industrial customers and international governments to reduce or displace their emissions - ultimately reducing cumulative GHG emissions globally.

In addition to our environmental goals, our social goals express our passion to foster and support equality and customer service excellence. And finally, our governance goals exemplify our long-standing commitment to assess and measure our progress as a good corporate citizen.

The COVID-19 pandemic has further revealed the urgent need for changemakers and optimistic visionaries. If we are able to draw but one conclusion from this extraordinary year, it is that all companies must take immediate action towards positive change and focus on the long-term resilience of people, the economy, and our planet.

As we continue to grow and create value for our stakeholders, our investments in renewable energy and asset diversification, both in geography and commodity, are expected to provide us with the platform we need to access the opportunities and address the risks that climate change presents.

I am pleased to release our first TCFD-aligned *Climate Change Assessment* report. This report demonstrates that we are well-positioned to successfully play a key role in the transition to a low-carbon energy future.

Sincerely,



Arun Banskota
President & Chief Executive Officer



Letter from George Trisic, Chief Governance Officer & Corporate Secretary



Our 2020 Climate Change Assessment provides confirmation that we are on the right track. This inaugural report is our first step towards integrating the climate-related risks and opportunities, brought forward through the climate scenario analysis, into our business processes and strategies – and better understand their implications.

One of our 2023 Sustainability Goals is to publish our first phase *Climate Change Assessment* report using the framework guidelines issued by the TCFD. To that end, in early 2020, we reviewed several different climate change scenarios and selected three scenarios that met the TCFD recommendations and were most relevant to our business model and views on renewable technologies. The three scenarios selected were:

1. IEA World Energy Outlook (WEO) Sustainable Development Scenario – which provides a high-transition, low-carbon pathway;
2. IEA Energy Technology Perspectives (ETP) 2-Degree Scenario – which provides a medium-transition, mid-carbon pathway; and
3. IEA WEO States Policies Scenario (STEPS) – which provides a low-transition, high-carbon pathway.

Despite the challenges presented by the COVID-19 pandemic this year, our business teams successfully completed a set of virtual workshops during which a broad cross section of representatives from across our organization used the three climate change scenarios to consider the potential opportunities and risks that each scenario might present to our utility businesses and our non-regulated power generation business. The findings from our workshops are summarized in

this report – our first TCFD-aligned *Climate Change Assessment*.

Many of the opportunities and risks we identify are being addressed by our Liberty operations. Our existing business strategies are aligned with the opportunities addressed in each of the scenarios. We are contributing to a lower carbon future by decarbonizing our own business operations: most recently, with the closure of the Asbury coal generation facility in March of 2020 and by way of our plans to add 2,000 MW of renewable generation capacity to our fleet by 2023 to achieve a 75% renewable generation mix in our businesses. We are working with customers and other partners to assist them in achieving their own decarbonization strategies, whether through providing green renewable energy resources as we will from our Maverick Wind Project in Texas or by developing new renewable energy generation capacity to support other organizations in achieving their own global renewable energy goals. We are well positioned and have the knowledge, expertise, and track record to continue to contribute to a low-carbon future for our planet.

The business risks that the Algonquin teams identified through the scenario analysis workshops will inform the risk mitigation strategies that we are continuously developing and executing

upon. We are investing \$500 million in grid modernization over a five-year period to strengthen the resilience of our assets. We are addressing water table depletion through our liquid aquifer and water reclamation projects in Arizona. Investments in vegetation management are helping to mitigate increasing wildfire risks in some of our service territories.

While this report includes various examples of initiatives we have underway to address the identified climate risks and opportunities, we recognize that there is still work to be done. As we turn our minds to setting our next generation of sustainability goals for the period beyond 2023, the work undertaken by our teams this year in assessing the opportunities and risks associated with climate change will help us to develop additional strategies for risk mitigation as we continue to grow and build resiliency in our business. Going forward, our deepened understanding of the TCFD recommendations and the resulting work will inform our thinking as we continue on our journey of sustaining energy and water for life.

Sincerely,

A handwritten signature in black ink, appearing to be 'G. Trisic', written in a cursive style.

George Trisic
Chief Governance Officer
& Corporate Secretary

About Us



Business overview

Algonquin Power & Utilities Corp. (Algonquin) is a growing renewable energy and utility company with assets across North America and internationally. We develop, acquire, own, and operate green and clean energy assets, including hydroelectric, wind, and solar power facilities, as well as sustainable utility distribution businesses (water, electricity, and natural gas) through our operating business line – Liberty.

Algonquin has become a global leader in renewable energy through our portfolio of long-term contracted wind, solar, and hydroelectric generating facilities. Our total portfolio represents over 3,100 MW of generation capacity and more than 1,600 MW of incremental renewable energy capacity under construction. Since our inception in 1988, our operations have grown to include

more than 130 electrical generation, transmission, and distribution facilities in Canada, the United States, and internationally. We are supported by more than 2,600* skilled and motivated employees, each of whom plays a vital role in our success. With our robust, diversified, and growing presence in communities across North America and internationally, we are continually demonstrating our unique “Think Global, Act Local” business model.

The Regulated Services Group provides rate-regulated water, electricity, and gas utility services to communities across the United States and Canada. Serving over 804,000* customers in twelve states and one province, Liberty is unique among its peers for its commitment to the community, conservation, and customer service. Liberty aspires to provide the highest standards of service to meet the day-to-day needs of its customers and offers employee programs that recognize superior customer support and contribution to the community. Our regulated services have operations in Arizona, Arkansas, California, Georgia, Iowa, Illinois, Kansas,

Massachusetts, Missouri, New Hampshire, Oklahoma, Texas, New York, and New Brunswick. Acquisitions scheduled for completion during 2020 will expand our regulated utility footprint to include Bermuda and Chile, representing the achievement of over 1 million customer connections.

Liberty also generates and sells electrical energy produced by its diverse portfolio of renewable and clean power generation facilities primarily located across the United States and Canada. The Renewable Energy Group owns and operates hydroelectric, wind, solar, and thermal facilities with a combined gross generating capacity of approximately 3.1 GW. Approximately 84% of the electrical output is sold pursuant to long-term contractual arrangements which have a production-weighted average remaining contract life of approximately 14 years*.

* As at December 31, 2019

Business snapshot



24 states and provinces
in North America
operations reach

9 countries
indirect interests in
energy and water assets



4,568 GWh
solar, wind, and hydroelectric generation
in North America



774,010
solar panels



1:2.1
Employees
(women: men)

1:2
Board
(women: men)



713
owned and operated
wind turbines



804,000
customer connections

Our ESG reporting is based on assets under operational control. Therefore, information reflecting Algonquin's pro rata interest in Atlantica Yield is not included in this report. Data in this report is provided as of December 31, 2019 unless otherwise stated.

Pending the finalization of our 2020 acquisitions, we expect to increase our customer connections to over 1 million for the 2020 reporting period.

Summary of operations

Data supplied as of December 31, 2019

| | Customer connections (000s) | Gross revenues (\$US millions) | |
|---|-----------------------------|--------------------------------|--------------------------------|
| Regulated services | | | |
| Electric utilities | 267 | \$784.4 | |
| Natural gas utilities | 369 | \$402.6 | |
| Water and wastewater utilities | 168 | \$130.5 | |
| Total | 804 | \$1,317.5 | |
| | Facilities (#) | Capacity (MW) | Gross revenues (\$US millions) |
| Power generation¹ | | | |
| Generating capacity | 36 | 1,506 | \$246.60 |
| Electricity generation capacity (MW) ² | Liberty Power | Liberty Utilities | Total |
| Renewable energy | | | |
| Wind | 1,101 | 0 | 1,101 |
| Solar | 170 | 60 | 230 |
| Hydroelectric | 109 | 16 | 125 |
| Total | 1,380 | 76 | 1,456 |
| Thermal | | | |
| Natural gas | 126 | 1,370 | 1,496 |
| Coal ³ | 0 | 213 | 213 |
| Total | 126 | 1,583 | 1,709 |
| Grand total | 1,506 | 1,659 | 3,164 |

1. Excludes \$11 million of Renewable Energy Credits revenue.

2. Electricity Generation Capacity relates to the gross nameplate generating capacity of the power facilities owned and managed by Algonquin.

3. Coal capacity total represents the Asbury facility and does not include minority, non-controlling equity interests in Iatan and Plum Point. The Asbury facility was retired in March, 2020. Data displayed in chart is at December 31, 2019.

Business Strategy



North America and the world at large is actively transitioning into a sustainable, low-carbon economy and we are active participants in that transition. Sustainability is, and always has been, an integral part of the way we conduct our business. It is not just something we do – it is embedded in who we are. Maintaining our commitment to sustainability and fulfilling our purpose of sustaining energy and water for life is part of “doing the right thing” and, more broadly, is an essential element to our longevity and success, enabling us to create meaningful value for our loyal customers, talented employees, and committed investors.

With our diversified and growing presence in communities across North America and internationally, we see many opportunities to continue leading the transition to a low-carbon energy future. That is why we partner with, and work along-side, like-minded corporate citizens, local governments, and regulators to further collective global decarbonization efforts and build a more sustainable future - together.



