

Powering a Resilient Future

2020 Climate Change Disclosure Report



Table of Contents

1	Letter from Our Chief Sustainability Officer and Chief Financial Officer	13	Managing Climate Risks and Opportunities
3	About Capital Power	14	TCFD Framework
4	Our Operations	15	Scenarios Analysis and Testing the Resilience of Our Strategy
5	Our Path to Net Zero by 2050	15	IEA Scenarios
6	Metrics and Targets	18	Risks and Opportunities Tables
7	Our Strategy	27	TCFD Alignment Table
8	External Assumptions	28	Our Commitment to Resilience
9	Carbon Strategy	28	Advancing Our Carbon Disclosure Efforts
10	About This Report		
10	Our Reporting		
11	Corporate Governance		
12	Organizational Structure		

Additional reports

You can find our 2020 Integrated Annual Report, which aligns our financial and environmental, social and governance (ESG) reporting, and the combined impact on our total value creation, [here](#).

Letter from Kate Chisholm, Senior Vice President and Chief Sustainability Officer and Sandra Haskins, Senior Vice President and Chief Financial Officer



Kate Chisholm, Senior Vice President, Planning, Stakeholder Relations and Chief Sustainability Officer

Sandra Haskins, Senior Vice President, Finance & Chief Financial Officer

Capital Power believes in climate change and we are committed to act.

In 2020, we developed a roadmap to outline our steps toward decarbonization, starting with getting off coal in 2023 and pursuing technologies to help drive us toward our goal to be net carbon neutral by 2050.

Our strategy for growth and responsible energy is based on investing in renewable power and natural gas with carbon conversion and/or hydrogen-ready technology. We believe this combination is key to providing the clean, reliable and cost-effective energy required for the sustainability of our global community.

We have made great progress in these areas during the past 12 months, which we are proud to share in our third Climate Change Disclosure Report.

We've demonstrated our commitment to sustainability and transparency through our annual reporting and climate change impact disclosures for more than a decade. Our decision in 2018 to adopt the Task Force on Climate-related Financial Disclosures (TCFD) recommendations in our climate change disclosure reporting demonstrates this commitment and supports the TCFD's aspirations toward consistent and transparent reporting.

This third report illustrates our strong foundation of sustainability practices and shows how the consideration of climate-related issues is integrated as part of our strategy, governance and management practices, helping us mitigate risk and identify opportunities. It also includes an assessment of the resiliency and sustainability of our strategy relative to alternative climate change scenarios based on three International Energy Agency (IEA) World Energy Outlook 2020 climate change-related scenarios.

The IEA (2020) data set is used and referenced by other comparable industry partners, is publicly available, is peer-reviewed and uses data sets at global, national and regional levels. Additionally, the data sets are aligned to the TCFD recommendations, enabling a better comparison of climate-related risks within our sector.

Through our assessment, the scenarios highlight the continued role and importance that natural gas and renewables will have in the North American energy system. They also support our focus on these technologies and our ongoing efforts to optimize performance and reduce emissions at our thermal facilities, including through our use of carbon capture, utilization and storage (CCUS) technology and hydrogen blending.

Our announcement in December 2020 to repower Genesee 1 and 2 at our flagship Genesee Generating Station in Alberta is an example of our commitment to continue our leadership in this space. The repowering will deploy the best-in-class natural gas combined cycle technology available, making the units the most efficient natural gas plants in Canada. They will be hydrogen capable as well as carbon capture ready.

We're also continuing to develop carbon reduction technologies that will contribute to downstream emissions reductions through our investment in C2CNT, a company that has developed an innovative technology that transforms carbon emissions into carbon nanotube products. We're excited to share that the Genesee Carbon Conversion Centre is on track to be operational in the first half of 2022 and will be the world's largest commercial-scale production facility of carbon nanotubes.

On the renewables front, we made significant progress this year, including in our development of solar, where we announced five new projects in 2020. Together, these projects confirm our competitive capability in solar and more than double our renewable opportunities in North America, positioning us to deliver 425 megawatts (MW) to our fleet by the end of 2022.

Commitment to Responsible Energy for Tomorrow Starts at the Top

Our journey toward net carbon neutral by 2050 is led by our Board of Directors. At Capital Power, we don't have a Board *committee* that considers sustainability – the entire Board talks about it every single quarter. They want to hear from us about the Company's progress and new issues that are emerging. They never make a decision without considering the sustainability impact alongside the financial impact.

Nor do we.

Our Finance and Sustainability teams are working to incorporate sustainability factors into our investment decision methodology. Take our carbon emissions target. We're committed to reducing our emission intensity by 65% by 2030 from 2005 levels – despite an anticipated *increase* in power generation capacity from growth. As we look at business development and investment opportunities, such as the types of energy we'll invest in, it must be through the lens of whether the opportunity or investment will support our ability to achieve this target. If it doesn't, that will affect our decision.

We're also increasing management's accountability for achieving our sustainability goals. Historically, management compensation has been based on meeting core financial and operational targets. In 2020, the percentage of incentive pay of Capital Power management based on social and environmental targets, including achieving

lower greenhouse gas (GHG) emissions, increased from 10% to 20%, and will increase to 25% in 2021. Beyond our Executive Team, we're cascading sustainability throughout the Company, ensuring that all employees understand that our 2050 roadmap forms part of their role, whether they work at one of our corporate offices or at one of our 28 power generation sites.

Delivering Value

In the past, many companies and investors were narrowly focused on profit margins. But, today at Capital Power, we're convinced that you don't have to trade shareholder value for strong sustainability performance. On the contrary, we believe we create *more* shareholder value by conducting our business in a way that benefits people and the environment. We believe we will create more shareholder value – and drive economic growth – by helping the world get to net carbon neutral in a way that is cost-effective and keeps everyone's lights on.

As we move forward, Capital Power is ready for tomorrow. We still have a long way to go to 2050, but we have a practical and realistic plan and we're confident we will get there, together.

Sincerely,



Kate Chisholm
Senior Vice President, Planning, Stakeholder Relations and
Chief Sustainability Officer



Sandra Haskins
Senior Vice President, Finance & Chief Financial Officer



**Capital Power believes in
climate change and we are
committed to act.**

About Capital Power

Capital Power is a growth-oriented North American wholesale power producer with a strategic focus on sustainable energy headquartered in Edmonton, Alberta. We build, own and operate high-quality, utility-scale generation facilities that include renewables such as wind, solar and waste heat, and thermal such as natural gas and coal.¹ We have also made significant investments in carbon capture and utilization to reduce carbon impacts and are committed to be off coal in 2023.

Capital Power owns over 6,500 megawatts (MW) of power generation capacity at 28 facilities across North America with approximately 425 MW of owned renewable generation capacity and 560 MW of incremental natural gas combined cycle capacity, from the repowering of Genesee 1 and 2, in advanced development in Alberta and North Carolina.

We welcome your feedback on our report at info@capitalpower.com.

¹ The Company's power generation operations and assets are owned by Capital Power L.P. (CPLP), Capital Power L.P. Holdings Inc. and Capital Power (US Holdings) Inc., all wholly owned subsidiaries of the Company. In this report, any reference to the Company or Capital Power, except where otherwise noted or the context otherwise indicates, means Capital Power Corporation together with its subsidiaries.

We provide responsible energy for tomorrow.

We are committed to creating a brighter world powered by responsible energy by supporting the low-carbon energy system required for our longevity as a global community. We are committed to growing our Company to deliver long-term value, protect our environment and help our communities thrive.

Our vision is to power a sustainable future.

We are a leading North American power generator powering a sustainable future for generations to come.

Our mission is to create dependable, cost-effective and future-ready electricity solutions.

We produce power that is **dependable** by building, owning and operating high-quality, utility-scale generation facilities from a diverse set of fuel sources, with industry-leading availability.

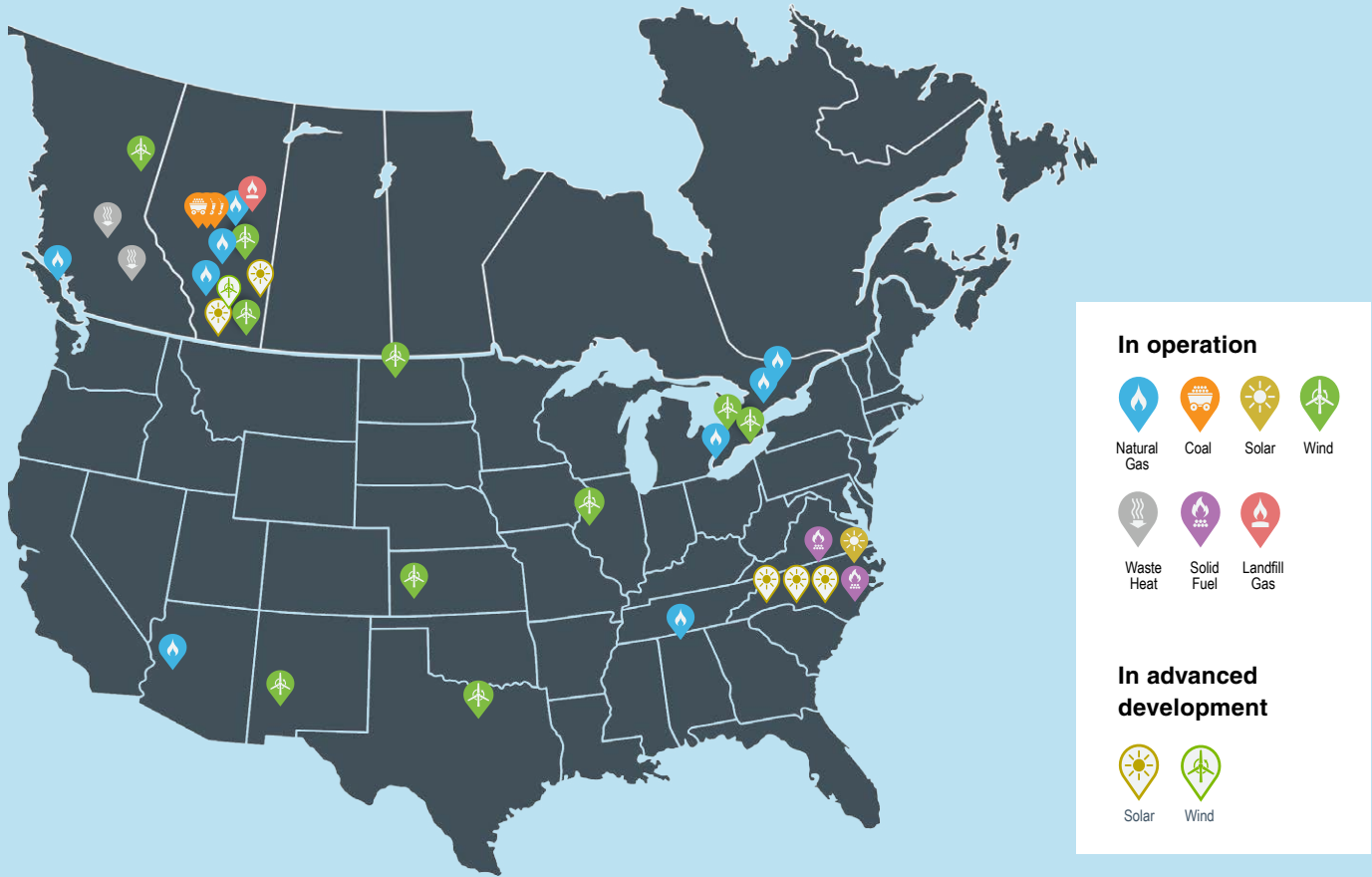
We use our expertise and innovation to produce **cost-effective power**.

