



SCOTIABANK'S
NET-ZERO
PATHWAYS REPORT

Scotiabank[®]

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As a Leading Bank in the Americas, we have an opportunity and a responsibility to take actions that are good for our business, our communities, the economy, and the health of our planet. Setting clear and ambitious targets to achieve net-zero emissions across our portfolio — in the priority sectors where we operate — is vital for Scotiabank’s long-term viability.”



Brian J. Porter
President and Chief Executive Officer
Scotiabank

A Letter From Scotiabank's President and Chief Executive Officer

As a Leading Bank in the Americas, we believe we have an important role to play in addressing climate change and supporting the transition to a low-carbon economy across our footprint and around the world. Indeed, an effective response to climate change requires real and tangible action from public and private sector actors – including financial institutions – across economies worldwide.

That is why, one year ago, I challenged our leadership team to build on *Climate Commitments* – our 2019 enterprise-wide strategy for supporting the Paris Agreement on Climate Change – by identifying and acting on net-zero emissions pathways available to the Bank to achieve net zero by 2050. Today, I am proud to share our inaugural Net-Zero Pathways Report, which outlines not only our commitment to being a net-zero bank, but also our concrete approach to achieving our goal. In doing so, we play an important role in helping Canada and the world make an orderly transition to a more sustainable future.

The path forward will not be easy, and it will require trade-offs. It must balance the need to significantly reduce emissions with ensuring the continued supply of energy and products critical to our societies and economies, including some of which may only be obtained through the continued use of hydrocarbons. It will require that we work in partnership with the energy sector and other sectors, with governments, regulators, and with other actors to decarbonize their operations and our financing portfolios.

We will need to understand where our clients are in their own pathways to net-zero, so that we can most effectively support them in achieving our shared objectives. The approach laid out in this report shows that we are embracing these challenges and opportunities with a clear, measurable plan.

We can and must play a leading role in supporting our clients, the communities we operate in, and the markets we serve in the transition to net-zero. We are leading by example, starting with our own operations. Today, we can report that the Bank is on track to achieve net-zero operations by 2030, including securing 100% non-emitting electricity in Canada by 2025, and globally by 2030.

Our bigger challenge lies in setting credible net-zero targets against emissions associated with our portfolio of clients. While our ability to do this is linked to the actions our clients take, as well as those of the governments of the markets in which we operate, we have set ambitious, achievable targets to reduce the emissions intensity of our Oil and Gas portfolio by 30%, and our Power and Utilities portfolio by 55-60% by 2030. This is an important step, and it is one of several we will take over the coming months and years. You have our commitment that we be transparent about our progress.

In response to growing market demand and the opportunity it presents for capital, the Bank is building on our strong performance against previous commitments by mobilizing \$350 billion by 2030 in climate-related capital. In addition, we are investing \$25 million in non-profit and charitable partnerships that will enable or accelerate climate-related systems change and decarbonization in a range of sectors.

The measures outlined in our report are wholly aligned with our business strategy, our purpose – *for every future* – and our focus on delivering long-term value for our shareholders, customers, employees and the communities we operate in. We are proud of the work we have done to date and of the support we have provided our clients, and we are energized by our role in fulfilling the promise of a net-zero future. We look forward to the journey.

Sincerely,



“The measures outlined in our report, are wholly aligned with our business strategy, our purpose – *for every future* – and our focus on delivering long-term value for our shareholders, customers, employees, and communities”

Brian J. Porter
President and Chief Executive Officer
Scotiabank

Introduction

Climate change is one of the most pressing issues of our time. Scotiabank understands the impact climate change is having on the planet, natural systems, and communities across the world. It is significantly impacting, and has the potential to pose a significant risk to business, the global economy and society as a whole. Scotiabank commits to being a net-zero bank by 2050 and helping drive Canada and the world to a net-zero future. This includes working with businesses and ventures we finance to reduce emissions while decarbonizing our own operations across our global footprint.

Efforts to address climate change will require urgent action from public and private sector actors across economies worldwide. Scotiabank commits to working with other leaders in the transition to a low-carbon economy by supporting our clients as they transform their operations and business practices, providing products and services that reflect evolving client and community needs, allocating funding for research and innovation, continuing our contribution to the national and global policy dialogue, and providing sustained and visible leadership in the years and decades ahead. Our commitments are deeply embedded in our business, driven through every level of the organization, directed by our CEO, and overseen by our Board of Directors. This enterprise-wide commitment will be realized through initiatives across the Bank.