Our commitment to sustainability and climate action

As a company, we are committed to the global objective set forth by the United Nations Sustainable Development Goal (UN SDG) 13 – Climate Action – to limit planetary temperature rise to less than 2 degrees Celsius this century. We aim to reduce climate change impacts through the deployment of emerging technologies and business models to decarbonize our energy portfolio.

Our efforts to reduce our reliance on fossil-based energy sources by pursuing sustainable alternatives is centered on reducing the carbon content of the services we deliver to our customers, growing our renewables portfolio, and decreasing the internal carbon intensity of our operations. Additionally, by having regional and commodity diversity in our asset strategy, we are helping to mitigate the overall impacts of climate change on our operations.

In 2019, we engaged external consultants in conducting an assessment to identify priority ESG issues that are most likely to have a significant impact on our operations and performance. Climate change emerged as one of seven priority ESG issues for Algonquin and was considered a priority by all of our key stakeholder groups.

In forming of our *Sustainability Policy*, we identified six of the UN SDGs that are most relevant to our business and to our sustainability commitments. In our *2020 Sustainability Report*, we have expanded on our existing understanding of the UN SDGs and have aligned with specific SDG targets to undertake a more structured and strategic approach to advancing the *2030 United Nations Agenda for Sustainable Development*. Many of our SDG-informed sustainability initiatives are related to climate risks and opportunities.



Sustainability principles

The following core principles found in our *Sustainability Policy* intersect with climate-related opportunities and our strategy:

- We are committed to building and operating our business such that we make a positive and durable contribution to a sustainable energy and water future.
- We support the global goal of limiting planetary temperature rise to less than 2 degrees Celsius this century to reduce the impact of climate change.
- We strive to deploy emerging technologies and business models in the delivery of clean, efficient, and reliable energy at a fair price to facilitate the transition to low-carbon emission communities.
- We view good governance practices as an essential element in the pursuit of positive and balanced outcomes for our business, our workforce, our shareholders, and our communities.

2023 sustainability goals

Our sustainability plan is built on an ambitious set of goals to be achieved by 2023. We are confident in our performance against these goals. As 2023 approaches, we are re-examining our performance measures and working to refresh our goals to take on a longer-term perspective for the period beyond 2023.

Several of our goals are climate-related, notably, all three of our Environment goals and our Governance goal to publish TCFD-aligned disclosures starting in 2020.

Our emissions reduction target reflects an absolute reduction expressed as a fixed amount of GHGs that we will avoid by shutting down our legacy Asbury coal facility and replacing it with wind power generation. The early retirement of the Asbury facility, which took place in March of 2020, is anticipated to reduce our GHG emissions by approximately 1 million tonnes of CO₂e every year and meet our 2023 emissions reduction goal – well ahead of schedule.

Environment



Target of 75% renewable generation



Reduce GHG emissions by one million metric tons from 2017 levels



Add 2,000 MW of renewables between 2019 and 2023

Social



Exceed 30% women in leadership roles



Achieve top-quartile customer service



Achieve top-quartile employee engagement

Governance



Embed sustainability into our compensation model



Build a robust compliance framework



Publish a TCFD-aligned disclosure

Learn more about our progress towards our climate-related goals in our Metrics and Targets section on p. 21.

Governance

Board oversight

Algonquin's Board of Directors (the Board) has oversight of the development of the company's strategy and management's implementation of risk management and mitigation plans for identified risks related to the company's business strategy.

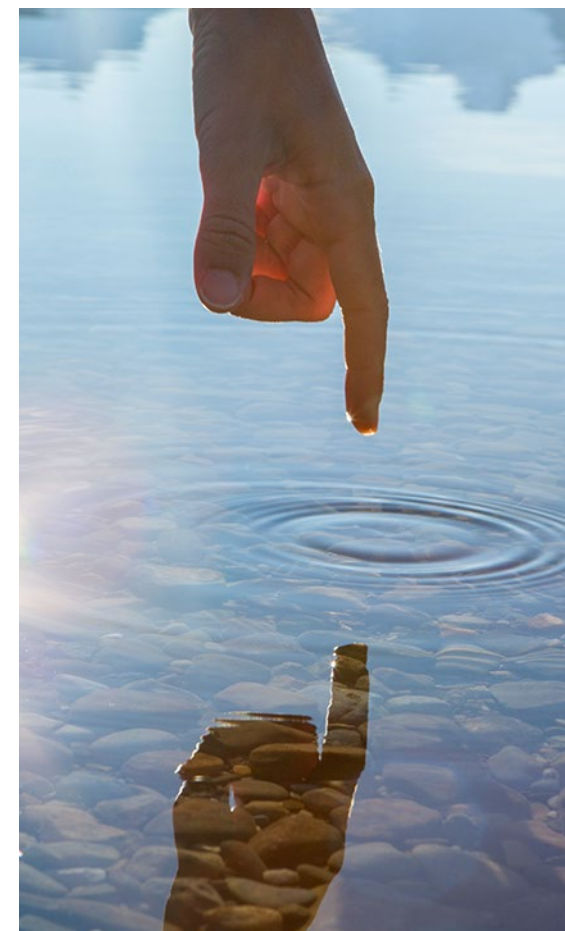
To assist it in the governance and oversight of the risks and opportunities associated with ESG matters, the Board has given its Corporate Governance Committee the mandate to oversee the ongoing development and progress of Algonquin's sustainability plan and initiatives, as well as periodic reporting to the Board in regards to progress and performance. As part of its sustainability oversight mandate, the Corporate Governance Committee receives quarterly updates from Algonquin's senior management relating to the development and execution of our sustainability plan and key sustainability

initiatives. The Risk Committee of the Board has been given the mandate to oversee the Corporation's establishment of effective policies, processes, and systems to identify, monitor, and assess risks, including ESG risks. The Risk Committee meets quarterly and receives regular updates from management relating to key risks and the development of the company's compliance and enterprise risk management frameworks. The Risk Committee and Audit Committee of the Board hold an annual joint meeting to review the company's risk register and receive updates from management on key risks. At least once annually, senior management responsible for cybersecurity, health and safety, compliance, and enterprise risk management provide presentations on the status of program maturity and evolving risks in their respective areas.

The Board and Executive Management Team engage in strategy development through annual strategic planning sessions where existing and new business strategies are reviewed and assessed. Each year following

these sessions, the long-term business model for the company is updated. ESG trends, risks, and opportunities are integrated as inputs into the annual strategic planning process.

In September of 2018, Algonquin adopted its first corporate *Sustainability Policy*. This policy sets out our sustainability principles. In 2019, Algonquin established the Office of Sustainability with the mandate to lead and support continuous evolution of the organization's sustainability commitments and its progress towards achieving our 2023 Sustainability Goals. A member of the Corporation's executive team, the Chief Governance Officer (CGO), oversees the Office of Sustainability. In 2019, the Corporate Governance Committee approved the organization's sustainability plan and the nine Sustainability Goals to be met by 2023.



Management's role

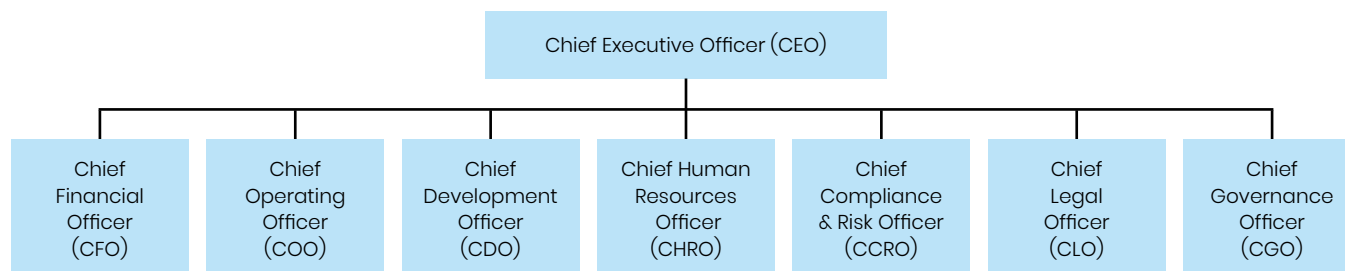
The responsibility for execution of Algonquin's strategy and the achievement of our 2023 Sustainability Goals resides with the Chief Executive Officer (CEO) and the Executive Management Team reporting to the CEO.

While the CGO has the primary mandate to ensure that the relevant opportunities and risks relating to sustainability are considered and addressed as core components of the strategy and business processes of the organization, each member of the Executive Management Team has specific objectives that relate to the execution of Algonquin's 2023 Sustainability Goals.










Executive variable compensation at Algonquin includes a number of annual objectives relating to sustainability targets and metrics. These annual objectives include metrics relating to safety performance, reliability, employee engagement, customer satisfaction, and annual new project growth targets aligned with the achievement of new renewable generation targets.

The table on the right demonstrates the alignment and accountabilities of each member of the Executive Management Team with respect to each of the objectives in our 2023 Sustainability Goals.