We develop **future-ready electricity** solutions that protect the environment by creating lower-carbon electricity.

Our vision and mission are supported by our values:

- A commitment to safety
- Working together as a diverse and inclusive team
- Accountability to our stakeholders
- Delivering excellence

Our Operations



In 2020, we announced **425 MW** of wind and solar projects in advanced development in Alberta and North Carolina; an additional 100 MW was added to our portfolio through the acquisition of Buckthorn Wind in Texas.

Renewable projects currently in advanced development include:

- 40 MW Strathmore Solar project in Alberta
- 75 MW Enchant Solar project in Alberta
- 151 MW of wind from Whitla Wind Phases 2 & 3

- 75 MW Hornet Solar in North Carolina
- 50 MW Hunters Cove Solar in North Carolina
- 35 MW Bear Branch Solar in North Carolina

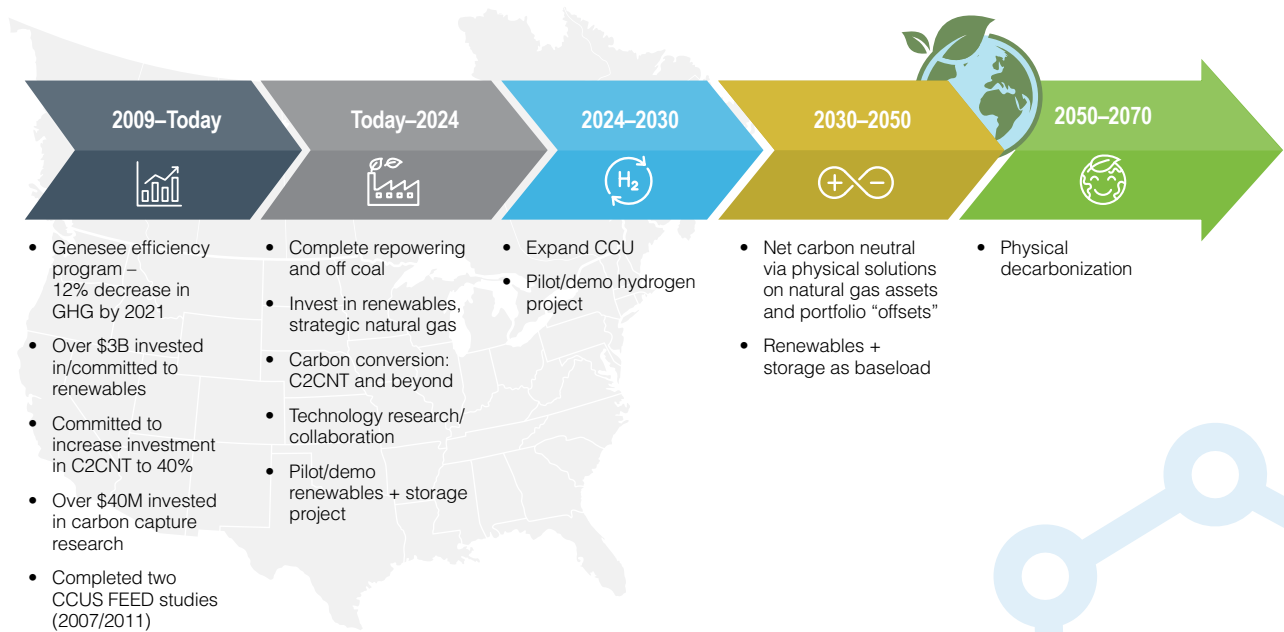
In 2020, we announced we will be off coal in 2023, six years early, with the repowering of Genesee 1 and 2, conversion of Genesee 3 to 100% natural gas and the retirement of our Southport and Roxboro facilities. Repowering Genesee 1 and 2 will add 560 MW of the most efficient natural gas generation in Canada to our portfolio once complete in 2024.

Our Path to Net Zero by 2050

In 2020, Capital Power announced its accelerated plan to become carbon neutral by 2050 and the progress that will be required to get there. Our power generation facilities are a hub of innovation, where we are continuously learning, adapting and developing to create cleaner, reliable and cost-effective electricity. Accelerating this work demonstrates our ongoing commitment to deliver *Responsible Energy for Tomorrow*.

We believe a holistic transformation of our energy system requires an “all of the above” solution from our industry – one that expands the use of renewable energy, employs storage technologies to optimize those renewable sources, and transitions to low-carbon thermal generation, for those periods when the wind isn’t blowing and the sun isn’t shining, through improved efficiency and the deployment of carbon capture, utilization and storage (CCUS) technology and hydrogen. This strategy will strengthen our business and support our ability to deliver total shareholder value of 10% to 12% as we progress toward decarbonization.

The illustration below outlines a pathway to decarbonization that Capital Power believes is achievable.



Metrics and Targets

Monitoring the execution of our strategy is essential to track our progress, measure results and, where necessary, make course corrections to ensure our actions yield the desired results.

Capital Power first tied the Company's sustainability goals to our Executive Team's compensation in 2019. In 2020, the percentage of remuneration of Capital Power management based on social and environmental targets increased from 10% to 20%. This percentage will increase to 25% in 2021. The targets and remuneration framework are reviewed and approved annually by our Board and demonstrate Capital Power's continued commitment to delivering on a strategy that meets our sustainability goals.

We have a pathway to achieve our 2050 goal of net carbon neutrality, and we are on track to get there. Below are key targets we aim to reach along our journey.

- Constructing all new natural gas generation units to be carbon capture and/or hydrogen ready
- Reducing Scope 1 CO₂ emissions at Genesee by 50% by 2030 from 2005 levels
- Reducing Scope 1 CO₂ emissions by 10% by 2030 from 2005 levels, based on our 2019 fleet¹
- Reducing Scope 1 CO₂ emission intensity by 65% by 2030 from 2005 levels¹
- Investing in CCUS technology to help us achieve net carbon neutrality by 2050 and eventually physically decarbonize our natural gas fleet
- Completing the Genesee Carbon Conversion Centre in the first half of 2022
- Enhancing our sustainable sourcing and water management plans in 2021

¹ Our policy is to recalculate our base year emissions for any significant impacts as a result of changes in calculation methodologies and major acquisitions or divestments.



“We’re on track to fully meet all of our sustainability targets and we believe that the resilience, innovation and optimization that lie at the core of Capital Power’s culture are helping us contribute to a reliable and affordable low-carbon future.”

– Kate Chisholm, Senior Vice President, Planning, Stakeholder Relations and Chief Sustainability Officer, December 2020

Our Strategy

Capital Power's annual corporate strategy process is completed with extensive direction and input from our Executive Team and Board of Directors. It includes a careful assessment of business and climate change risks and opportunities. In 2020, we reaffirmed the three foundational pillars of our strategic plan:

- 1. Maximizing asset value by pursuing operational excellence**
- 2. Creating additional shareholder value through disciplined growth**
- 3. Safeguarding access to capital at a competitive cost through financial stability and strength**

Embedded within all pillars of our strategy, and critical to our business, is sustainability. Capital Power defines sustainability as managing all environmental, social and governance (ESG) issues that pose a significant risk or opportunity to Capital Power's business. It includes assessing and managing climate-related risks and opportunities in our current and future decisions relating to operations and growth.

Our sustainability strategy aligns to our corporate vision and mission and is based on the following:



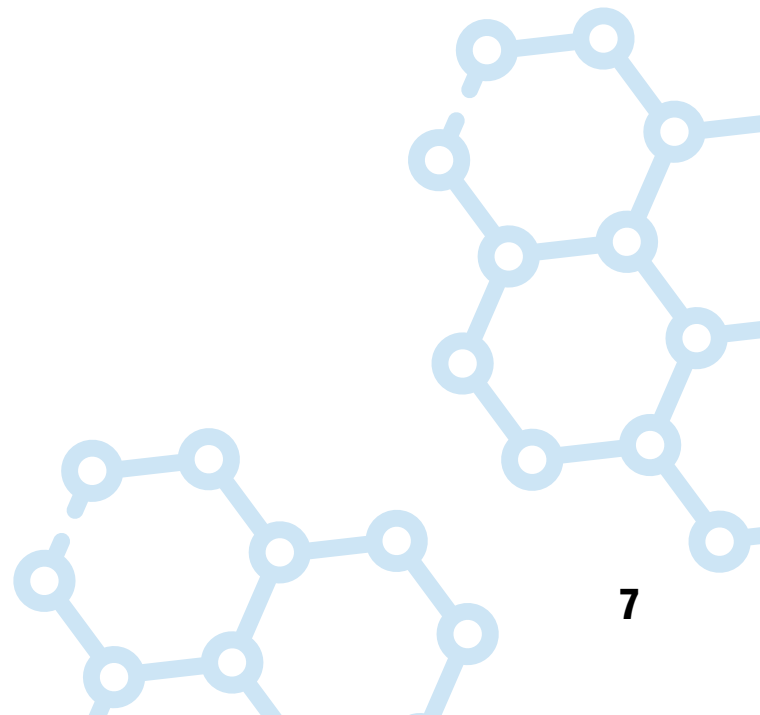
Resilience. Capital Power is ready for the future and can adapt successfully as our industry evolves and changes.