¹ The Net-Zero Banking Alliance is an UN-convened initiative intended to reinforce, accelerate and support the implementation of banks' decarbonization strategies. To become a member, CEOs must sign a Commitment Statement and banks must follow accompanying UNEP FI Guidelines for Climate Target Setting.

SCOTIABANK'S NET-ZERO GUIDING PRINCIPLES

We believe we have a key role to play in the transition to a net-zero future, and we intend to collaborate with and support our current and prospective clients in the public and private sector, as they decarbonize their supply chains, operations, and economies. We understand that our commitment to meet a net-zero target by 2050 must be accompanied by concrete plans, interim targets, accurate data and a commitment to transparency in reporting progress. With this in mind, we have established the following principles to guide our net-zero ambition and strategy:

1. PURPOSE-DRIVEN FOR EVERY FUTURE

Our pathways to align to net-zero emissions will be consistent with our purpose, business strategy, and risk appetite to benefit our shareholders, customers, employees, and communities. We will seek a net-zero pathway that sustains economic growth, stability and a responsible transition.

2. TRANSPARENT

We will report on our net-zero targets, activities, and progress in accordance with our Net-Zero Banking Alliance (NZBA)¹ commitments - and commit to continuous improvement over time.

3. DATA-DRIVEN, FACT-BASED

We will strive to use industry best practice to collect objective data, set targets, measure, and report performance, recognizing various data limitations and evolving standards.

4. COLLABORATIVE

We will collaborate with: our clients to support their decarbonization efforts; government to align with new policies; and peers to share best practices, while we chart our own net-zero course.

SCOTIABANK'S ACTIONS TO ADDRESS CLIMATE CHANGE

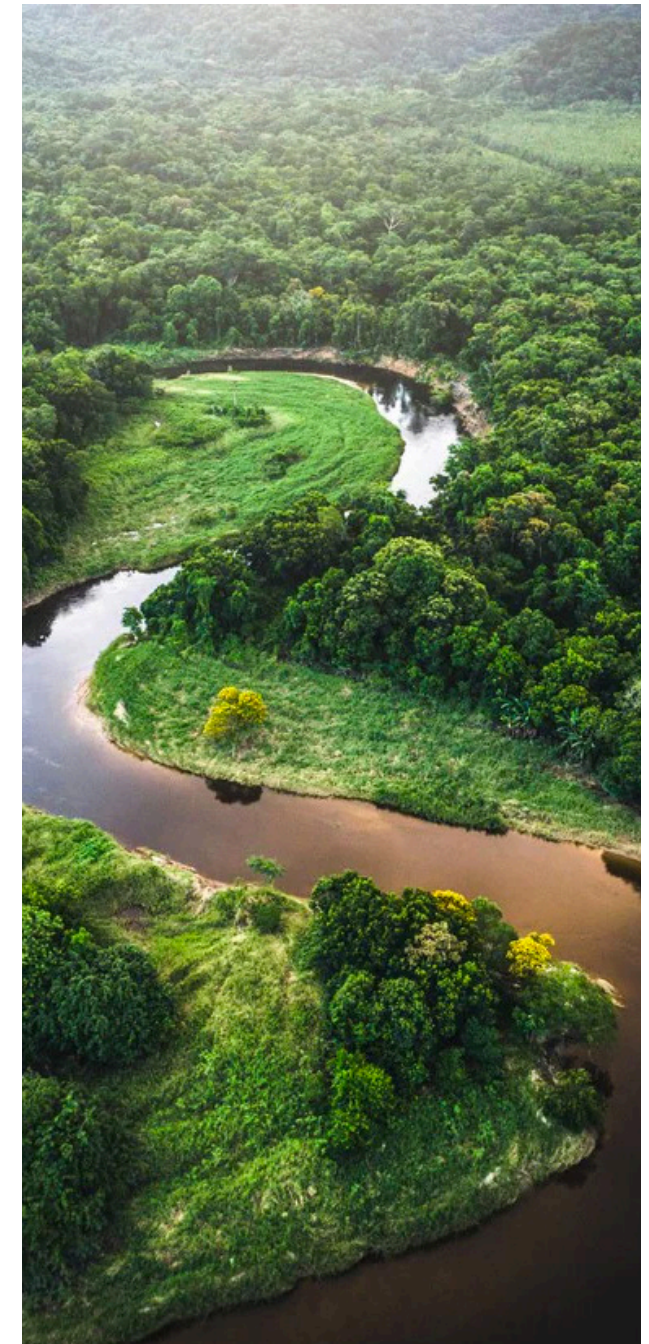
In 2019, Scotiabank launched our [Climate Commitments](#), a comprehensive, enterprise-wide strategy to address climate risks and opportunities in support of the Paris Agreement. Scotiabank's Climate Commitments outline how we support our customers in the transition to a low-carbon economy, ensure robust climate-related governance, manage climate-related risks, decarbonize our own operations, and contribute to the ongoing dialogue on climate change. Scotiabank has already been delivering on these commitments in a number of ways:

- Mobilizing **\$58 billion² in capital, as of October 2021, to address climate change** through lending, investing, financing and advisory, as well as investments in the Bank's own operations and communities where it operates. Concurrent with the release of our Net-Zero Pathways Report, **we are increasing our climate-related financing target from the original \$100 billion by 2025, to \$350 billion by 2030,³** in recognition of the Bank's strong performance and the high market demand for climate-related capital.
- Actioning our Climate Change Centre of Excellence to **increase internal and external collaboration through partnerships and memberships** such as the Institute for Sustainable Finance at Queens University, Climate Engagement Canada, the Partnership for Carbon Accounting Financials (PCAF), the Sustainable Finance Action Council and the NZBA.
- **Engaging with experts in the field, including drafting our inaugural Net-Zero Pathways Report with guidance from our external Net-Zero Advisory Panel.** We are also promoting dialogue and information-sharing through in-house training modules on climate change, our Edge of Energy podcast series, ESG talks: Climate Edition, and publications such as Scotiabank Perspectives articles. We intend to continue contributing to and amplifying the global conversation on climate change.
- **Providing \$25 million in community investment over 10 years to support non-profit and charitable partnerships that enable climate-related systems change and sector decarbonization.** This includes the \$10 million Scotiabank Net-Zero Research Fund that supports universities and not-for-profits in exploring innovative public policy, science and technology.
- **Enhancing climate risk assessments in our lending, financing, and investing activities.** We have expanded the Bank's credit policies and administration guidelines to explicitly address climate risk in the policies and procedures of lending activities. Further, we are assessing our vulnerability to physical and transition risks, and exploring resilience efforts, especially in light of recent severe weather events. For example, in 2021, Scotiabank enhanced our lending policies in regards to coal financing to prohibit finance of standalone projects for: i) thermal coal mining; or ii) coal power generation.
- **Decarbonizing our own operations and finding innovative solutions to reduce the Bank's impact on the changing climate.** Along with our work to reduce energy use in our operations, we are on track to meet our target of securing 100% of our electricity from non-emitting sources in Canada by 2025 and for our global operations by 2030.⁴
- **Ensuring robust climate-related governance and transparency in our reporting.** We have been reporting climate-related information in accordance with the TCFD recommendations since 2018. Governance of climate change and ESG was enhanced in 2021 by establishing a multi-disciplinary Corporate ESG Committee comprising senior executives from across the Bank. In 2021, we were recognized with a Global Finance award for Outstanding Global Leadership in Sustainability Transparency.

² In this report, unless otherwise stated, dollar amounts are CDN \$.

³ Measured from November 1, 2018 starting date.

⁴ Scotiabank has signed a contract to purchase solar power to offset all of our Canadian electricity carbon footprint, add new green renewable power to the Canadian electricity grid, and create jobs in the renewables industry.



OUR NET-ZERO AMBITION

While we continue to work toward these commitments, we acknowledge that we can and must take further action to address climate change. The Paris Agreement seeks to limit global warming to well below 2 degrees Celsius compared to pre-industrial levels. To achieve these goals and avoid the worst climate impacts, scientists tell us that global greenhouse gas (GHG) emissions will need to reach net-zero by 2050. Scotiabank supports the goals of the Paris Agreement including the global goal to achieve net-zero emissions by 2050 or sooner.