Algonquin's Executive Management Team



2023 Sustainability Goals

| Environment | | Social | | Governance | |
|---|--|---|--|---|--|
|  | Goal: Achieve 75% renewable generation Executive lead: CDO and COO |  | Goal: Exceed 30% women in leadership Executive lead: CHRO |  | Goal: Embed sustainability into compensation plans Executive lead: CHRO & CGO |
|  | Goal: Reduce GHG emissions by one million metric tonnes Executive lead: COO |  | Goal: Achieve top-quartile customer satisfaction Executive lead: COO |  | Goal: Build a robust compliance framework Executive lead: CCRO and CLO |
|  | Goal: Build 2,000 MW of new renewable generation capacity Executive lead: CDO |  | Goal: Achieve top-quartile employee engagement Executive lead: Full Executive |  | Goal: Publish first TCFD-aligned disclosure in 2020 Executive lead: CGO |

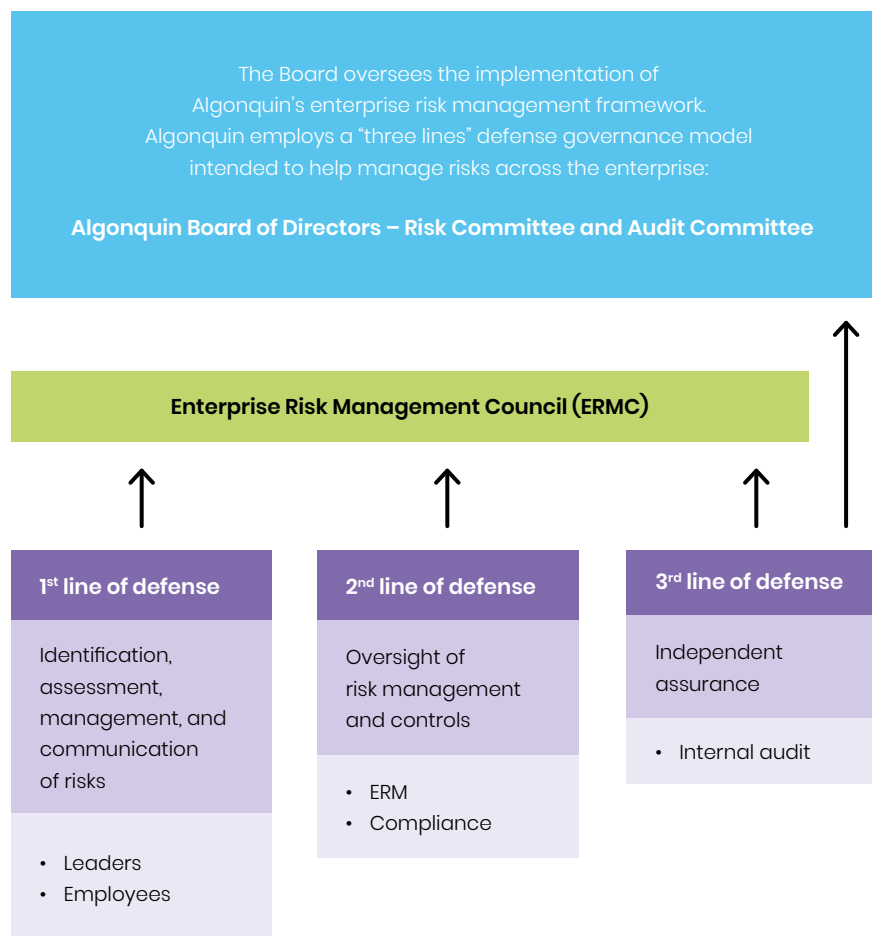
Regional and business unit sustainability teams have been established to provide local insight and engagement across the organization relating to the 2023 Sustainability Goals and the development of Algonquin post-2023 sustainability goals.

Climate-related Risk Management

Risk management governance and processes

Management of climate-related risks is integrated with the management of all risks through Algonquin's enterprise risk management (ERM) framework. This enables the organization to consider all business risks holistically as they have, in some cases, inter-dependencies and connected impacts.

Ultimate responsibility for overseeing the performance of the enterprise falls under the Board, including the effective management of risks and internal control systems. The Board has established a Risk Committee to assist the Board in its oversight of the company's ERM practices. This ensures the appropriateness and effectiveness of risk management policies and processes in addressing the risks associated with development and operations. This oversight role is defined in the *Mandate of the Risk Committee*.



Oversight of financial risks is part of the mandate of the Audit Committee of the Board. The Risk Committee and Audit Committee meet jointly once a year to review and discuss risk-related matters. The Internal Audit function (reporting to the Audit Committee), provides an independent assessment of ERM framework effectiveness.

Executive management oversees the ERM framework through the ERM Council (ERMC) in an effort to ensure effective identification, assessment, treatment, and monitoring of risks. The CEO and all of the CEO's direct reports are members of the ERMC. The Internal Audit and ERM functions also hold positions on the ERMC.

We use a common framework and language when discussing risk, potential likelihood and impacts, and actions and controls for risk mitigation.

Our ERM Framework includes standard risk categories which enable employees to identify the implications of business risks including climate-related risks.

Algonquin utilizes a risk assessment matrix intended to enable the company to identify and ensure mitigation plans are in place for those risks identified as having the highest likelihood and impact on the organization or at a business unit level. Senior leaders are charged with putting in place documented risk mitigation action plans (RMAPs)

for key identified risks. RMAPs for enterprise-level risks are reviewed by the ERM team and senior management.

To assist in identifying emerging regulatory risks, the company's regulatory and governmental affairs functions monitor for changes in laws, regulations, and policies that may impact our businesses. Key enterprise risks and associated mitigation strategies are reviewed by the executive-level ERMC. The *Enterprise Risk Register* is presented to the Board Risk Committee and changes in risk rating and emerging risks including climate-related risks are reviewed.

ERM is also engaged in driving risk-informed decision making within the organization. We have identified operational risk, technology risk, and risks inherent in the cyclical and seasonal nature of our energy business. Climate-related risks have been identified within these larger risk categories, including physical risks and increased demand for energy and energy efficiency, among others.

We are in the process of developing an enterprise-wide Environmental Management System (EMS) which is aligned with the ISO14001:2015 standard. The ERM and EMS frameworks are closely linked in execution with a shared emphasis on ongoing program enhancements.



We understand that the ESG landscape is quickly changing as new climate-related issues arise and develop. As our natural environment evolves, so does our approach to managing environmental impacts. We are committed to continuously re-assessing and improving our programs and processes as we work to identify and evaluate emerging climate-related risks and opportunities.

Climate change risk control and mitigation



Physical risks

The climate-related scenario analysis workshops we held in early 2020 identified a number of physical risks for each of our business groups. The identified physical risks include increased severity and variability of storms, lower precipitation, and depleting water table levels impacting our hydro generation and water distribution businesses, changes in intensity of wind resource impacting our wind generation facilities, increasing risks of wildfires impacting our electric distribution and water utilities, and increased seasonal irradiance variance impacting our solar generation business.

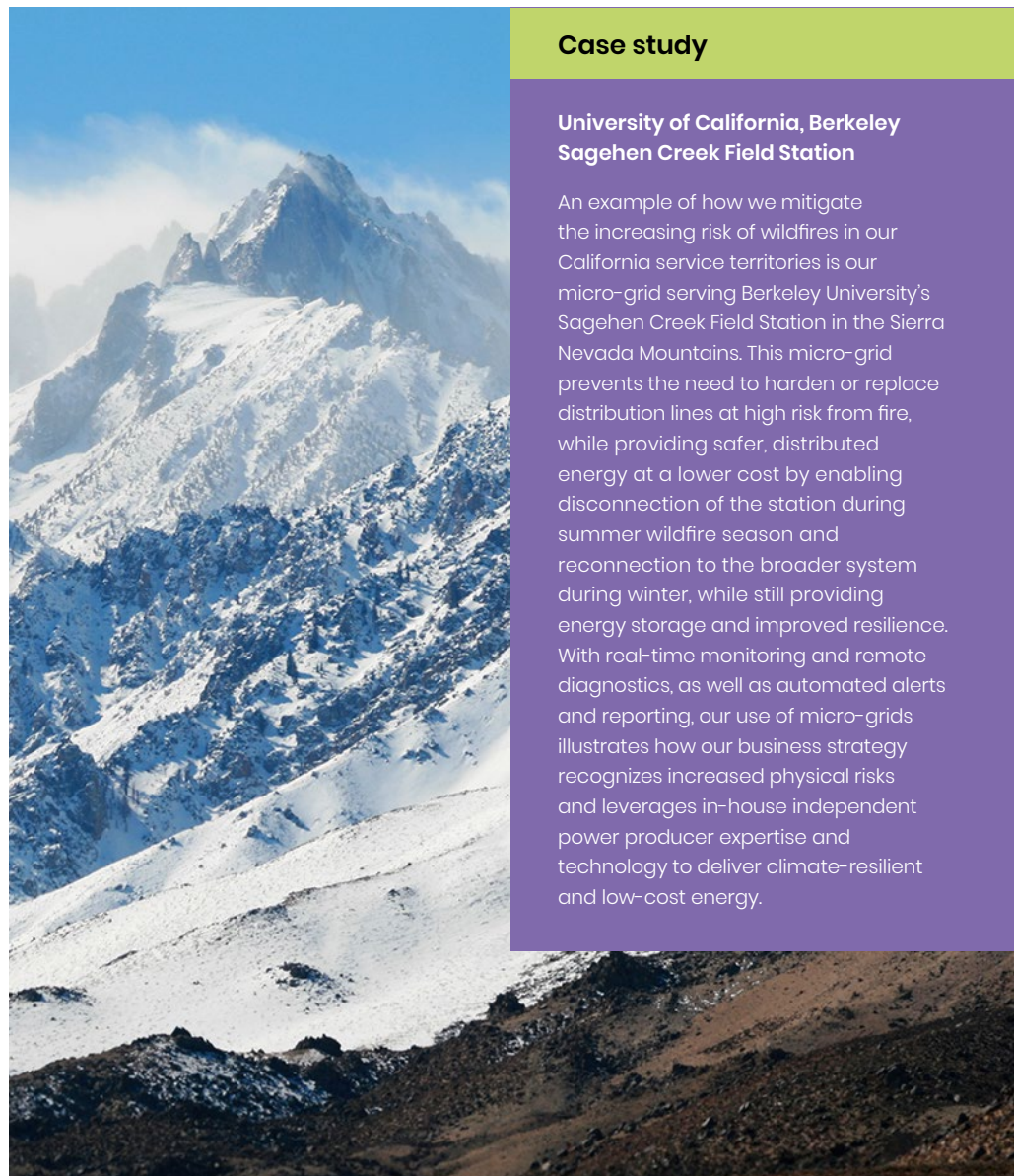
Our strategy to diversify our business, both geographically and by utility type, serves as a risk mitigant as some physical risks are regional. Physical risks are managed and mitigated through a number of management processes and plans. These include our comprehensive insurance program, storm response plans, business continuity planning, our enterprise crisis management plan, and individual RMAPS for identified risks.