Environmental stewardship. We aim to operate our business in a responsible way that mitigates our environmental impact on the planet and its resources.



Trust. Our employees and shareholders know and trust that we do what we say.



External Assumptions

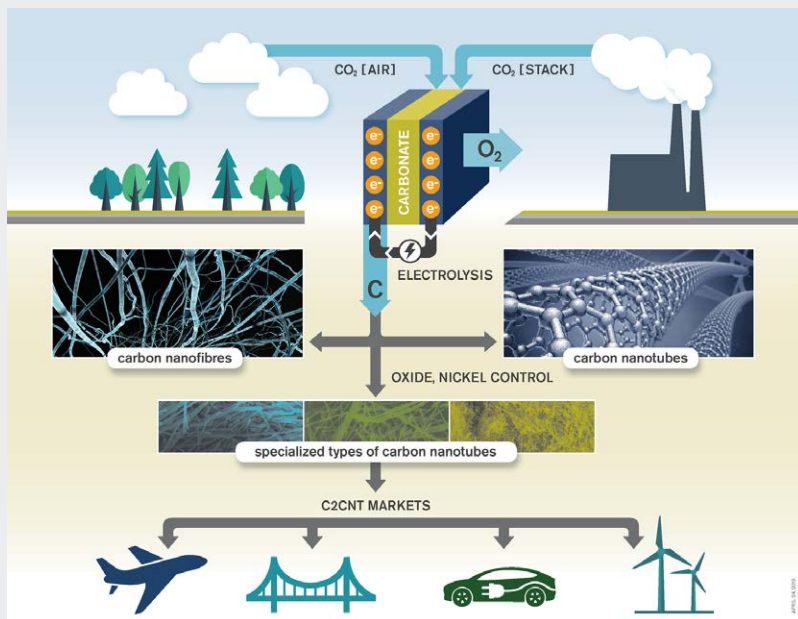
As part of our corporate strategy, Capital Power monitors climate-related developments for major changes that could affect or influence our strategy. Our strategy is based on the following external assumptions.

1. The proportion of wind and solar in the total generation supply mix in North American power markets will continue to grow.

Wind and solar generation technologies have experienced a rapid decline in cost due to technological advances. In conjunction with economic incentives, advances in storage technology and continued policy support, wind and solar generation technologies are poised to continue their rapid growth.

2. Future-ready gas will continue to be a primary generation source in North American power markets.

Low natural gas prices, operational flexibility and high power density make gas generation the most cost-effective and reliable technology for power generation. Increased renewables penetration also creates the need for more dispatchable capacity, which is achieved with fast-ramping gas units. Decarbonization of gas generation will be accelerated through deployment of CCUS technologies and hydrogen blending. As we continue to move forward, we expect emission-free gas-fired generation will continue to play a major role in North American power markets over the duration of our strategic plan.



2020 Update on C2CNT

Capital Power is committed to increase its equity interest in C2CNT, a company that has developed an innovative technology that transforms carbon emissions into carbon nanotube (CNT) products, to 40%. CNTs can be used as an additive to substantially increase the strength of concrete, steel, aluminum and other materials. The technology has the potential to be a game changer in the treatment and management of carbon dioxide in energy and industrial operations. Assuming current testing and preliminary marketing are successful, we anticipate the 2,500 tonnes per year first phase of the Genesee Carbon Conversion Centre will be operational in the first half of 2022. At full capacity, the Centre has the potential to produce 7,500 tonnes of carbon nanotubes per year.

Carbon Strategy

It is Capital Power's view that an ambitious and coordinated effort by all stakeholders – governments, corporations, investors and society – is required to reduce emissions and mitigate the impacts of climate change. To that end, Capital Power is striving to achieve ambitious emission-reduction targets across our fleet that will be met with investments in renewables and increasingly lower-emission, flexible natural gas generation. This strategy supports long-term decarbonization efforts of the power sector and downstream industries.

In executing Capital Power's strategy, we are taking the following steps to reduce carbon emissions.

1. Deploying capital to grow our renewables portfolio.

Capital Power has demonstrated our competitiveness in the development and construction of renewables. We are accelerating this growth with the addition of seven new renewable development projects and the acquisition of one operating wind facility, as noted above. This includes expanding our core competencies to include the development and construction of solar assets.

2. Repowering Genesee to realize environmental benefits and provide shareholder value.

In 2020, Capital Power announced the repowering of Genesee 1 and 2 with best-in-class natural gas combined cycle technology. When combined with the conversion of Genesee 3 to natural gas, Capital Power will be off coal in 2023 – six years sooner than originally planned. The repowered units will be hydrogen capable and carbon capture ready, allowing us to realize additional emission reductions in the future.

3. Extending the economic life of natural gas assets through innovation and optimization.

Capital Power is building a low-carbon future through optimization and innovation at our generating facilities. Through continuous improvement efforts, advanced analytics, automation and adoption of digital tools, we are investing in the resiliency of our assets.

4. Investing in CCUS and hydrogen technologies to help achieve net carbon neutrality by 2050.

Capital Power is investing in and pursuing the development of carbon conversion and hydrogen technologies to achieve net carbon neutrality by 2050. These efforts will ensure longevity of natural gas assets that provide critical grid services and support renewable integration. Capital Power anticipates completing the Genesee Carbon Conversion Centre in the first half of 2022.



Capital Power is expanding our core competencies to include the development and construction of solar assets.

About This Report

This third Climate Change Disclosure Report builds on last year's report by expanding the qualitative assessment of the scenarios to address the recommendations of the TCFD. The expanded assessment includes greater consideration of the timeframes of our risks and opportunities, greater alignment between our disclosures and key pillars of our strategy, and increased scope in our disclosures. This report is aligned to the four central themes of the TCFD recommendations, which include governance, strategy, risk management, and metrics and targets.

This report describes:

- Our climate-related governance from our Board of Directors and Executive Team through the entire organization
- How climate-related risks, opportunities and mitigation are identified, assessed and managed in accordance with our business strategy and long-term plan, which are updated and reviewed on an annual basis

Our Reporting

Capital Power's reporting has always aimed to engage stakeholders and help them understand the material financial and non-financial aspects of our business. This includes how issues related to emissions and climate change are managed and assessed, along with other business risks.

We have regularly disclosed and reported on our environmental and climate-related risks through our past Management's Discussion and Analysis (MD&A), Annual Information Forms (AIF), corporate sustainability reports and integrated annual report. We have also reported to the Carbon Disclosure Project (CDP) and Canadian Electricity Association's sustainable electricity reporting framework for many years.

- Our assessment of the resiliency and sustainability of our strategy relative to alternative climate change scenarios based on three International Energy Agency (IEA) World Energy Outlook 2020 climate change-related scenarios
- Current metrics and targets describing our performance and progress in managing climate-related risks and opportunities

Capital Power has advanced modelling and analytical capabilities and uses scenario analysis as part of our ongoing corporate planning, risk management, strategy and forecasting initiatives. We recognize the value that scenario assessments provide in helping us consider the potential implications of alternative future outcomes relating to a range of factors, including, but not limited to, commodity prices, technology, markets and the environment. The IEA (2020) climate change-related scenarios provide an expanded lens that further validates our current strategy and approach.

“In situations where a company is not certain information related to its scenario analysis assumptions or the resilience of its strategy contains confidential business information, the Task Force encourages the company to consider a stepwise approach to disclosure – rather than decide not to disclose. For example, a company might start by disclosing broader, qualitative information and move to more specific, quantitative data and information over time.”

– TCFD 2020 Status Report, p. 50

Corporate Governance

Capital Power recognizes the importance of good governance to support our ability to effectively address risks, capitalize on opportunities and create long-term shareholder value. Our Board of Directors¹ oversees the creation and execution of Capital Power's strategy, long-term plan and the identification, management and mitigation of risks to the strategy through our enterprise risk management (ERM) system.

In addition, the Board's mandate expressly includes the obligation to consider "the opportunities, risks and sustainability of the business" and to receive reports from management "on matters relating to, among others, ethical conduct, human rights, diversity and inclusion, climate change and other sustainability matters."

The Board reviews the corporate risk register biannually, conducts site visits and consults regularly with shareholders for first-hand perspectives on their topics of interest. The Board and the CEO set the tone for management in driving the behaviours and attitudes needed to support corporate-wide alignment on a strong sustainability culture.

The Board's focus on climate change includes annually approving the long-term plan, which contains strategies relating to decarbonization, technology and the pursuit of renewable generation. The Board recognizes that, in order to be sustainable, Capital Power must evolve with the power market. This means that, in addition to maintaining reliability, the Company must increasingly focus on decarbonization.

The Board's Health, Safety and Environment Committee provides a structured approach to, among other things, monitoring and assessing the effectiveness of Capital Power's environmental stewardship (including the environmental impact of our operations), and reviewing related goals, compliance practices and policies (including matters relating to GHGs and climate change).

¹ More information regarding our Board of Directors can be found under Who We Are > Corporate Governance at www.capitalpower.com.

The Board's Audit Committee reviews the Company's public disclosures and recommends them for Board approval. This includes annual financial reporting such as the Management's Discussion and Analysis and Annual Information Form, which provide information on risks and significant events, including those related to environmental and social factors, and portions of the ESG reporting contained in our Integrated Annual Report, including the scope and scale of our physical emissions.

The Board's People, Culture and Governance Committee is responsible for reviewing and recommending compensation targets and the related framework to the Board. Executive remuneration is linked to social and environmental targets including worker safety, employee retention and climate change initiatives, including achieving lower GHG emissions. These targets cascade throughout Capital Power. The targets and remuneration framework are reviewed and approved annually by the Board. Further information regarding remuneration is provided in the Metrics and Targets section of this report.

Capital Power has embedded climate change considerations into our strategy and decision-making processes and has effective governance and mitigation processes in place to effectively monitor and address climate-related risks and capitalize on opportunities.

Organizational Structure

Under the Board's advisement, Capital Power's CEO is ultimately responsible for climate change-related issues. The Executive Team is responsible for ensuring our strategy is sustainable, including addressing climate change-related risks and opportunities for Capital Power. The Senior Vice President, Planning, External Relations and Chief Sustainability Officer (CSO); Senior Vice President, Finance and Chief Financial Officer; Senior Vice President, Operations, Engineering & Construction; Senior Vice President, Business Development and Commercial Services; Senior Vice President and Chief Legal Officer; and the Senior Vice President, People, Culture and Technology are all members of Capital Power's Executive Team and report directly to the CEO.