We have taken a prudent and thoughtful approach to developing and implementing our Bank-wide net-zero ambition and we recognize the challenges and complexity associated with a net-zero emissions pathway for the Bank, our clients, our communities, and the economy at large. Achieving net-zero emissions by 2050 will require concrete plans, interim targets, sector-specific timelines and transparent reporting. We commit to establishing Bank-wide, quantitative, time-bound targets for reducing greenhouse gas (GHG) emissions, both in our own operations and in our lending and investment activities. We further commit to being proactive by contributing to the necessary and complex discussions, analyses and actions that will help the world accelerate efforts by 2030 to ensure achievement of the 2050 net-zero objective.

Our Commitments

Achieve net-zero operations by 2030, including securing 100% non-emitting electricity in Canada by 2025 and globally by 2030.⁵

Mobilize \$350 billion in capital for climate-related finance by 2030, replacing our previous goal to mobilize \$100 billion by 2025.

Provide \$25 million in community investment over 10 years, from 2021 to 2030, to support non-profit and charitable partnerships that enable climate-related systems change and sector decarbonization.

Reduce Scope 1 and 2 emissions intensity of our Oil and Gas portfolio by **30% and reduce Scope 3 emissions intensity by approximately 15–25% by 2030**.⁶

Reduce Scope 1 and 2 emissions intensity of our Power and Utilities portfolio by **55–60%, by 2030**.⁷

Continue to refine financed emissions baselines and, where necessary, targets for the Bank's Oil and Gas, Power and Utilities, Residential Mortgages, and Agriculture sectors.⁸

Work in partnership with clients, to **lower their emissions across the sectors we finance**.

Take actions to improve emissions data availability and quality.

Apply our net-zero approach, and develop targets for additional emissions-intensive sectors and geographies over time.

Engage proactively in climate policy dialogues to support decarbonization efforts as well as a just and orderly transition to a net-zero economy.

Report annually on progress transparently and refine targets as new data becomes available.

WHAT DOES NET-ZERO MEAN?

According to the Net-Zero Standard released by the Science Based Target Initiatives, "Setting corporate net-zero targets aligned with meeting societal climate goals means (1) achieving a scale of value chain emissions reductions consistent with the depth of abatement at the point of reaching global net-zero in 1.5°C pathways and (2) neutralizing the impact of any residual emissions by permanently removing an equivalent volume of CO₂."⁹

The Government of Canada says, "Achieving net-zero emissions means our economy either emits no greenhouse gas emissions or offsets its emissions, for example, through actions such as tree planting or employing technologies that can capture carbon before it is released into the air."¹⁰

The Intergovernmental Panel on Climate Change (IPCC) states: "Net zero [sic] emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period."¹¹

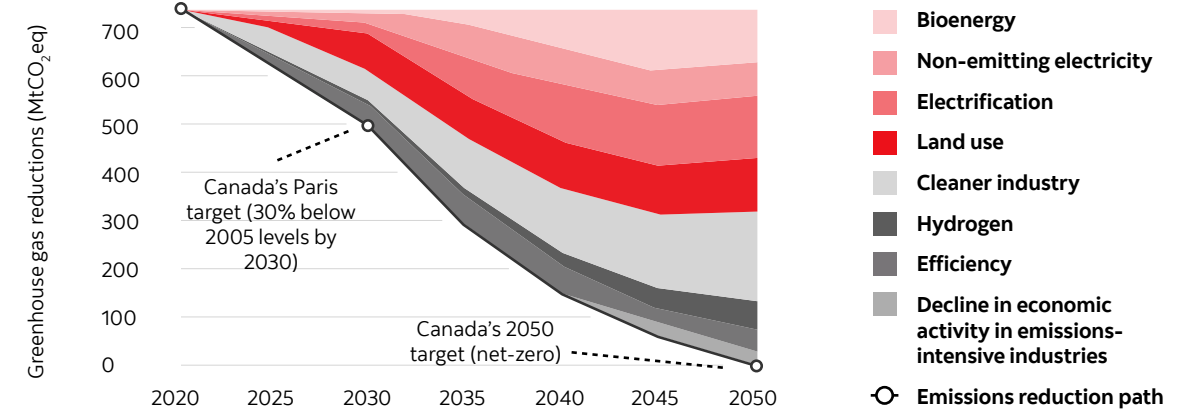


Figure A. Canada's potential pathway to net-zero by 2050¹²

⁵ Includes Scope 1 and 2 emissions, and Scope 3 emissions from employee business travel.