Deployment of technology to increase asset productivity and availability also serves to offset climate-related impacts to wind, radiance, and hydrology resources. Our ongoing investments in grid resiliency, asset hardening, aquifer recharge, and vegetation management also serve to mitigate against climate change related physical risks.



Low-carbon transition risks

Transition risks to our business include risks associated with regulatory and governmental policy change, technology developments, changing market demands, customer expectation, and reputational risks.



Case study

University of California, Berkeley Sagehen Creek Field Station

An example of how we mitigate the increasing risk of wildfires in our California service territories is our micro-grid serving Berkeley University's Sagehen Creek Field Station in the Sierra Nevada Mountains. This micro-grid prevents the need to harden or replace distribution lines at high risk from fire, while providing safer, distributed energy at a lower cost by enabling disconnection of the station during summer wildfire season and reconnection to the broader system during winter, while still providing energy storage and improved resilience. With real-time monitoring and remote diagnostics, as well as automated alerts and reporting, our use of micro-grids illustrates how our business strategy recognizes increased physical risks and leverages in-house independent power producer expertise and technology to deliver climate-resilient and low-cost energy.



Regulatory risk

Governments and regulators in a number of jurisdictions in which we operate are introducing renewable energy targets and policies associated with climate change. Our government affairs team monitors and provides updates to management regarding changes and proposed changes to governmental policies that might have an impact on our businesses on an ongoing basis. We also participate in industry association initiatives to respond to and provide feedback on proposed policy changes and make submissions to regulators and governments to offer our perspective on policy proposals and changes. Our geographically distributed asset base also serves to mitigate the disproportionate impact of any specific policy or legislation on our overall business.

Carbon pricing policies and taxes can impact the economics of our business. We use assumptions relating to carbon pricing when assessing new investments, building economic models, developing our integrated resource planning models, and in the preparation of long-term forecasts and strategy planning.



Technology risk

New and emerging technologies can impact grid efficiency, energy prices, and investment economics, and reduce customer consumption, and provide customers with alternatives for meeting their energy and water needs through new sources rather than traditional regulated utility providers. We monitor and seek to mitigate these and related risks by developing pilot projects to increase our understanding and expertise with new and emerging technologies, as we have with battery storage and in developing projects and supply sources for renewable natural gas.

We are in the process of implementing a major enterprise-wide business systems upgrade that is expected to enable us to deliver new services to our customers and deploy technology upgrades to facilitate improved system reliability, enhanced asset productivity, and more advanced system and data monitoring and analysis capabilities. Our annual strategic planning process considers technology changes and impacts on our business as we develop strategies for the future to address risks and consider new business opportunities.



Market changes

Changing customer preferences and consumption patterns can both create opportunities and pose risks to our businesses. Our diversity of business between electric distribution and generation, natural gas distribution, and water distribution serve to mitigate some risks. For example, a shift to electrification for home heating in some areas benefits our electric utilities and may result in reduced demand in our natural gas utilities. Our strategy to build additional renewable generation capacity allows us to meet increasing customer demands for greener energy and allows us to work with commercial and industrial customers to meet their own sustainability goals through power purchase agreements. Working with regulators to implement policy changes that support energy conservation efforts and address the revenue impact of those programs on utility revenues also mitigates risks from changing market expectations.



Reputational risks

Societal and investor views are changing and businesses who fail to demonstrate strong and improving sustainability performance may put at risk the confidence of investors and the loyalty of customers who may seek more sustainable products and services, and face challenges in recruiting employees who seek to work for organizations that make a positive contribution to society. Management of potential climate change impacts on delivery of services, service quality, and system performance and reliability is critical to avoid loss of reputation with customers, regulators, and communities. The way in which we address these risks includes strong sustainability performance oversight by the Board, proactive engagement with our employees, customers, and investors to demonstrate our sustainability plans and performance, and ongoing investments to improve system and asset performance and reliability.

Assessing Climate Resilience

To qualitatively analyze the resilience of Algonquin's current strategy to climate-related transition and physical risks and opportunities, we conducted climate-related scenario analyses.

Algonquin engaged expert external consultants to lead key internal stakeholders from across our business, including members of the management team, through three scenario analysis workshops. One workshop was held with the Liberty water distribution and wastewater management team. The second workshop was held with representatives of the Liberty energy utilities team. The third workshop was held with representatives of the Liberty power generation team. These three sessions were held separately to identify insights specific to the business at hand, as well as to the company as a whole. All workshops covered the three selected scenarios.

The Algonquin team considered scenarios covering different policy and technology outcomes, and those covering the projected physical impacts resulting from political and societal inaction on climate change. The scenarios demonstrated the inverse relationship between the extent of transition-related actions in the short run, and the projected climate-related physical impacts felt in the long run.

Through our 2020 scenario analysis workshops, we learned that we are well-equipped to continue our alignment with the TCFD guidelines. We expect to proceed into deeper scenario analysis with the ambition to develop a quantitative climate change assessment in the future.

Scenario analysis and workshop outcomes

External advisors led the internal team through workshops where synthesized versions of our selected scenarios were discussed to analyze the short, medium, and long-term climate-related risks and opportunities they present. Despite being held virtually due to the COVID-19 pandemic, the Algonquin team was able to analyze the different considerations and assess related business impacts.

The resulting outcome tables outline the insights gathered from scenario analysis sessions, and are found in Appendix A on p. 25. Overall, Algonquin is well positioned to capitalize on transitions described in the selected mid and low-carbon scenarios due to our renewable energy generation base, strong institutional knowledge, and ability to expand or adjust service offerings as needed over time. Algonquin is also positioned to take the necessary measures to harden infrastructure and increase resilience in the selected higher carbon scenario that has greater climate change impacts.

The scenarios are hypothetical and the potential risks, opportunities, impacts, considerations, and outcomes discussed in this report are inherently uncertain and should be read in conjunction with the information under "Forward-looking Statements and Forward-looking Information" in the Appendix on p. 37 as well as the company's discussion of risk factors in its most recent *Annual Information Form* and annual and quarterly *Management Discussion and Analysis* filed on SEDAR and EDGAR.

Policy and technology-related climate scenarios

The selected scenarios model the outcomes of different policy-related assumptions. All three are International Energy Agency (IEA) scenarios, which are peer-reviewed.

Low-carbon scenario

The IEA World Energy Outlook (WEO) Sustainable Development Scenario (SDS) was used to analyze a high-transition, low-carbon pathway. This scenario models out a warming potential of 1.7-1.8 degrees by 2100, with technology and policy assumptions extended to 2050.

Mid-carbon scenario

The IEA Energy Technology Perspectives (ETP) 2-Degree Scenario was used to analyze a medium-transition, mid-carbon pathway. This scenario models out a warming potential of 2 degrees by 2100, with technology and policy assumptions extended to 2060.

High-carbon scenario

The IEA WEO Stated Policies Scenario (STEPS) was used to analyze a low-transition, high-carbon pathway. This scenario models out a warming potential of 2.7 degrees by 2100, with technology and policy assumptions extended to 2040.

These scenarios were selected due to their contents' high relevance to our business model, and because the World Economic Outlook scenarios are updated annually, representing some of the most up-to-date information covering economic and policy considerations.

*All temperature measurements are described in degrees Celsius.