The Company's annual corporate strategy and planning process is informed by direction and input from the Executive Team and Board based on their understanding of opportunities for and risks to our business, including climate change and other ESG factors. The Board reviews and approves Capital Power's strategic plan, climate change disclosure report (which is aligned with the TCFD) and annual integrated report (which includes financial and ESG information).

Climate change-related risks are monitored and managed by the CEO with input from the CSO and others on the Executive Team. The Board receives quarterly sustainability updates (including on climate change-related issues).

Members of the Executive Team hold the following specific responsibilities with regards to assessing, monitoring and developing recommendations with respect to climate change-related issues in their respective areas.

- **Senior Vice President, Planning, Stakeholder Relations and CSO** leads Capital Power's strategic and sustainability planning and reporting, market forecasting and analytics, regulatory and government relations, stakeholder engagement, community investment and communications functions. The CSO ensures ESG is embedded in the Company's strategy and decision-making processes. This includes ensuring ESG factors are incorporated into long-term forecasts and scenario analyses (which consider climate change-related issues

along with a range of market, policy, technology and commercial considerations), which are used for financial planning and investment decisions. These analytics and scenario analyses are developed and regularly reviewed and refined by the market assessment and forecasting team. The CSO communicates with the Board, management, shareholders, customers, employees and other stakeholders to address sustainability matters.

- **Senior Vice President of Business Development and Commercial Services** is responsible for pursuing investments in renewables and low-carbon generation, and for our strategy relating to the creation and management of our carbon offsets and credits portfolio
- **Senior Vice President, Operations, Engineering & Construction** is responsible for the safe, efficient and reliable construction, operation and maintenance of all of Capital Power's generating facilities. With respect to climate change-related considerations, key responsibilities relate to environmental compliance, operational emissions, mandatory reporting on emissions and ongoing optimization to reduce emissions of our fleet.
- **Senior Vice President, Finance & CFO** is responsible for the administrative aspects associated with carbon taxes and offsets, financial disclosure, corporate finance, including sustainability-linked finance, and financial sustainability
- **Senior Vice President, People, Culture and Technology** is responsible for developing a people-focused strategy to attract, retain and engage a future-focused workforce that has the ability and agility to successfully execute our business strategy, including addressing sustainability matters
- **Senior Vice President, Chief Legal Officer** leads Capital Power's legal, ethics and compliance, internal audit, security and insurance efforts, ensuring alignment with the corporate strategy, including ESG considerations

Senior Management actively and continually assesses climate change-related issues as part of its ongoing review of various business, market, technical, operational, regulatory, policy and strategy-related matters.

Managing Climate Risks and Opportunities

At Capital Power, strong risk management is integral to our culture, capabilities, practices, strategy setting and performance. We aspire to operational excellence through the consistent use of standards, processes and procedures, and to continually improve our performance, safety and reliability. Our framework of controls enables us to operate in a cost-effective and environmentally responsible way by:

- Managing risks
- Ensuring safe and reliable operations
- Providing plans to mitigate environmental and social impacts
- Developing and sharing best practices
- Supporting continuous improvement

We use an enterprise risk management (ERM) program and an occupational health and safety (OHS) management system to support our overall risk monitoring and management.

We view risk management as an ongoing process and continually look for ways to enhance our risk management programs and procedures. Our ERM program embeds the principles of risk management into all aspects of our operations and ensures risks are effectively managed across the entire organization. Our program is aligned with the Committee of Sponsoring Organizations' standard for enterprise risk management (COSO ERM – Integrated Framework) and is supported by our *ERM Policy* framework.

Risk governance: Our ERM program is governed by our *ERM Policy*, which is reviewed annually by our Board. The Board also approves our risk-tolerance levels, which govern our decisions and policies associated with risk. Our CEO is ultimately accountable for managing our risks and approving the ERM framework. The Vice President, Financial Planning & Analysis has day-to-day responsibility for the ERM framework and reports to the CFO. Under the *ERM Policy*, all employees are expected to understand the risks they are responsible for, manage them within approved tolerance levels and disclose new risks as they emerge. ERM practices are embedded into our strategic and long-term planning and our operational planning and budgeting. This allows us to identify risks that could prevent us from achieving our strategic and business objectives and develop strategies to mitigate those risks. This includes assessing specific risk areas, including unpredictable or unusual risks, as well as emerging risks.

Key risks: We use our ERM program to identify, assess, categorize, respond to, report on and monitor key risks that may affect the achievement of our strategic and related business objectives. Key risks are collected in a risk register and assessed in a risk matrix, which we update twice per year. We use various controls and procedures to reduce controllable risks to acceptable levels and to identify appropriate mitigation actions for risks outside of management's control.

The top sustainability risks identified in our 2020 ERM process were climate change transitional risks. The impact to our natural gas portfolio will be significant as deep decarbonization initiatives continue and environmental policies and regulations for GHG emissions and water usage become more stringent.

The transition to lower-carbon generation will also create opportunities for Capital Power. These include increased opportunities across North America for investments in renewable generating capacity, as well as in efficient natural gas generation to provide peaking and backstop services to support renewable integration. To decarbonize our natural gas assets, Capital Power is also investing to support commercial demonstration and deployment of carbon conversion and utilization technologies and researching possible hydrogen pilot projects, which are expected to become an increasingly important element of global pathways to decarbonization.



TCFD Framework

In 2019, Capital Power used the TCFD framework described below to conduct a high-level qualitative assessment to identify physical and transitional risks based on the three scenarios in the IEA (2018) report. Similarly, in this report we used the TCFD framework but have expanded our risk assessment based on the three scenarios contained in the IEA (2020) report to identify potential impacts to Capital Power's strategic planning and risk management processes. Climate change-related opportunities and risks are described below.



“A scenario describes a path of development leading to a particular outcome. Scenarios are not intended to represent a full description of the future, but rather to highlight central elements of a possible future and to draw attention to the key factors that will drive future developments. It is important to remember that scenarios are hypothetical constructs; they are not forecasts or predictions nor are they sensitivity analyses.”

– TCFD, 2017, p. 4

Scenarios Analysis and Testing the Resilience of Our Strategy

Capital Power's strategy is established through rigorous review of the Company's competitive advantages as well as market fundamentals, changing public policies and evolving long-term dynamics that are shaping the power sector. Through regular assessments, we test and review our strategy to ensure resiliency. This process includes Board oversight and extensive management review to ensure Capital Power's strategy and tactics are adjusted as the competitive environments in which we operate continue to change.

To support this process, Capital Power uses extensive modelling and analysis that evaluate opportunities and risks under varying climate change scenarios. Scenario analysis is employed to understand the resiliency of strategy as assumptions are varied.

The IEA scenarios and underlying assumptions are considered in Capital Power's analysis. The scenarios provide a high-level starting point for assessment of climate change impacts and allow us to model scenarios in specific jurisdictions that result in equivalent outcomes. As we evaluate the risks and opportunities that may arise in these scenarios, our analysis focuses on the material risks that are relevant to our business.

The process to consider IEA scenarios in our internal modelling and analytics continues to evolve. As Capital Power continues to expand its reporting to comply with TCFD recommendations, we will endeavour to advance our disclosure relating to the quantification of risks and opportunities.

IEA Scenarios

The IEA scenarios make assumptions about technology advancement, policy, CO₂ prices, fuel prices, socioeconomic drivers, including population and GDP, and consider global trends toward increasing net-zero commitments by governments and corporations. The IEA scenarios simulate the interactions among supply and demand fundamentals and output the resulting energy flows, CO₂ emissions and investments to 2040.¹

The following includes a summary of each of the three main scenarios from the IEA 2020 report used in Capital Power's 2020 analysis:

- **Stated Policies Scenario (STEPS)** assumes that existing and announced policy is implemented by governments. The cumulative contributions that result are material, however, not sufficient to achieve the sustainable development goals or limit the worst effects of climate change.
- **Sustainable Development Scenario (SDS)** models a scenario where policy and energy investment deliver outcomes sufficient to meet the objectives of the Paris Agreement and to limit the increase in the global average temperature to below 2 degrees Celsius. Global emissions are reduced and achieve net zero by 2070 under this scenario.
- **Net Zero Emissions by 2050 case (NZE2050)** extends the analysis of the SDS. The scenario accelerates the changes seen in the SDS to achieve net-zero emissions by 2050.

¹ The IEA's 2020 World Energy Outlook Report provides a framework for thinking about the future of global energy. It does not make predictions about the future. Instead, it sets out what the future could look like based on different scenarios or pathways, with the aim of providing insights to inform decision making by governments, companies and others concerned with energy.

Overview of IEA 2020 Scenarios and Critical Assumptions

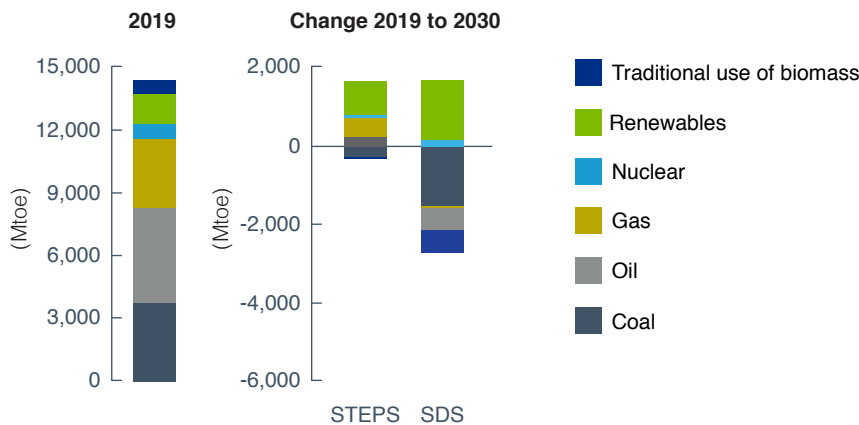
In 2020, the IEA scenarios include the expected impacts of COVID-19 and focus most heavily on the critical period between 2020 and 2030. The following provides an overview of key assumptions that are directly relevant to the power sector and Capital Power's strategy.¹

¹ Capital Power has focused our evaluation primarily on the Sustainable Development Scenario as it includes the most complete data set from which to base our analysis. A complete set of comparable assumptions and data are not available for the Net Zero Emissions by 2050 case; that scenario was qualitatively considered as an acceleration of the trends observed in the Sustainable Development Scenario.