⁶ In accordance with the "comply or explain" principle established by the UNEP FI's Guidelines for Climate Target Setting for Banks. The principle permits banks to explain any deviations from the Guidelines due to available data, limitations, or other business factors.

⁷ ibid.

⁸ Scotiabank has disclosed financed emissions baselines for Residential Mortgages and Agriculture sectors at this time. Targets will be disclosed in future reports as more detailed and reliable data becomes available.

⁹ Science Based Targets (2021). SBTi Corporate Net-Zero Standard Science based targets, p. 58.

¹⁰ Government of Canada (2022). Net-Zero Emissions by 2050.

¹¹ IPCC (2018). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press. p. 555.

¹² Graph adapted from Dion, J., A. Kanduth, J. Moorhouse, and D. Beugin. 2021. Canada's Net Zero Future: Finding our way in the global transition. Canadian Institute for Climate Choices, p. 22.

Achieving a Net-Zero Economy

Nearly every commercial, industrial, and individual activity is associated with greenhouse gas emissions. Across all sectors and geographies, technological and environmental analysis generally points to six critical actions required to achieve global net-zero emissions:¹³

1. Decarbonizing electricity, including transitioning to renewables
2. Promoting widespread clean electrification
3. Enhancing energy efficiency across multiple sectors and end uses
4. Reducing industrial emissions of greenhouse gases, including methane emissions from oil and gas, agriculture, and landfills
5. Implementing negative-emission solutions, whether nature-based or engineered (e.g. reforestation, sustainable land use, restoration of swamps and wetlands and direct air capture of CO₂ combined with carbon capture, utilization and storage (CCUS) technology, etc)
6. Moving to zero-emission transportation fuels (e.g. clean electricity, hydrogen, 2nd generation biofuels, etc)

¹³ [IEA \(2020\), Renewables 2020, IEA, Paris](#)
[REN21. 2020. Renewables 2020 Global Status Report \(Paris : REN21 Secretariat\). ISBN 978-3-948393-00-7](#)
[Bataille, C. et al. \(2015\). Pathways to deep decarbonization in Canada, SDSN - IDDR!](#)
[City of Toronto. 2017. Zero Emissions Buildings Framework](#)
[Bernstein, M., Sawyer, D., Siebert, S., Wadland, J., and Clark, J. 2021. Assessing the 2021 Federal Liberal Climate Plan. Clean Prosperity](#)
[McFatrige, S., Moffatt, M., Khalaj, S., Tougas-Cooke, R., McNally, J., and Cyrus Patel, S. 2021. Clean Growth in Canada's Agriculture and Agri-Food Sector. Smart Prosperity Institute](#)
[IEA \(2021\), Methane Emissions from Oil and Gas, IEA, Paris](#)
[The Nature Conservancy. 2017. Lands of Opportunity: Unleashing the full potential of natural climate solutions](#)

The scale up and implementation of actions to achieve net-zero depends on numerous interrelated factors and varies widely across industries and geographies. All actors in the economy play an essential role in transitioning to a net-zero economy by 2050 and achieving intermediate milestones along the way.

THE ROLE OF GOVERNMENTS

Governments can facilitate the journey to a net-zero economy through several mechanisms. Governments at all levels can set relevant targets for carbon emissions reductions, issue industry goals and limits, publish policy frameworks and operating standards, and build essential infrastructure. Many of these actions would inform the medium- and long-term strategy and investment decisions of other actors in support of a net-zero economy. For example, Nationally Determined Contributions (NDCs) are country-specific and -defined targets for greenhouse gas emission reductions that each signatory country must aim to contribute toward the long-term objectives of the [Paris Agreement](#). By setting such NDCs, governments reduce an element of uncertainty related to taking climate action.



Figure B. Actors and enablers in a net-zero economy

Government policies, regulations, and incentives play a critical role in enabling emissions reductions throughout the economy. They establish expectations and send market signals that can motivate business planning, investment decisions, and individual consumption choices to be more aligned with a lower-carbon economy. The right policies also help drive low-carbon research and innovation, which is a critical aspect of any net-zero pathway in any sector.¹⁴ Given the dependence on government signals, policies, and programs, we will continue to monitor climate change policy and commitments in the markets where we operate, to ensure that we understand their potential impact on the Bank and our clients.