Physical impact-related climate scenarios

The *IPCC Fifth Assessment Report (AR5)* was used to inform discussion on different climate-related physical impacts, both acute and chronic, in different regions. The Representative Concentration Pathway (RCP) 6 was used to analyze physical impacts, especially in relation to the IEA STEPS scenario, as RCP6 has a mean projected global temperature increase of 2.2 degrees by 2081-2100, with a likely range of 1.4 degrees to 3.1 degrees.

More up-to-date and localized physical impact information was used where available. The RCP6 scenario was supplemented by the *Climate Atlas of Canada*, and the *Fourth National Climate Assessment* for physical impact modelling in Canada and the United States, respectively. This physical impact modelling was mainly used to inform discussions considering the higher-carbon scenario selected for this analysis, as these models include down-scaled physical impact descriptions informed by the IPCC's RCP8.5.



Scenario analysis insights

This section covers some of the high-level insights gathered during the scenario analysis workshops conducted this year. A more fulsome list of these insights can be found in the tables in Appendix A. Additional learnings from the TCFD scenario analysis will be integrated into our business strategy in order to further enhance our approach to climate change.

In all scenarios, our existing energy assets and business strategy place us in a strong position in the transition to a low-carbon economy, and in a resilient position in the face of increased climate-related physical impacts.

Low-carbon scenario

Transition-related considerations, such as the assumed increase in value and demand of electricity, needs for system-wide upgrades, increased electrification, and a shift to lower-carbon power grids, all bode well for both our utility and independent power generation businesses. These rapid transformations will also coincide with increased energy efficiency across developed markets. Our expertise is well suited to expand our service offerings to include support to organizations seeking to either decarbonize the power they consume, or reduce their energy and water consumption.

As in the mid-carbon scenario, recruitment and retention of talent will be more competitive, although our strong culture, long history of sustainability efforts, and plans for growth will be key resiliency assets when needing to ensure a strong employee base is in place. The physical impacts of climate change, although less of a concern in this scenario, will likely require some hardening of infrastructure; a process that we have the capability to undertake with the appropriate support from regulators.

Mid-carbon scenario

Assuming a less widespread transition than in the low-carbon scenario, the mid-carbon scenario presents many opportunities to our utility and independent power generation businesses. As in the low-carbon scenario, we can serve our clients by helping them meet their sustainability and renewable energy targets, leveraging our reputation and track record, as well as a potentially expanded set of services including support on energy and water efficiency. This same positive reputation would facilitate relations with regulators and the industry, in the cases where an opportunity to show leadership with these stakeholders emerges (e.g., developing technical standards and making the case for investments).

Reliability will likely become more relevant as climate-related physical impacts are greater in this scenario than in the low-carbon scenario. Disruption of the energy space by physical impacts, technology, and changing economics driven by these and other forces can be managed and leveraged by all three of our businesses: energy utility, water utility and independent power generation. The geographic and commodity diversification of our assets is both a risk mitigant and lays the groundwork for us to capitalize on the transition in the mid-carbon scenario.

High-carbon scenario

In this scenario, climate-related physical impacts are assumed to be greater in severity, frequency, and duration (e.g., heatwaves, wildfires, storms, and floods). Rising temperatures are likely to increase demand for cooling. The move to reduce the carbon intensity of the energy grid, for example with the expanded use of solar and of natural gas as it displaces coal, is well suited to our utility and independent power generation business.

This scenario is marked, in part, by insufficient regulatory action. For example, there is an assumed lack of jurisdictional coordination, lack of sufficient investment in research and commercialization of low-carbon alternatives, and lack of policy drivers for renewable generation adoption. This is the current status quo and can present an opportunity for the utility business as there are fewer regulatory and non-regulatory disruptions. However, it will require a nimble management approach across jurisdictions – something we are accustomed to doing given our current geographic landscape.

Climate-related physical risks are greater in this scenario. These impacts are likely to increase costs and complicate the delivery of energy to our customers. However, our asset diversification, both in geography and commodity, should provide us with the platform we need to address the risks that emerge, and to continue to grow and create value for all of our key stakeholders. A strong reputation of working collaboratively with regulators will be important in gaining their support as energy system resilience becomes more of a priority.

Metrics and Targets

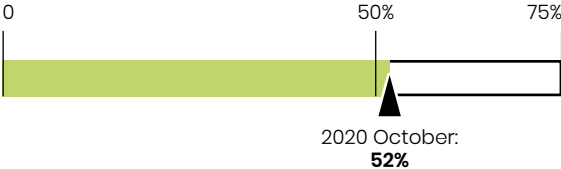
Climate-related sustainability goals

In 2019, Algonquin published our 2023 Sustainability Goals. We are proud to demonstrate significant progress against our climate-related environment goals.

Environmental goals



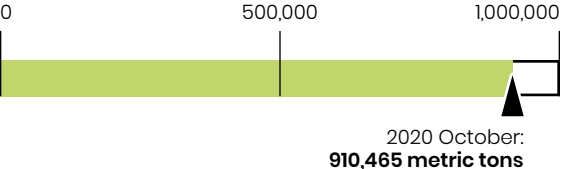
Target of 75% renewable generation



This goal is focused on the total nameplate capacity (MW) added to our renewable portfolio. These assets include wind, solar, and hydroelectric sites in both our regulated and non-regulated businesses. In line with our pipeline of existing and anticipated projects to be constructed between 2018 and 2023, our progress is on track to reach a generation capacity consisting of 75% renewable energy by 2023. As of October 2020, we are currently operating at 52% renewable generation capacity.



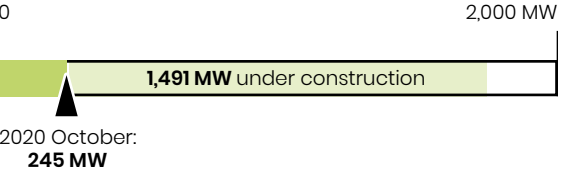
Reduce GHG emissions by one million metric tons from 2017 levels



Our reduction target reflects an absolute reduction expressed as a fixed amount of GHGs that we will avoid by shutting down our legacy Asbury coal facility. With the early retirement of the Asbury facility, taking place in March of 2020, we anticipate a cumulative reduction of one million metric tons of carbon dioxide equivalents from our operations.



Add 2,000 MW of renewables between 2019 and 2023



The addition of 2,000 MW of renewable nameplate capacity to our existing portfolio by 2023 is based on completion of projects in our renewables pipeline, as well as newly sourced projects. To date, we have added 245 MW against our goal and demonstrate 1,491 MW currently under construction.

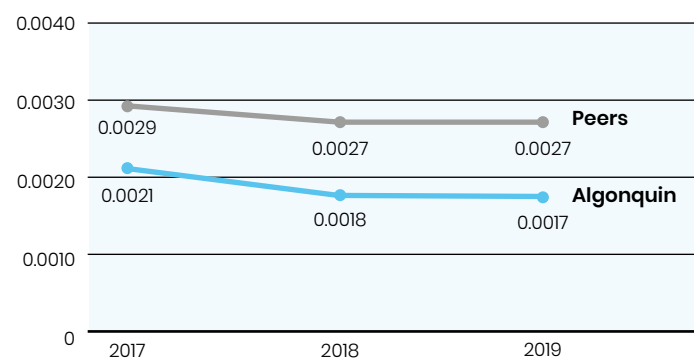
Emissions metrics

Data as of December 31, 2019

GHG emissions by facility type

| Facility type | Scope 1+2 emissions (tonnes CO ₂ e) | | |
|--------------------------------|--|------------------|------------------|
| | Canada | USA | Scope 1+2 total |
| Coal power | - | 905,433 | 905,433 |
| Natural gas power | - | 1,744,065 | 1,744,065 |
| Hydroelectric power | 457 | 28 | 485 |
| Wind power | 250 | 863 | 1,112 |
| Solar power | 11 | 562 | 573 |
| Electric utilities | - | 23,461 | 23,461 |
| Gas utilities | 919 | 82,043 | 82,962 |
| Water and wastewater utilities | - | 34,475 | 34,475 |
| Office | 123 | 114 | 237 |
| Alternative fuel power | - | - | - |
| Total emissions | 1,759 | 2,791,044 | 2,792,804 |

Emissions intensity benchmark (CO₂e/revenue)*



* Peer group was identified from research by a global financial services firm.