Total Primary Energy Demand

Total energy demand declines in the SDS, despite strong economic growth. Electrification of end-use sectors positively impacts opportunities in the power sector.

Total primary energy demand by fuel and scenario



Source: International Energy Agency (2020), World Energy Outlook 2020, IEA, Paris.

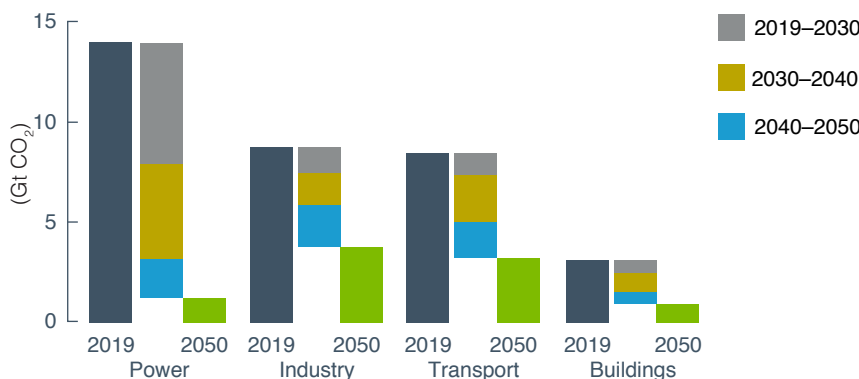
“The energy mix over the next 10 years will be shaped by the impact of the pandemic, but also by the policy response and the sustainability of the recovery.”

– IEA World Energy Outlook 2020, p. 27

Emissions

The period to 2030 sees significant emissions reductions across the power sector in the SDS. Material reductions are realized across industry, transportation and buildings between 2030 and 2050.

Direct CO₂ emissions reductions in selected sectors in the Sustainable Development Scenario



Source: International Energy Agency (2020), World Energy Outlook 2020, IEA, Paris.

“The SDS reduces emissions from existing infrastructure and has a preference for new low-emissions infrastructure; material efficiency and changes in behaviour also cut emissions.”

– IEA World Energy Outlook 2020, p. 103

Carbon Pricing

Carbon pricing is a primary mechanism of climate change policy that drives consumer behaviour and investments to reduce emissions over the long term. Carbon prices in the SDS rise materially from current levels.

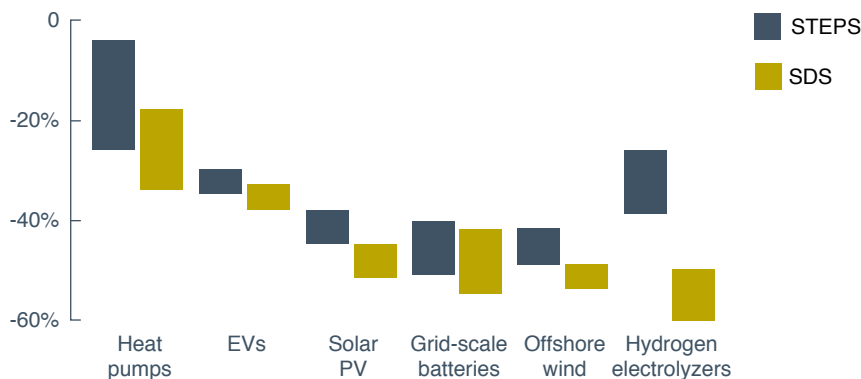
CO₂ prices in select regions by scenario (\$2019 USD per tonne)

Region	2025	2040
Stated Policies Scenario		
Canada	34	38
Sustainable Development Scenario		
Advanced economies	63	140

Renewables

The use of renewables and other low-emission technologies accelerates as capital costs are reduced with increased development.

Capital costs for selected energy technologies in 2040 relative to 2019



Source: International Energy Agency (2020), World Energy Outlook 2020, IEA, Paris.

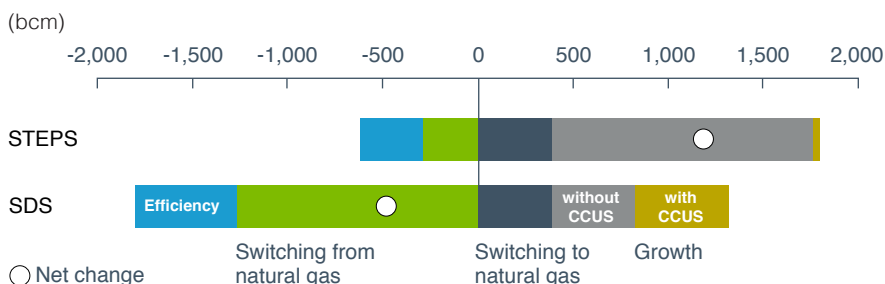
“Innovation reduces the capital costs of technologies for clean energy supply and end-use, with more deployment driving faster reductions in the SDS.”

– IEA World Energy Outlook 2020, p. 82

Natural Gas

The use of natural gas in the power sector changes as variability in generation increases with greater deployment of renewables. Flexibility of natural gas generation provides critical ramping capabilities for power system operators.

Changes in natural gas demand by driver in the Stated Policies and Sustainable Development scenarios, 2019–2040



Source: International Energy Agency (2020), World Energy Outlook 2020, IEA, Paris.

“In the SDS, a changing gas industry takes on multiple roles to lower emissions, including via CCUS, coal-to-gas switching, support for renewables and the rise of low-carbon gases.”

– IEA World Energy Outlook 2020, p. 48

Risks and Opportunities

Transitional Risks and Opportunities

The tables below identify short- and long-term transitional risks that may materialize in scenarios where increasing measures are taken to mitigate the impacts of climate change. Similarly, transitional opportunities that may arise in these scenarios are evaluated over the short and long term.



Markets, Policy & Regulatory

Key Assumptions

- Carbon pricing remains a central mechanism of climate policy in Canada; prices rise over time while performance benchmarks are increased; complementary pricing and regulatory mechanisms are implemented and strengthened
- Carbon pricing is gradually adopted and expanded across the United States; pricing is implemented in the long term with material escalation of prices
- Stimulus spending by governments is increasingly focused on energy and green infrastructure
- Demand growth accelerates globally from recent levels due to increasing levels of electrification in industry as a way to reduce emissions
- Carbon markets continue to expand across North America

Risks

Short Term

- Changes in governments create uncertainty with respect to future climate change-related policy
- Current portfolio is exposed to carbon pricing; as prices rise this may result in higher compliance obligations and reduced margins for existing facilities
- Unexpected variation in carbon prices and regulation may lead to material variances in budgets

Mitigation

- Capital Power actively participates in industry groups to monitor and engage with government officials on emerging policy development relating to climate change and carbon pricing
- Carbon costs are passed through to counterparties on select power purchase agreements, minimizing exposure to carbon price
- Capital Power actively manages compliance costs through participation in environmental commodity markets and through continuous investments in operational efficiencies and enhancements to reduce emissions at our generating facilities
- Scenarios and sensitivity analysis relating to carbon prices and regulation is embedded in all commercial decision making and due diligence to ensure appropriate consideration of climate change-related risks

Long Term

- Adoption and escalation in carbon prices continue in response to increasing pressure to reduce emissions through market mechanisms; prices rise well above current levels, while performance benchmarks are made more stringent

Mitigation

- Unmitigated thermal assets are increasingly expensive to operate; we actively pursue CCUS and hydrogen blending to minimize exposure to carbon pricing, with a target of net carbon neutrality by 2050
- Capital Power continues to actively manage compliance costs through participation in carbon markets and investments in operational efficiencies and enhancements that reduce emissions at our facilities
- Carbon costs are passed through to counterparties on select power purchase agreements, minimizing exposure to carbon price
- The costs and risks associated with emissions abatement from thermal assets are considered in all commercial decision making and due diligence; capital allocation decisions may favour assets and technologies that minimize potential exposure

Opportunities

Short Term

- Rising carbon prices may lead to increases in the wholesale price of power where generators are able to flow-through costs to consumers
- Expansion of carbon markets continues across North America

Response

- Where Capital Power's portfolio has exposure to wholesale power prices, the Company may realize increased margins on assets as prices rise
- Expertise in carbon markets leads to reduced compliance costs through hedging and origination of lower-cost credits; trading activity increases in environmental markets

Markets, Policy & Regulatory

Opportunities

Long Term

- Demand growth accelerates as industries are increasingly using electrification as a means to reduce emissions
- Emission-intensive assets with limited opportunities for abatement retire as rising carbon costs limit the economic viability of the assets

Response

- Rising demand for power and the retirement of emission-intensive assets result in an increase in investment opportunities for Capital Power



Renewable Energy Development

Key Assumptions

- Investment in renewables is pursued to decarbonize electricity grids and mitigate the impacts of climate change
- The cost of renewable technologies continues to decline; capacity values of renewables increase with technological improvements, expanded regional diversity and co-location with storage assets
- Penetration of renewables continues to increase as demand grows and retirement of existing assets continues
- Intermittency remains a concern for grid reliability; natural gas and storage are essential to integration in the long term
- New transmission development is required to expand the capacity of renewable generation

Risks

Short Term

- Increasing penetration of intermittent renewable energy affects the profile of supply fundamentals

Mitigation

- Capital Power operates a diverse fleet of assets that includes baseload and peaking units well-suited to varying market conditions

Long Term

- Long-term declines in the cost of renewables increase the relative competitiveness of these assets and result in increased development
- Capital Power's existing fleet of thermal assets may be affected by this increased penetration. This may result in reduced operating hours for certain thermal assets or increased cycling, which results in higher operational expenses.

Mitigation

- Capital Power invests strategically in assets that are expected to remain competitive with increasing levels of renewable penetration
- As the long-term competitiveness of renewables improves relative to gas, Capital Power would rebalance the Company's portfolio of assets and consider shifting capital allocation to increase development of renewables

Opportunities

Short Term

- There are expanded opportunities in renewables across North America as cost declines and policy supports new development
- Intermittent renewable generation increases the volatility of power prices and creates a need for flexible capacity to support integration

Response

- Capital Power actively pursues development opportunities in renewables, including wind and solar; a growing portfolio of renewable assets reduces the overall emissions intensity of our fleet and provides competitive returns
- Capital Power operates flexible natural gas assets that provide critical reliability services to the grid. These assets will be compensated for the services they provide, which are increasingly valuable as renewable penetration increases.