THE ROLE OF THE PRIVATE SECTOR

Companies in the private sector are crucial actors in the transition to a net-zero economy. Shifting market demand and policies related to climate change will increasingly force these companies to incorporate climate impacts into project planning, capital allocation, product development, supply chain management, asset management, and business strategy decisions. These changes have started affecting the private sector's product offerings (e.g. lab-grown meat, upcycled textiles), research efforts (e.g. alternatives to rare-earth minerals), and business models (e.g. the automotive industry's pivot to electric vehicles and charging services) to meet changing market demands for products and services.¹⁵

In addition to *what* is produced, companies are also fundamentally rethinking *how* things are produced and the nature of their operations. Companies globally have been increasingly taking steps to decarbonize their operations, but there is still much room for improvement. As of September 2021, the MSCI Net-Zero Tracker reported that 43% of listed companies' plans and activities align with a 2 degree C global warming scenario.¹⁶ Nonetheless, companies are expected to pursue additional operational improvements (e.g. energy efficiency retrofits, fuel switching) to continue decarbonizing internal operations while meeting external market demands.¹⁷

It is important to emphasize the private sector's role as an employer and community partner in the transition to a net-zero economy. Beyond producing goods and services, companies in the private sector represent a significant source of both jobs and government tax revenue. This makes collaboration between public and private entities essential to achieving both a net-zero economy and a just transition that proactively addresses negative socio-economic impacts.

COLLABORATION BETWEEN PUBLIC AND PRIVATE ENTITIES

With government action as a foundation, transitioning to a net-zero economy will require unprecedented collaboration among entities of all types — public and private, large and small.

- Research institutions and innovators will be central to the technological breakthroughs needed to pursue the emerging pathways to a net-zero economy on envisaged timelines.
- Government, financial markets, owners of long-term capital, and business will need to collaborate to underwrite the basic insights, development, commercialization, and diffusion to take such technologies to scale.
- Large and small public and private institutions and organizations will be vital in raising consumer awareness, while pricing, tax structures, and more extensive net-zero related information will be needed for individuals to effectively align their economic activities and choices with Canada's net-zero targets.

THE ROLE OF FINANCIAL INSTITUTIONS

While financial institutions are not heavy direct-emitters of greenhouse gases, we recognize that we still have an essential role to play in the transition to a net-zero economy. The Paris Agreement explicitly requires finance flows to be consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

For this reason, financial institutions are increasingly expected to influence their financed emissions. Hence, emission reduction and net-zero strategies for financial institutions are necessarily tied to the strategies being undertaken in the sectors and countries where they do business.

Financial institutions also help provide capital, advice and support to clients across multiple industries. Further, financial institutions can often bring best practices from other industries and countries that may help clients and advance decarbonization best practices. While we recognize financial institutions do not have direct control over clients' emissions, we are committed to working in collaboration with our clients to support their respective decarbonization efforts.

We acknowledge the many trade-offs and strategic pivots required from all sectors, including our own, to enable, adapt to, and capitalize on the decarbonization of the global economy. **The transition will be complex for everyone; it will need to balance local community needs, economic resilience, and climate change objectives.** We are also aware that such a transition could create an inevitable economic shift and new business opportunities which will inform our strategy.

¹⁴ [Beugin, D., 2020. Canada's new climate plan is a big deal. Here's why. Canadian Institute for Climate Choices.](#)

¹⁵ [McKinsey on Climate Change Report, 2020](#)

¹⁶ The [MSCI Net-Zero Tracker](#) uses the MSCI All Country World Investable Market Index. The index includes 9,226 entities (as of Sept. 30, 2021) and approximately 99% of equity investment opportunities, globally.

¹⁷ [International Panel on Climate Change \(IPCC\), 2018, Chapter 10: Industry.](#)

Scotiabank's Approach

Scotiabank commits to net-zero financed emissions by 2050.

OUR APPROACH

To determine the best way forward, we have undertaken a thorough and thoughtful analysis of the pathways available to economies, sectors, and companies, including our own, to achieve net-zero emissions by 2050. Our approach was developed with support from an expert international consultancy and internal subject matter experts across different business lines. Our approach involves seven phases that will enable us to transparently achieve emissions reductions across the Bank's financing activities.