GHG emissions by country (Scope 1 & 2)

| Emissions scope | Canada | US | Total |
|--|--------------|------------------|------------------|
| 2017 GHG emissions (tonnes CO₂e) | | | |
| Scope 1 emissions | 241 | 3,178,969 | 3,179,210 |
| Scope 2 emissions | 1,004 | 40,103 | 41,107 |
| Scope 1+2 emissions | 1,245 | 3,219,072 | 3,220,317 |
| 2018 GHG emissions (tonnes CO₂e) | | | |
| Scope 1 emissions | 256 | 2,837,640 | 2,837,896 |
| Scope 2 emissions | 1,004 | 41,831 | 42,835 |
| Scope 1+2 emissions | 1,261 | 2,879,470 | 2,880,731 |
| 2019 GHG emissions (tonnes CO₂e) | | | |
| Scope 1 emissions | 1,097 | 2,748,880 | 2,749,976 |
| Scope 2 emissions | 663 | 42,165 | 42,828 |
| Scope 1+2 emissions | 1,759 | 2,791,044 | 2,792,804 |

% change, 2018-2019

| | | | |
|----------------------------|------------|------------|------------|
| Scope 1 emissions | 328% | -3% | -3% |
| Scope 2 emissions | -34% | 1% | 0% |
| Scope 1+2 emissions | 40% | -3% | -3% |

2019 GHG emissions by business type

| Business type | Scope 1+2 emissions (tCO ₂ e) | Percentage of total |
|------------------------|--|---------------------|
| Liberty Power | 118,782 | 4.25% |
| Liberty Utilities | 2,674,022 | 95.75% |
| Total emissions | 2,792,804 | 100.0% |

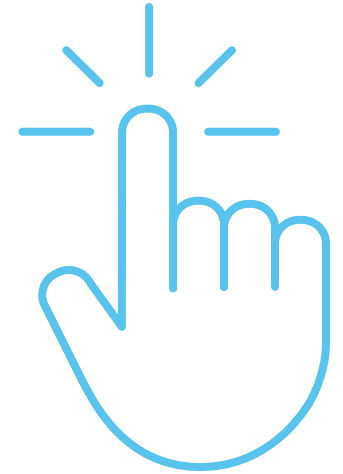
2019 Scope 3 emissions

| Emissions by scope | Emissions (tonnes CO ₂ e) |
|--------------------------|--------------------------------------|
| Scope 3 (other indirect) | 2,417,671 |

2019 emissions intensity

| Scope 1 & 2 emission intensity | |
|---|------------------|
| Total revenue | \$1.6249 billion |
| Scope 1+2 GHG emission intensity (tonnes CO ₂ e/USD) | 0.0017 |
| Scope 3 emission intensity | |
| Total revenue | \$1.6249 billion |
| Scope 3 emission intensity (tonnes CO ₂ e/USD) | 0.0015 |

Appendices



Appendix A: Scenario analysis outcome tables

The tables below provide highlights of the business-relevant risks and opportunities associated with the different climate scenarios assessed for the TCFD process. They are of course hypothetical, vary greatly, and present both risks and opportunities simultaneously. The scenarios are also hypothetical and the potential risks, opportunities, impacts, considerations, and outcomes discussed below are inherently uncertain and should be read in conjunction with the information under “Forward-Looking Statements and Forward-Looking Information” on p. 37 of the Appendices, as well as the company’s discussion of risk factors in its most recent *Annual Information Form* and also the next *Annual and Quarterly Management Discussion and Analysis* filed on SEDAR and EDGAR.

However, assessing the relevance of the different considerations in each scenario provides an important tool for conducting business-focused climate change due diligence. It allows a company to consider important questions about its ability to transition to a low-carbon economy, and to support that transition while also planning for the impacts of climate change.

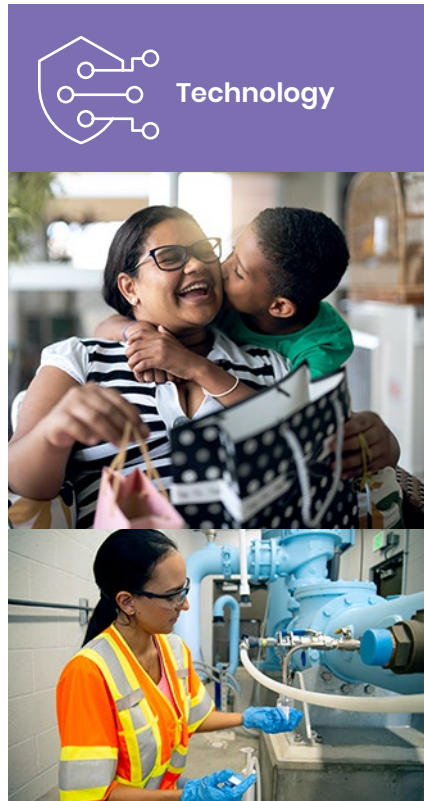
For an energy company, climate strategy is also business strategy. This reality is already embraced by our business as we proactively explore low-carbon energy solutions for us and our customers. The scenario analysis process was valued in this regard as it will help us improve on our existing efforts.

Regulated services: Climate-related risks and opportunities



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|--|--|--|
| Energy This scenario presents a strong growth opportunity for the energy utility business, if it manages the transition well. It also presenting a risk if this transition is poorly managed. A global lens will be important under this scenario, as most energy demand growth occurs beyond North America. | Energy The energy utility industry will need to work closely with their regulators under this scenario, which sees the increased need for technical standards to be developed, presenting the opportunity for us to potentially assist in their development. | Energy Continued access to low-cost natural gas remains strong under this scenario. |
| Water Customers may be using less water per capita due to an increased focus on efficiency and water conservation. Water stress is also avoided due to reduced climate change impacts. | Water For the water utility businesses, efficiency mandates may impact demand. | Water Climate change impacts will induce water stress under this high-carbon scenario. |

Regulated services: Climate-related risks and opportunities (continued)



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|--|---|
| Energy The distribution system will need to be revamped to allow full value of low-carbon distributed resources to be recognized. Support for the rapid electrification of transportation will present a business opportunity. The gas business will be engaged in various technological solutions to reduce the carbon intensity of that energy service. | Energy Technological improvements, including in storage, efficiency, and demand management, will lead to important changes in the regulated services business. | Energy Technology will continue to improve, leading to increased deployment of electric vehicles (EVs), lower renewable prices, and lower battery costs. This presents multiple business opportunities. |
| Water A high cost of carbon will improve the business case of new and emerging technologies, for example micro-turbines in water systems, and micro-grids to power water facilities and build resilience. | Water New water technologies will become increasingly interesting, the business case will solidify, and water utilities will have the opportunity to collaborate with government (e.g., creating public-private partnerships) to accelerate the commercialization of these technologies. | Water There will be a requirement for significant investment in new water technologies to face the challenges posed by the extreme physical risks present in a high-carbon climate. |

Regulated services: Climate-related risks and opportunities (continued)



| <p>Low-carbon scenario IEA sustainable development scenario</p> | <p>Mid-carbon scenario IEA 2-degree scenario</p> | <p>High-carbon scenario IEA WEO stated policies scenario</p> |
|--|---|--|
| <p>Energy</p> <p>Aggressive low-carbon policy will encourage the business to invest in transformative technology and business models. This aligns with multiple opportunities presented by this scenario.</p> <p>The business has been at the forefront of low-carbon efforts and thus is well positioned to engage on these policy measures. Price supports for clean commodities must also be robust to ensure this scenario is achievable.</p> | <p>Energy</p> <p>The business would need to be prepared for significant low-carbon policy changes in this scenario. These include efforts to make renewable natural gas and green hydrogen cost competitive, as well as those that enable integration with existing natural gas systems, such as tariffs, interconnection requirements, carbon pricing, project incentives, or procurement mandates.</p> | <p>Energy</p> <p>This scenario is marked, in part, by a lack of policy action. This minimal change presents an opportunity for the business, as there are fewer regulatory and non-regulatory disruptions. However, it is also a risk, as differentiated climate change policies across jurisdictions raises business complexity. The policies that may emerge in this scenario center around how utilities better manage physical risks.</p> |
| <p>Water</p> <p>Inefficient operations will be disallowed, regulations will change to drive utilities to invest in new technologies, and, on the demand side, certain types of infrastructure are likely to be more regulated for efficiency.</p> | <p>Water</p> <p>High energy efficiency mandates will also translate to the water sector. The business will need to plan for increased water scarcity which could lead to more common contestation of water rights.</p> | <p>Water</p> <p>Water stress will be an increasing reality in this scenario, leading to more policy engagement with governments to ensure a sustainable water supply system.</p> |

Regulated services: Climate-related risks and opportunities (continued)



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|---|--|
| <p>Energy</p> <p>This scenario presents many cost pressures associated with the transition to a low-carbon energy system. The business will need to actively manage these pressures so as to mitigate impacts on customers.</p> | <p>Energy</p> <p>This scenario presents the opportunity to repower the business' fossil generation assets, and to be recognized as a leader in the decarbonization of utilities. Reliability will be increasingly important to both reputation and investor valuation of the business.</p> <p>The business' reputation would lend it credibility when advocating for changes necessary for the transition to a low-carbon economy.</p> | <p>Energy</p> <p>Investments in resilience will help avoid any negative customer perceptions that the business is unreliable due to climate impacts.</p> |
| <p>Water</p> <p>Investment in technologies and increased energy costs will also put pressure on water rates which could have reputational impacts. However, in contrast, lower climate impacts on water supplies will mean fewer reputational risks overall.</p> | <p>Water</p> <p>Our reputation as a sustainable company can help secure contracts with municipalities that increasingly value stewardship of a water resource.</p> | <p>Water</p> <p>Utilities' reputations may suffer due to water scarcity, especially if there is a lack of regulatory support for water conservation measures. The business can mitigate this risk by proactively engaging the various water stakeholders.</p> |

Regulated services: Climate-related risks and opportunities (continued)