Long Term

- Long-term declines in the costs of renewables increase the relative competitiveness of these assets and results in increased development

Response

- Capital Power is well positioned to pursue development opportunities for new renewable assets. This growth would positively affect Capital Power's overall fleet emissions intensity and financial position.



Natural Gas Competitiveness & Decarbonization

Key Assumptions

- Natural gas remains part of the supply mix long term; regulation of carbon emissions is gradually increased to limit the intensity and absolute emissions from thermal assets
- Decarbonization of the fuel mix through hydrogen blending and post-combustion capture through CCUS are expanded through policy and funding that support innovation and deployment
- Operating profiles of thermal assets change as they increasingly are used to meet the net demand from intermittent renewables; flexible assets in strategic locations remain competitive

Risks

Short Term

- Policy and regulation directed at reducing carbon emission from thermal assets may increase operating costs and may reduce margins on certain assets
- Increasing competitiveness of renewables and other low-emission sources of electricity may reduce market share for natural gas generation and limit the dispatch of assets

Mitigation

- Capital Power invests in mid-life thermal assets that provide critical services to support grid reliability and renewable integration; these assets are expected to remain competitive under increasingly stringent carbon regulations and are at reduced risk due to their shorter operating life relative to new gas assets
- Economic assessment of development of new gas assets assumes shorter asset lives to account for long-term uncertainty
- Capital Power invests in assets with existing contracts and pursues additional off-take agreements and extensions; the Company seeks to mitigate exposure with provisions that flow-through costs to counterparties
- Capital Power invests in operational efficiencies and enhancements that lower carbon emissions and ensures assets remain competitively situated in the merit order

Long Term

- Policy that limits the use of natural gas as a fuel source for electricity generation poses a risk to long-term viability of new and existing thermal assets; regulation of this nature would affect Capital Power's strategy, financial position and capital allocation decisions

Mitigation

- Capital Power actively engages with policymakers and industry associations to ensure there is a long-term role for net-zero natural gas generation in the supply mix to support renewable integration and maintain reliability
- Capital Power actively pursues decarbonization of fuel through hydrogen production and blending, with targets to achieve net carbon neutrality across the Company's portfolio by 2050
- Capital Power actively pursues advocacy to ensure policy support and wide-scale adoption of technologies that support decarbonization; post-combustion emissions are reduced through wide-scale deployment of CCUS technology
- Where policy and market forces limit the opportunity for long-term value creation with natural gas assets, Capital Power may redirect capital to non-emitting sources of generation. Capital Power would rebalance the Company's portfolio of assets accordingly as fundamentals evolve.

Opportunities

Short Term

- Policy and regulation directed at carbon emissions from thermal assets affect supply fundamentals and, in certain jurisdictions, may increase the wholesale price of power
- Increasing penetration of intermittent sources of energy increases the need for flexible assets

Response

- Investment in operational efficiencies and enhancements that improve emissions performance allows assets to realize increased margins through reduced compliance costs and improved competitiveness
- Capital Power allocates capital to flexible natural gas assets situated at strategic locations on the grid; these assets realize increased margins as flexibility services are in higher demand

Long Term

- Uncertainty over long-term opportunities in natural gas assets limits competition for acquisitions

Response

- Capital Power pursues acquisitions of mid-life natural gas assets where their services are critical to reliability and integration of renewables
- Capital Power's commitment to carbon neutrality and track record of operational excellence mitigate long-term risks through deployment of technologies that achieve decarbonization, including hydrogen blending and post-combustion CCUS technologies
- In jurisdictions where competitiveness of natural gas is significantly reduced, Capital Power may shift capital allocation to alternative assets, including renewables. Capital Power would rebalance the portfolio of assets accordingly as fundamentals evolve.



Disruptive Technology & Energy Transition

Key Assumptions	<ul style="list-style-type: none"> • Climate change will drive significant innovation and transformation of the power sector • Awareness and concern among end-use consumers of their contribution to climate change will drive behavioural changes in energy consumption • Decarbonization, decentralization and digitalization will drive transformation of energy production and consumption • Use of technologies for emissions abatement is increasingly deployed across the power sector; CCUS is commercially viable in the long-term with increasing carbon prices
Risks	<p>Short Term</p> <ul style="list-style-type: none"> • A trend toward decentralized sources of non-emitting energy, including demand response, reduces overall rates of growth; the reduced levels of growth may decrease wholesale prices and result in reduced revenues • New sources of competition for dispatchable natural gas emerge from non-emitting resources and demand response; this may reduce competitiveness of natural gas generation <p>Mitigation</p> <ul style="list-style-type: none"> • Capital Power actively monitors policy and market fundamentals that may drive investment in disruptive technologies that could affect asset competitiveness and financials • Due diligence assessments identify site-specific impacts that may arise from trends in decentralization and decarbonization <p>Long Term</p> <ul style="list-style-type: none"> • Development and improved competitiveness of non-emitting technologies that fall outside of Capital Power's current core competencies may affect strategy and capital allocation • Competition among emission abatement technologies may reduce viability of hydrogen and CCUS as mechanisms to extend the useful life of strategic natural gas assets; technological breakthroughs in direct air capture or other technologies may reduce policy support and deployment of CCUS technologies <p>Mitigation</p> <ul style="list-style-type: none"> • Capital Power monitors emerging technologies and evaluates their potential economic impact • Capital Power actively monitors emission abatement technologies and assesses opportunities to expand our portfolio of technologies that may have direct application in reducing emissions in natural gas generating assets
Opportunities	<p>Short Term</p> <ul style="list-style-type: none"> • Commercial-scale deployment of emissions abatement technology is supported through policy and regulation; public funding is available to encourage adoption • Policy support for early-stage development of emission abatement technology encourages the pursuit of new innovations and pilot-scale technology deployment <p>Response</p> <ul style="list-style-type: none"> • Capital Power actively pursues technologies that are assessed to be commercially deployable at scale in the power sector to reduce emissions from natural gas generation, including CCUS applications; Capital Power seeks funding for projects to reduce emissions in line with the Company's strategies to achieve carbon neutrality • Capital Power establishes partnerships to advance innovations and early-stage emissions abatement technologies <p>Long Term</p> <ul style="list-style-type: none"> • Technological advancement and digitalization allows greater control of energy generation and consumption by demand-side market participants; this expands opportunities for new sources of revenue for Capital Power • Emission abatement technologies that support long-term viability of natural gas proliferate and expand development opportunities <p>Response</p> <ul style="list-style-type: none"> • Capital Power is actively developing expertise in energy management and associated services to support evolving customer needs and compete in new markets that may emerge • Capital Power actively pursues partnerships with a portfolio of companies that are pursuing technologies that have a high likelihood of commercial deployment in electricity generation for emissions abatement



Reputational

Key Assumptions

- Climate change creates material reputational risks for Capital Power; we actively manage our exposure and transparently report on the risks and mitigation

Risks

Short Term

- Debt and equity investors are increasingly averse to investments that exhibit higher risks from exposure to climate change; Capital Power's cost of capital rises due to changing investor sentiment
- Stakeholders are increasingly focused on our exposure to the impacts of climate change, creating public perception risks related to Capital Power's portfolio, which includes carbon-intensive assets
- Attracting and retaining employees becomes more challenging as preferences for employment favour companies with reduced exposure to climate change and fewer or no carbon-intensive assets
- Contract counterparties and off-takers favour generators with lower exposure to climate change

Mitigation

- Capital Power is achieving ambitious climate change-related targets, including reduced emissions intensity across our fleet and pursuing carbon neutrality by 2050
- Coal-fired generation and solid fuels will be phased out, with investments in repowering at the Genesee facility and retirement of our Southport and Roxboro facilities; this removes the highest-emitting resources from Capital Power's portfolio of assets
- ESG criteria is integrated into our investment decisions to ensure appropriate consideration of climate change-related risks
- Capital Power is committed to transparent reporting and disclosure to help address concerns and risks among investors and stakeholders

Long Term

- Increasing frequency and severity of climate change-related events may affect Company assets and create reputational and investor risk

Mitigation

- Capital Power is committed to transparent reporting and disclosure to help address concerns and risks among investors and stakeholders
- Dedicated subject matter expertise is retained in areas related to disaster management, risk management, regulatory compliance and community engagement to proactively manage the impacts of climate change-related events on the Company's physical assets, financial position and reputation
- Capital Power may consider changes to capital allocation where long-term reputational risks arising from climate change cannot be mitigated with decarbonization strategies. Capital Power's portfolio of assets would be rebalanced accordingly as fundamentals evolve.

Opportunities

Short Term

- Climate change-related impacts that affect operations may also affect Capital Power's reputation as a reliable power generator in the communities where we operate
- The pursuit of credible decarbonization strategies demonstrates leadership that builds trust with investors and stakeholders

Response

- Capital Power has demonstrated leadership in responsible construction, operation and maintenance of power generating facilities that ensures resiliency from increasing climate change-related risks that could negatively affect the Company's reputation
- Capital Power provides transparent communication and reporting of progress toward the deployment of decarbonization strategies that aim to achieve long-term commitments to lower emissions across the Company's portfolio of assets

Long Term

- Companies that actively manage their exposure to climate change-related risks are expected to outperform those that do not adequately address the risks
- Achieving ambitious reductions in emissions through aggressive pursuit of decarbonization strategies helps to ensure long-term sustainability of the Company

Response

- Capital Power sets ambitious targets, provides transparent reporting and achieves measurable progress toward our goal of being carbon neutral by 2050 through aggressive deployment of decarbonization strategies

Physical Risks and Opportunities

The following tables assess physical risks and opportunities that may be realized in scenarios where the impacts of climate change are increasingly observed in the power sector.