1. DEFINING THE SCOPE

2. MEASURING THE BASELINE

3. SELECTING REFERENCE PATHWAYS

4. DETERMINING THE MOMENTUM PATHWAY

5. SETTING TARGETS

6. BUILDING AN ACTIONABLE PLAN

7. DISCLOSING PROGRESS

1. Defining the Scope

Scotiabank's inaugural Net-Zero Pathways Report includes business loans, project finance, and residential mortgages in key geographies. On-balance sheet financing is included in scope because the activity is material to the Bank's revenues and has a significant link to real-world emissions. The United Nations Environment Programme Finance Initiative (UNEP FI) Guidelines and the NZBA Commitment Statement support the inclusion of on-balance sheet financing.

We have prioritized four sectors based on the Bank's financial exposure and their relative share of our financed emissions:

Sector	Emission Scopes	Geography
Oil and Gas	1, 2, and 3	International (including Canada)
Power and Utilities	1 and 2	International (including Canada)
Residential Mortgages	1 and 2	Canada
Agriculture	1 and 2	Canada

Table A. Emission and geography scopes for Scotiabank's four prioritized sectors

The four sectors were prioritized based on an initial top-down assessment of the overall Scotiabank portfolio which indicated they might represent over two thirds of the Bank's total financed emissions. While this figure might change as estimates are refined, it nonetheless indicates the outsized importance of these sectors. Over time, we will include other sectors and asset classes as we refine and expand our net-zero approach.

WHAT ARE SCOPE 1, 2 AND 3 EMISSIONS?¹⁸

- Scope 1 emissions are direct emissions that occur from sources that are controlled or owned by an organization (e.g., process emissions or fuel combustion in boilers, furnaces, vehicles). Generally, companies have or are able to obtain data on their own direct emissions, or Scope 1 emissions. This is particularly true of firms that are highly regulated on environmental matters, have sustainability units or accountabilities assigned, and/or have robust data management practices.
- Scope 2 emissions are indirect emissions associated with the purchase of electricity, steam, heat, or cooling for operations. Companies are typically able to calculate their Scope 2 emissions using information regarding utility purchases.
- Scope 3 emissions are from sources not owned or directly controlled by a company but related to its upstream and downstream activities. Scope 3 emissions are often very difficult to determine, particularly for companies with a large number of upstream suppliers or downstream users. As a result, company-specific Scope 3 emissions data is not widely available nor particularly accurate for most sectors at this time. Scope 3 emissions — which include financed emissions¹⁹ — are generally a bank's largest source of emissions.

¹⁸ World Resources Institute and World Business Council for Sustainable Development (2011). Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard, page 28.

¹⁹ Financed emissions are the GHG emissions of entities or projects that are financed by a bank's loans and investments.