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|---|--|
| <p>Physical impacts are minimized in this scenario, but remain relevant with projections of medium to high risk of: increased rates of precipitation; a decrease in cooling days; and increased intensity, frequency and duration of droughts, wildfires, and storms and floods, depending on the region.</p> | <p>Physical impacts manifest in changing precipitation rates and a decrease of cooling days, especially over the longer term. Acute physical impacts increase in severity and frequency causing damage to infrastructure.</p> | <p>This high-carbon scenario projects increased frequency and intensity of climate-related physical impacts. These manifest differently depending on the region. However, all drive a need to invest in asset hardening. Resilience is key in this scenario.</p> |
| <p>Energy</p> <p>Rising temperatures will mean a decrease in demand for heat, and an increase in demand for cooling.</p> | <p>Energy</p> <p>Rising temperatures will mean a decrease in demand for heat, and an increase in demand for cooling.</p> | <p>Energy</p> <p>To provide continued reliable power to customers in a high physical-risk environment, the energy utility business will need to make resiliency investments.</p> |
| <p>Water</p> <p>Increased occurrence, length, and intensity of wildfires will negatively affect uncontrolled runoff from rainfall.</p> | <p>Water</p> <p>Increased occurrence, length, and intensity of wildfires will negatively affect uncontrolled runoff from rainfall.</p> | <p>Water</p> <p>To provide continued reliable power to customers in a high physical risk environment, the energy utility business will need to make resiliency investments.</p> |

Regulated services: Climate-related risks and opportunities (continued)



Resource efficiency



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|---|--|
| Energy Energy efficiency is a key driver of this scenario in the markets where Liberty is currently active. | Energy Energy efficiency is a growing sector in this scenario. However, energy demand also increases. | Water This scenario may lead to an increase in water smart communities focused on resiliency and efficiency. |

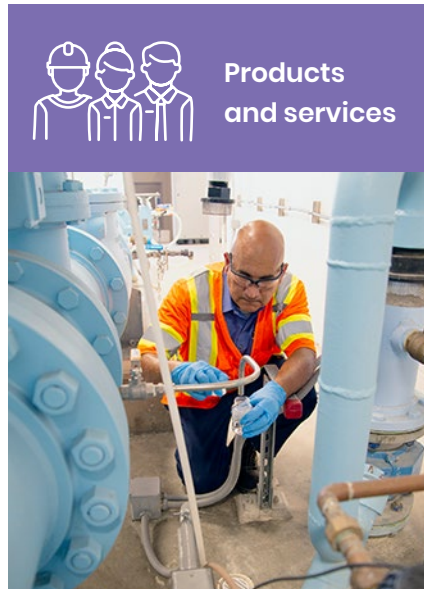


Energy source



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|--|---|
| Energy The energy distribution system will need to continually evolve to enable the recognition of distributed energy assets and resources. Non-gas thermal energy, such as geothermal, may be necessary to ensure local distribution companies meet low-carbon requirements. | Energy Changes in energy demand in this scenario present important considerations for valuing different investment opportunities as they relate to low-carbon options. | Energy This scenario sees the least disruption to the existing energy distribution and generation landscape. The business has proven successful at managing well established utilities and new investments, which places it in a good position. |

Regulated services: Climate-related risks and opportunities (continued)



| <p>Low-carbon scenario IEA sustainable development scenario</p> | <p>Mid-carbon scenario IEA 2-degree scenario</p> | <p>High-carbon scenario IEA WEO stated policies scenario</p> |
|---|---|--|
| <p>Energy Policies that would enable an energy-as-a-service model may present an opportunity for the business.</p> | <p>Energy and water As efficiency becomes more important, the business is well positioned to become a solutions provider for large clients looking to reduce their energy and water consumption with regulatory support.</p> | <p>Energy The business can position itself as a partner with customers in helping them achieve their renewable energy goals which remain important under this scenario.</p> |
| <p>Water Water and energy efficiency service offerings become growth opportunities, as does industrial wastewater treatment.</p> | | <p>Water Sea water intrusion presents both risks and opportunities for desalination as this technology becomes increasingly important and economical.</p> |

Power generation: Climate-related risks and opportunities



Market changes



Low-carbon scenario

IEA sustainable development scenario

The high rate of technological, market, and regulatory changes presents both risks and opportunities for the business.

The business' extensive experience in renewable energy is a strength under this scenario. However, it will also be dealing with increased competition from players in the energy sector that are transitioning away from oil and gas.

Mid-carbon scenario

IEA 2-degree scenario



This scenario has features that may push renewable generation deployment while also reducing the need for increased generation. While carbon prices and demand for electricity increasing (e.g., increased demand for residential heating electrification and EV charging) are good signs for the renewable power business, increased energy efficiency across sectors, especially in North America, may limit some growth.

High-carbon scenario

IEA WEO stated policies scenario

Between the continued importance of natural gas, especially as it displaces coal, and solar's increasing competitiveness, and a general projected increase in energy demand, the Renewable Energy Group's business strategy is competitive, even in a low transition risk scenario. The business is currently engaged in these risks and opportunities, and thus, will be prepared to integrate these technologies into its business strategy.

Power generation: Climate-related risks and opportunities (continued)

|  Technology | Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|--|--|---|
|  | <p>Technologies will drive significant innovation in the renewable energy business under this scenario. Low-carbon enabling technologies will improve and be deployed that increase storage capabilities and options such as distributed energy storage. EVs are another example of a technology that will be increasingly deployed. Both enable and drive demand for electricity. Reduced use of natural gas will also increase the demand for electricity.</p> <p>New energy technologies such as green hydrogen may become more viable.</p> | <p>New technologies come into play in this mid-carbon scenario, with local and micro-grid solutions increasingly being sought after. Building electrification may present an opportunity for the business, as would the projected growth in energy storage, distributed generation using solar, and increased adoption of EVs. Innovative technologies such as micro-nuclear power reactors, green hydrogen, distributed generation technologies, and micro-combined heat and power generation will become more interesting.</p> | <p>Technology changes and decreased prices will enable increased integration of renewables across the grid. Battery storage is identified as an important development, even if storage pricing may limit full deployment. The business is currently engaged in these risks and opportunities, and thus, will be prepared to integrate into business strategy.</p> |

Power generation: Climate-related risks and opportunities (continued)



Regulatory



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|--|---|
| <p>There is an assumed carbon price of \$100/tonne of CO₂e, which improves the value of renewable energy, new and emerging low-carbon energy technologies, and energy efficiency programs. The business is already engaged in these technologies and positioned to ramp up if this scenario plays out.</p> | <p>Policies and regulations drive more change in this scenario than in the high-carbon scenario. They become more favorable to renewables, and increasingly align across jurisdictions, enabling super-regional markets. Policy supports for carbon capture and storage, long-term carbon pricing, and integration of waste management and energy policies provide increased market certainty.</p> | <p>Regulatory differences across jurisdictions may be an opportunity for the business (e.g., mandated shares of renewable power), while also posing a risk with potential misalignment across states and countries. Regulations to safeguard dams and hydro stations from extreme weather (e.g., flash floods) would be relevant to the business.</p> |



Reputation



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|--|---|---|
| <p>Recruiting and retaining talent necessary for renewable energy work will be an important factor in this scenario. A reputation for having a strong work culture will be a competitive advantage. Customers and other key stakeholders are likely to demand increased low-carbon transparency from their energy suppliers.</p> | <p>The Renewable Energy Group's business provides an opportunity to be an early industry leader on renewables and increases the strength of the growth story by offering low-carbon solutions, in line with projected policy and government initiatives moving in that direction.</p> | <p>The business' renewable energy generation presents an opportunity to investors who may increasingly seek out low-carbon investment opportunities. The business' existing success will provide reputational uplift with stakeholders.</p> |

Power generation: Climate-related risks and opportunities (continued)

 **Physical risk and resilience**



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|---|---|
| <p>Although there is less physical risk in this scenario, climate impacts are present and those currently experienced are likely to continue into the distant future and will need to be mitigated. This includes a slight increase average temperatures and changes to precipitation depending on the region, as well as region-specific acute physical impacts (e.g., wildfires and floods)</p> | <p>In this scenario, renewables are deployed at a greater scale than in the high-carbon scenario, meaning these weather events impact increasingly valuable assets. The effects of this may include revised allowance for downtime on projects due to weather, and the increased importance of infrastructure hardening. Sustaining capital expenditures to manage physical damage from weather events may need to increase. Production may be impacted by increased precipitation and heat, and aquifer withdrawal limits in the face of drought may be a risk for cogeneration.</p> | <p>In this scenario, physical impacts are stronger across the board, risking greater impacts on different assets. Wind, co-generation, hydro, and distribution networks would all require mitigation measures to be put in place. In addition, demographic changes may exacerbate system stress. For example, customers may shift inland due to rising sea levels and load generation may need to follow.</p> |