Acute	
Key Assumptions	<ul style="list-style-type: none"> Climate change will cause an increase in extreme weather affecting Capital Power's current and future assets; extreme weather events will become increasingly frequent and severe
Risks	<p>Short Term</p> <ul style="list-style-type: none"> Extreme weather events caused by climate change (e.g., tornadoes, hurricanes, floods, droughts and ice storms) could have an impact on our operations and critical infrastructure and trigger increased insurance costs and potential liabilities <p>Mitigation</p> <ul style="list-style-type: none"> Through the ERM process, we regularly assess our assets for physical risks, including impacts resulting from extreme weather or other climate change risks and, where beneficial, undertake physical changes at the assets to mitigate those risks Capital Power actively monitors the insurance market for material changes to policies that may affect our ability to seek coverage for high-risk assets; Capital Power's insurance program ensures adequate coverage is in place Emergency preparedness and response plans are in place for our facilities; we ensure our responses are tested through simulated disasters in tabletop exercises; continuous improvement processes ensure learnings are incorporated in future responses. Sustaining capital is directed to enhancements that mitigate risk. We have dedicated subject matter experts such as market forecasters, trades specialists, crisis and disaster management specialists, and engineers who assist in managing key issues related to acute and chronic physical risks Our talent recruitment and development strategy ensures that we attract appropriate competencies when positions become available, and that the skills of our current workforce are up to date Capital Power assesses climate change-related physical risk in the due diligence process for new acquisitions; where physical risk is too high, capital allocation will be directed to lower-risk assets <p>Long Term</p> <ul style="list-style-type: none"> A persistent and material increase over time in the frequency and severity of extreme weather events caused by climate change may affect insurance costs and the ability to secure coverage on specific high-risk assets <p>Mitigation</p> <ul style="list-style-type: none"> Capital Power actively monitors the insurance market for material changes to policies that may affect our ability to seek coverage for high-risk assets Through the ERM process, we regularly assess our assets for physical risks, including impacts resulting from extreme weather or other climate change risks and, where beneficial, undertake physical changes at the assets to mitigate those risks Capital Power assesses climate change-related physical risk in the due diligence process for new acquisitions; where physical risk is too high, capital allocation will be directed to lower-risk assets
Opportunities	<p>Short Term</p> <ul style="list-style-type: none"> Increasing frequency and severity of acute climate impacts may affect delivery of energy through wire infrastructure from assets situated on remote parts of the transmission system and that are at risk due to single points of failure <p>Response</p> <ul style="list-style-type: none"> Capital Power invests in strategically located assets that minimize the risks related to energy delivery that may arise from acute climate change-related events; the value of these assets may increase as they are increasingly used to maintain grid reliability <p>Long Term</p> <ul style="list-style-type: none"> Increasing frequency and severity of acute climate impacts may affect delivery of energy through wire infrastructure from assets situated on remote parts of the transmission system and that are at risk due to single points of failure <p>Response</p> <ul style="list-style-type: none"> Capital Power invests in strategically located assets that minimize the risks related to energy delivery that may arise from acute climate change-related events; the value of these assets may increase as they are increasingly used to maintain grid reliability



Chronic

Key Assumptions

- Water resources are increasingly affected by climate change (impacts vary by jurisdiction); water conservation and use are increasingly scrutinized and subject to more stringent regulation
- Long-term changes in weather patterns will affect the design and operation of new and existing renewable assets

Risks

Short Term

- Water use and conservation efforts are increasingly scrutinized, and requirements are strengthened to mitigate the chronic impacts of climate change on water resources

Mitigation

- Capital Power is currently developing a water strategy that will be in place by the end of 2021
- Actions to move off coal will reduce Capital Power's overall water consumption
- Capital Power monitors developments in policy and regulatory frameworks that address management of water resources
- Risks relating to the regulation and management of water are identified and mitigated in due diligence processes
- Through the ERM process, we regularly assess our assets for physical risks, including impacts resulting from extreme weather or other climate change risks and, where beneficial, undertake physical changes at the assets to mitigate those risks

Long Term

- Physical risks associated with climate change, such as changing wind patterns and extreme weather, may reduce the capacity factor of renewable assets
- Water use and conservation requirements may limit physical access to water resources; additional investments may be required to manage cooling requirements; operations may be limited due to restrictions on water use

Mitigation

- We actively seek opportunities to optimize production from our wind assets, including strategies for optimizing operations and maintenance activities; assessing turbine production; revising OEM contracts to support reliable operations; and implementing upgrades to turbine blades with aerodynamic enhancements and turbine-control software
- Through the ERM process, we regularly assess our assets for physical risks, including impacts resulting from extreme weather or other climate change risks and, where beneficial, undertake physical changes at the assets to mitigate those risks
- Capital Power actively monitors water use and implements strategies to reduce consumption at our facilities, which may result in new capital investments and operational costs; where long-term risk cannot be mitigated, capital allocation may be directed away from high-risk assets and jurisdictions

Opportunities

Short Term

- Capital Power assesses physical opportunities associated with climate change, such as long-term changes in weather patterns. Potential changes in wind patterns and wind regimes are considered in the design and operation of wind facilities to enable us to generate wind power more efficiently and deliver more renewable energy.
- Costs associated with increasing water management requirements may affect supply fundamentals

Response

- Capital Power incorporates climate change-related risk mitigation in the engineering, design and operation of our assets. Capital Power's Renewables Operations Centre (ROC) optimizes the energy output and financial performance of our wind assets by increasing our remote monitoring and analytics capabilities.
- Capital Power proactively manages water resources to ensure we remain competitive in jurisdictions where increasing costs may limit dispatch and competitiveness

Long Term

- Technological advancements in renewables will allow for improved operations in response to persistent changes in climate and weather conditions
- Where long-term changes in climate reduce potential energy output from certain types of assets, there may be increasing value attributed to dispatchable assets with secure fuel sources

Response

- Capital Power monitors and invests in operational efficiencies and enhancements that capture additional revenues or mitigate risks that arise from long-term climate-related changes in weather patterns
- Investments in strategically located natural gas assets that are critical to renewable integration and grid support are pursued; Capital Power is pursuing strategies to ensure these assets remain competitive with decarbonization through deployment of CCUS technologies and hydrogen blending



Upstream

- Key Assumptions**
- Climate change will affect Capital Power's upstream operations and financial results through changing availability and security of fuel sources
 - Disruptions to supply chains will become more frequent due to climate change-related events

Risks

Short Term

- Increased compliance costs attributed to coal and natural gas use could negatively affect competitiveness of assets and decrease revenues
- Increasing stringency of methane regulation could increase costs of production for natural gas and reduce access to reliable fuel sources
- Disruption of supply chains due to climate change-related impacts may result in development, operational or financial impacts to Capital Power

Mitigation

- Capital Power continuously invests in operational efficiencies and enhancements of existing assets to mitigate the risk of increasing compliance costs; retirements and repowering of coal and solid fuel plants will reduce exposure to increasing compliance costs associated with coal use
- Capital Power monitors regulatory developments relating to fugitive methane emissions to assess risks to fuel supply and costs
- Disruptions to supply chains are managed through contractual provisions for liquidated damages. Alternative supply routes and delivery points are considered to mitigate delivery risk. Local sourcing is used where possible.

Long Term

- Long-term changes that affect production of natural gas may reduce security of supply and increase cost of fuel; development of new pipeline infrastructure may be limited due to regulatory delays and reduced social acceptance
- Changes to wind regimes and solar resources may reduce the revenues and competitiveness of existing resources

Mitigation

- Capital Power will direct capital to optimal locations for renewable development; this may result in a changing development footprint in the long term

Opportunities

Short Term

- Pursuing digitalization and artificial intelligence technologies will allow companies to capitalize on upstream physical and commercial opportunities associated with climate change and improve adaptation or reduce vulnerability to climate change events
- Development and expansion of markets for products derived from carbon emissions may improve the economics and deployment of CCUS technologies
- Securing and optimizing supply chains may mitigate upstream climate risk and improve competitiveness of Capital Power's assets

Response

- Capital Power optimizes the engineering, design and operation of our assets through the deployment of artificial intelligences strategies at our sites
- Capital Power is committed to operational excellence and strives for asset optimization through innovation efforts such as our Genesee Performance Standard and Ops 2030 programs
- We are exploring advanced pattern recognition to use data and artificial intelligence to detect patterns that can lead to more advanced maintenance strategies
- Capital Power's Genesee Carbon Conversion Centre is anticipated to be operational in the first half of 2022, producing marketable products from captured carbon in the flue-gas stream and creating the potential to reduce downstream CO₂ emissions across a broad range of industries
- Capital Power adopts measures that ensure self-reliance in critical components and consumables; improvements in reliability and competitiveness are realized through more secure supply chain management
- Local sourcing is used where possible, positively affecting the communities in which we operate through increased economic opportunities. Benefits are realized through reduced travel times for supplies and lower environmental impacts of transportation and delivery.

Upstream

Opportunities

Long Term

- Low-carbon fuels are increasingly adopted as an alternative fuel source for new and existing thermal assets
- Post-combustion sequestration through CCUS mitigates the risks of long-term use of natural gas

Response

- Capital Power is developing strategies to assess and integrate low-carbon fuels, such as hydrogen, as a fuel source at existing facilities through production and blending
- Capital Power continues to advance CCUS strategies where low-carbon fuels may not achieve decarbonization of the fuel source



Downstream

Key Assumptions

- Downstream risks from climate change will affect delivery of energy with operational and financial impacts to the power industry
- Corporate entities will increasingly look to procure power from low-emitting sources; the market for corporate power purchase agreements will expand
- Electrification of end-use sectors will support long-term decarbonization

Risks

Short Term

- Outages on downstream electricity grids from climate change-related events may cause disruptions to operations, resulting in negative financial impacts to Capital Power

Mitigation

- Capital Power actively manages delivery risks and ensures contingency plans are in place to manage shut-down and short-term cessation of operations as a result of outages on the grid that affect energy delivery
- Strategically located assets are well suited to supply critical services for restoration events

Long Term

- Increased downstream risks due to changing social behaviours over the long term could result in increased costs of generation and compliance
- Markets and operating environments may become more difficult to forecast due to changing climate-driven regulations and policies, which could, in turn, increase volatility of Capital Power's operations and financial results

Mitigation

- Capital Power has dedicated subject matter experts, including energy traders, origination specialists, market forecasters, and regulatory and commercial managers who assist in stewarding key issues related to downstream physical risks

Opportunities

Short Term

- Increasing investment by corporate entities to secure contracted sources of renewable power to meet their own demand requirements increases the opportunities for development of renewable assets

Response

- Capital Power actively pursues contracting opportunities with corporate off-takers to secure the output of new and existing assets