 **Resource efficiency**



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|---|---|---|
| <p>This scenario assumes great advances in energy efficiency in Europe and North America and assumes new energy growth is driven by renewables, particularly in emerging markets, including those on the African continent.</p> | <p>Energy efficiency is less important in this scenario but remains a growing sector, especially in North America and Europe. Energy demand also increases.</p> | <p>Current levels of energy efficiency programming would remain under this scenario, with significant differences between regions. This results in less risk, and more opportunity for the business, less risk of market disruption from energy efficiency breakthroughs reducing demand, and less risk of reduced demand for renewables.</p> |

Power generation: Climate-related risks and opportunities (continued)



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|--|---|--|
| <p>This scenario assumes lower demand from North America as energy efficiency measures are put in place across sectors. This may lead to different approaches to longer term contracts, owning versus operating, and moving into new markets for continued growth.</p> <p>The transport sector will need new sources of electricity and hydrogen. This presents an opportunity for the business that may expand to new areas such as biomass and green hydrogen.</p> | <p>The low-carbon economics in this scenario will support more wind and solar, which the business is positioned to provide.</p> <p>Biomass energy production may become economical.</p> | <p>Renewable natural gas, excess energy use to generate green hydrogen, and energy storage present new options for the business in some but not all jurisdictions.</p> |



| Low-carbon scenario IEA sustainable development scenario | Mid-carbon scenario IEA 2-degree scenario | High-carbon scenario IEA WEO stated policies scenario |
|--|--|---|
| <p>Opportunities dramatically increase in areas where the business is already situated. There is the potential to partner with technology companies to link sources to end uses. The business can leverage the transition to this lower-carbon world by attracting investment from those seeking to invest in a growing renewables play.</p> | <p>Enhanced demand for low-carbon energy services in this scenario will present a higher number of business opportunities than are currently available. The business would be able to benefit from more policy alignment than in the high-carbon scenario.</p> | <p>The business has already begun providing renewable energy as a solution for large corporate buyers. This will continue to be an opportunity under this scenario. However, a lack of policy consistency across jurisdictions will mean the market remains bifurcated.</p> |

Appendix B: TCFD alignment table

| TCFD Recommendations | Recommended Disclosures | Algonquin Disclosure Alignment |
|--|---|---|
| <p>Governance</p> <p>Disclose the organization's governance around climate-related risks and opportunities</p> | a) Describe the Board's oversight of climate-related risks and opportunities | Board Oversight in Governance section (p. 12) Risk Management Governance and Processes in Climate-related Risk Management section (p. 14) |
| | b) Describe management's role in assessing and managing climate-related risks and opportunities | Board Oversight and Management's Role in Governance section (p. 12 and 13) Risk Management Governance and Processes in Climate-related Risk Management section (p. 14) |
| <p>Strategy</p> <p>Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material</p> | a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term | Risk Management Governance and Processes, and Climate Change Risk Control and Mitigation in Climate-related Risk Management section (p. 14 and 16) |
| | b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning | Climate Change Risk Control and Mitigation in Climate-related Risk Management section (p. 16) |
| | c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario | Assessing Climate Resilience section (p. 18) Appendix A (p. 24) |
| <p>Risk management</p> <p>Disclose how the organization identifies, assesses, and manages climate-related risks</p> | a) Describe the organization's processes for identifying and assessing climate-related risks | Risk Management Governance and Processes, and Climate Change Risk Control and Mitigation in Climate-related Risk Management section (p. 14 and 16) |
| | b) Describe the organization's processes for managing climate-related risks | Risk Management Governance and Processes in Climate-related Risk Management section (p. 14) |
| | c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management | Risk Management Governance and Processes in Climate-related Risk Management section (p. 14) |
| <p>Metrics and targets</p> <p>Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material</p> | a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process | Metrics and Targets section (p. 21) |
| | b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks | Metrics and Targets section (p. 21) |
| | c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets | Metrics and Targets section (p. 21) |

Appendix C: Forward-looking statements and forward-looking information

This document may contain statements that constitute “forward-looking information” within the meaning of applicable securities laws in each of the provinces of Canada and the respective policies, regulations and rules under such laws or “forward-looking statements” within the meaning of the U.S. Private Securities Litigation Reform Act of 1995 (collectively, “forward-looking information”). The words “anticipates”, “believes”, “budget”, “could”, “estimates”, “expects”, “forecasts”, “intends”, “may”, “might”, “plans”, “projects”, “schedule”, “should”, “will”, “would” and similar expressions are often intended to identify forward-looking information, although not all forward-looking information contains these identifying words. Specific forward-looking information in this report includes, but is not limited to, statements relating to: potential risks, opportunities, impacts, considerations and outcomes under the low-carbon scenario, mid-carbon scenario and high-carbon scenario discussed in this report; the trends that shape the three energy scenarios, and the expectations and forecasts regarding prices and energy demand and supply mix in the various scenarios; expected future growth; ongoing and planned projects, expenditures and initiatives, including

grid modernization and battery storage; expectations regarding generation availability, capacity and production; sustainability and climate change strategy, expectations, initiatives, targets and goals, including related to reducing greenhouse gas emissions, decarbonization, micro-grid initiatives and increasing renewable generation; partnerships and other collaboration with third parties with respect to sustainability and climate change objectives; customer savings; sustainability governance and corporate governance practices and processes; ongoing and planned acquisitions and projects, including expectations regarding costs, timing, in-service dates and completion dates; future renewable energy projects and opportunities, including those with Chevron and internationally; regulatory and governmental policy initiatives; expected future environmental and social impacts of our renewable energy and other facilities; the expected benefits of the Company’s enterprise-wide business systems upgrade; expectations regarding future measures to harden the Company’s infrastructure and increase its resilience; biodiversity, vegetation management and conservation initiatives and the expected impacts thereof; employee engagement

initiatives; the sufficiency of the Company’s investments, actions and plans to address risks presented by climate change; the transition to a low-emission economy and the expected impact on different energy and water sources, uses and technologies; and the potential impacts of climate change, as well as the effectiveness of our risk management strategies in respect thereof. All forward-looking information is given pursuant to the “safe harbor” provisions of applicable securities legislation.

The forecasts and projections that make up the forward-looking information contained herein are based on certain factors or assumptions which include, but are not limited to: the circumstances and factors underlying each of the three energy scenarios discussed in the report; the receipt of applicable regulatory approvals and requested rate decisions; the absence of any material equipment breakdown or failure; the absence of significant operational, financial or supply chain disruptions or liability due to natural disasters, diseases or other force majeure events; availability of financing on commercially reasonable terms; the absence

of a severe and prolonged downturn in general economic, credit, social and market conditions; the successful and timely development and construction of new projects; the closing of pending acquisitions substantially in accordance with the expected timing for the same; the continuation of observed weather patterns and trends; the continued competitiveness of electricity pricing; the absence of a material change in political conditions or public policies and directions by governments; the ability to obtain and maintain licenses and permits; favourable relations with external stakeholders; the viability, financial and otherwise, of community engagement efforts and sustainability projects; the reliability of scientific evidence upon which sustainability efforts are based; the availability of diverse suppliers and qualified personnel to satisfy continued diversity and inclusion efforts. Given the uncertainty and evolving circumstances surrounding the COVID-19 pandemic and related response from governments, regulatory authorities, businesses and customers, there is more uncertainty associated with the Corporation’s assumptions and expectations as compared to periods prior to the onset of COVID-19.

(continued..)

(...continued)

The forward-looking information contained herein is subject to risks, uncertainties and other factors that could cause actual results to differ materially from historical results or results anticipated by the forward-looking information. Factors which could cause results or events to differ materially from current expectations include, but are not limited to: changes in general economic, credit, social and market conditions; changes in customer energy usage patterns and energy demand; changes related to the anticipated effects of global climate change; advancements in environmental science; the development of new sustainable technologies; the incurrence of environmental liabilities; natural disasters, diseases and other force majeure events; seasonal fluctuations and variability in weather conditions and natural resource availability; reductions in demand for electricity, gas and water; fluctuations in commodity prices; an increase in financing costs or limits on access to credit and capital markets; failure to maintain required regulatory

authorizations; failure to comply with and/or changes to environmental laws, regulations and other standards; failure to identify attractive acquisition or development candidates necessary to pursue the Corporation's growth strategy; delays and cost overruns in the design and construction of projects, including as a result of COVID-19; facilities being condemned or otherwise taken by governmental entities; the severity and duration of the COVID-19 pandemic and its collateral consequences, including the disruption of economic activity, volatility in capital and credit markets and legislative and regulatory responses; and the loss of key customers. There may be other factors that cause actions, events or results not to be as anticipated, estimated or intended. Some of these and other factors are discussed in more detail under the heading "Enterprise Risk Factors" in the Corporation's most recent annual information form and under the heading "Enterprise Risk Management" in the Corporation's most recent annual and interim management discussion and analysis.

Forward-looking information contained herein is made as of the date of this document and based on plans, beliefs, estimates, projections, expectations, opinions and assumptions as at such date. There can be no assurance that forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such forward-looking information. Accordingly, readers should not place undue reliance on forward-looking information. While subsequent events and developments may cause the Corporation's views to change, the Corporation disclaims any obligation to update any forward-looking information or to explain any material difference between subsequent actual events and such forward-looking information, except to the extent required by law. All forward-looking information contained herein is qualified by these cautionary statements.



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