Long Term

- Decarbonization through increased electrification will support long-term emission reduction objectives, including net-zero commitments

Response

- Development opportunities will grow as electrification of end-use sectors grows; Capital Power is well positioned to pursue new development opportunities to meet this growing demand

TCFD Alignment Table

TCFD Theme	TCFD Recommendations	Alignment to Capital Power (Reference)
Governance	a. Describe the Board's oversight on climate-related risks and opportunities.	<ul style="list-style-type: none"> • See Corporate Governance section • See Who We Are > Corporate Governance (www.capitalpower.com)
	b. Describe management's role in assessing and managing climate-related risks and opportunities.	<ul style="list-style-type: none"> • See Organizational Structure section
Strategy	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term.	<ul style="list-style-type: none"> • See Risks and Opportunities Tables
	b. Describe the impact of climate-related risks on the organizations business strategy and financial planning.	<ul style="list-style-type: none"> • See Risks and Opportunities Tables
	c. Describe the resilience of the organization's strategy taking into consideration different climate-related scenarios, including a 2°C or lower.	<ul style="list-style-type: none"> • See Scenarios Analysis and Testing the Resilience of Our Strategy section • See Risks and Opportunities Tables
Risk Management	a. Describe the organization's process for identifying and assessing climate-related risks.	<ul style="list-style-type: none"> • See Managing Climate Risks and Opportunities section
	b. Describe the organization's process for managing climate-related risks.	<ul style="list-style-type: none"> • See Managing Climate Risks and Opportunities section
	c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the Company's overall risk management.	<ul style="list-style-type: none"> • See Our Strategy section • See Carbon Strategy section • See Managing Climate Risks and Opportunities section
Metrics and Targets	a. Disclose metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	<ul style="list-style-type: none"> • See Metrics and Targets section • See the 2020 Integrated Annual Report
	b. Disclose Scope 1, 2, and, if appropriate, Scope 3 GHG emissions and the related risks.	<ul style="list-style-type: none"> • See the 2020 Integrated Annual Report • See CDP 2020
	c. Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	<ul style="list-style-type: none"> • See Metrics and Targets section

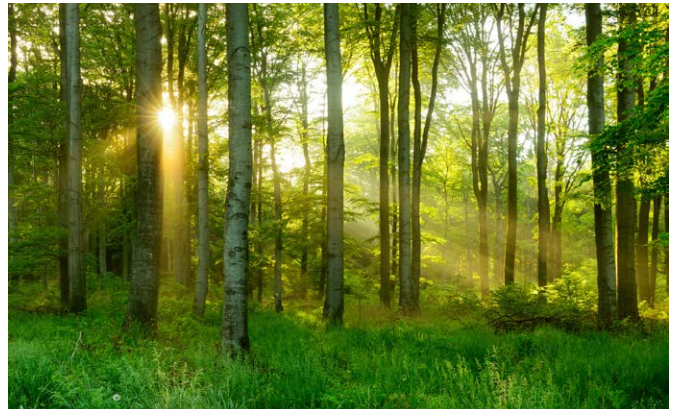
Our Commitment to Resilience

Capital Power has embedded climate change considerations into our strategy and decision-making processes and has effective governance and mitigation processes in place to effectively monitor and address climate-related risks and capitalize on opportunities. The IEA scenarios highlight the continued role and importance that natural gas and renewables will have in the North American energy system. They also support our focus on these technologies and our ongoing efforts to optimize performance and reduce emissions at our thermal facilities. We are confident CCUS technologies and low-carbon fuels will be essential to achieving global carbon reduction objectives, particularly in the industrial process sector. We are committed to continuing our leadership to accelerate their deployment and advancement in the power generation space.

Our geographic diversification, combined with our insurance and risk management initiatives, also position us well to manage physical risks arising from climate change under the different scenarios. We understand the importance of continually tracking and refining key metrics that influence the strength and resilience of our business, recognizing that there is great uncertainty as to how the future will unfold.

Advancing Our Carbon Disclosure Efforts

As we completed our assessment, we noted variation across scenarios and within sources depending on which assumptions one makes. This increased the complexity of assessing the overall resilience of our business. It is important to note that the climate change scenarios and their implications for Capital Power are inherently speculative, and future events are subject to change. We believe that this report, taken together with our integrated annual report, is an important step in furthering our disclosure efforts with respect to climate-related risks and opportunities. We will build on this effort in the future.



Forward-looking information statement

Forward-looking information or statements included in this Climate Change Disclosure Report are provided to inform the Company's shareholders, potential investors and other stakeholders about management's assessment of Capital Power's future plans and operations in the context of climate change. This information may not be appropriate for other purposes. The forward-looking information in this Climate Change Disclosure Report is generally identified by words such as "will", "anticipate", "believe", "plan", "intend", "target" and "expect" or similar words suggest future outcomes. By their nature, such statements are subject to significant risks, assumptions and uncertainties, which could cause Capital Power's actual results and experience to be materially different than the anticipated results.

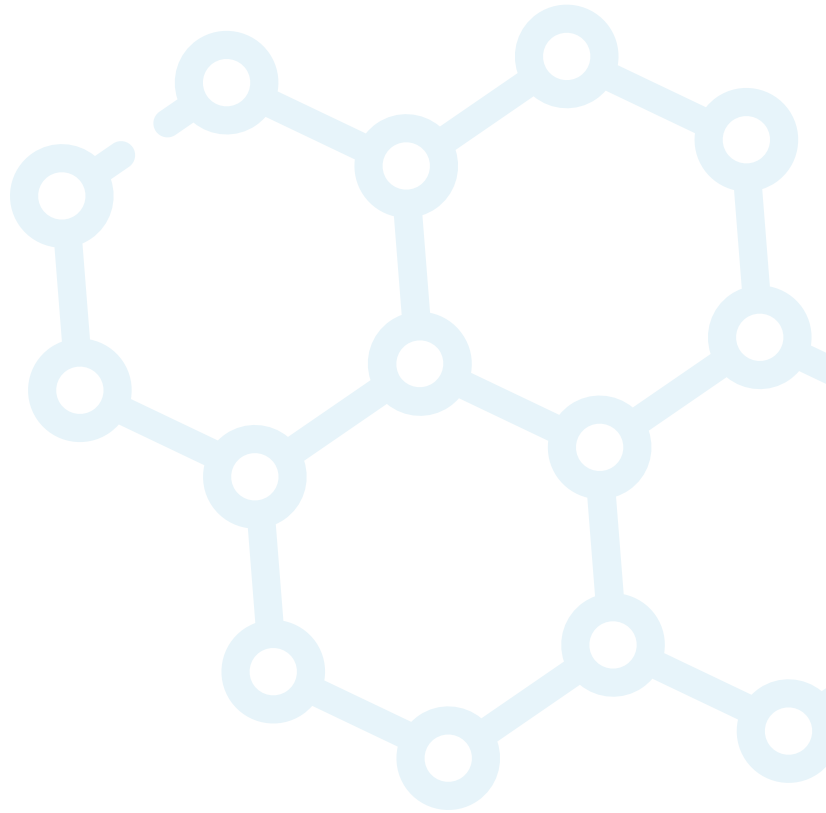
Forward-looking information in this document includes, among other things, information relating to:

- i. The global and North American energy future, including the factors and trends that are expected to shape it.
- ii. The transition to a low-emission economy and the expected role of different energy sources, including natural gas.
- iii. The three energy scenarios (International Energy Agency's Stated Policies Scenario, Sustainable Development Scenario, Net Zero Emissions by 2050 case) used to test the resilience of our strategy and its underlying pillars and key assumptions.
- iv. The trends that shape the three energy scenarios, and the expectations and forecasts regarding carbon prices and the energy demand and supply mix in the various scenarios.
- v. Our conclusions from our scenario analysis using the three scenarios on Capital Power's approach to managing climate change risk and opportunities.
- vi. Expected climate-related opportunities and ways to pursue them.
- vii. The effectiveness of our risk management strategies, including in mitigating climate-related risks, including transitional and physical risks.
- viii. Our aim to achieve net-zero emissions.
- ix. Our plans to reduce our emissions using carbon capture, utilization and storage technologies, such as carbon conversion, including regarding C2CNT, and anticipated production of carbon nanotubes.
- x. Our plans to pursue hydrogen blending to reduce emissions.
- xi. Our company-wide targets specific to climate-related performance, including reduction of emissions and emissions intensity, completion of the Genesee Carbon Conservation Centre and commercial application of carbon conversion technologies.
- xii. Our plan to continue to deliver total shareholder value of 10% to 12%.
- xiii. Our plans to be off coal by 2023, repowering Genesee 1 and 2, Genesee Unit 3 being fired by 100% natural gas in 2023, and our Southport and Roxboro units being retired in 2021.
- xiv. Our plans to add 425 MW of renewables generation to our fleet by the end of 2022.

These statements are based on certain assumptions and analyses made by the Company considering its experience and perception of historical and future trends, current conditions and expected future developments, and other factors it believes are appropriate. The material assumptions used to develop these forward-looking statements relate to: (i) electricity, other energy prices and carbon prices, (ii) performance, (iii) business prospects and opportunities including expected growth and capital projects, (iv) status of and impact of policy, legislation and regulations, (v) effective tax rates, (vi) the development and performance of technology, and (vii) assumptions relating to the three energy scenarios.

Whether actual results, performance or achievements will conform to the Company's expectations and predictions is subject to several known and unknown risks and uncertainties which could cause actual results and experience to differ materially from the Company's expectations. Such material risks and uncertainties include: (i) power facility availability and performance including maintenance expenditures, (ii) changes in electricity prices and carbon prices in markets in which Capital Power operates, (iii) regulatory and political environments including changes to environmental, climate, financial reporting, market structure and tax legislation, (iv) acquisitions and developments including timing and costs of regulatory approvals and construction, (v) ability to fund current and future capital and working capital needs, (vi) changes in energy commodity market prices and use of derivatives, (vii) changes in market prices and availability of fuel, (viii) changes in general economic and competitive conditions, and (ix) changes in the performance and cost of technologies and the development of new technologies, new energy-efficient products, services and programs.

Readers are cautioned not to place undue reliance on any such forward-looking statements, which speak only as of the date made. The Company does not undertake or accept any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements to reflect any change in the Company's expectations or any change in events, conditions or circumstances on which any such statement is based, except as required by law.



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