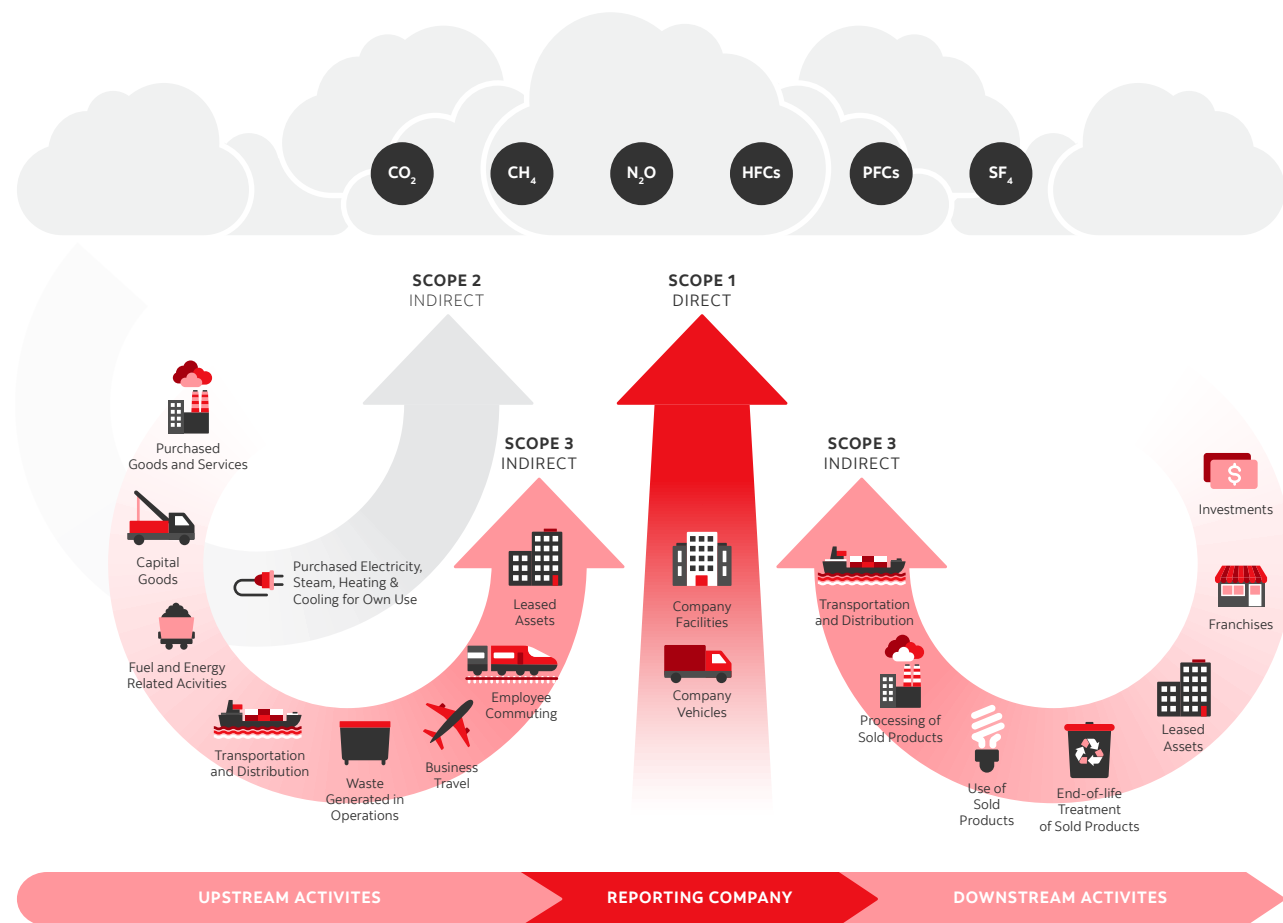


Figure C. Emissions scopes throughout the value chain²⁰

As a signatory to the NZBA we have committed to setting credible, robust targets for financed emissions associated with our lending and investment activities, in line with achieving the objectives of the Paris Climate Agreement. In doing so, we will include clients' Scope 1, Scope 2 and Scope 3 emissions, where significant, and where appropriate reliable data exists.

²⁰GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Page 5.

THE CHALLENGE WITH SCOPE 3 EMISSIONS

Scope 3, or indirect, greenhouse gas emissions pose many measurement and target setting challenges for any organization pursuing decarbonization. When estimating a bank's Scope 3 emissions, emerging measurement protocols recommend that banks include clients' Scope 1, Scope 2 and Scope 3 emissions, where significant, and where data allows. This creates three significant challenges, which have resulted in large margins of error in calculations of financed emissions baselines and targets.

First, there is the challenge of data availability. Virtually every bank client emits greenhouse gases directly or indirectly; however, not every client measures and reports their emissions. Presently, there is a shortage of reliable, verifiable emissions data of any kind – Scope 1, Scope 2 and Scope 3 – across many sectors which means a bank's Scope 3 emissions (i.e. financed emissions) can only be estimated. This gives rise to the second challenge.

The second challenge is demonstrating meaningful reductions in financed emissions, when the baseline data is of poor quality. With good quality data being extremely difficult to obtain in many sectors, estimates and proxies are being used instead and this can result in a significant margin of error for banks' estimated financed emissions. As this happens, steady year-over-year changes in financed emissions will be impossible to accurately depict, as real numbers will be dwarfed by the magnitude of the error bars or where based on industry wide data, it would be difficult to attribute any changes directly to the bank's clients' activities. This will be an important consideration when reviewing financed emissions disclosures from any bank.

The third challenge is that many banks, including Scotiabank, finance all sectors of the economy. Measuring and reporting clients' Scope 2 and Scope 3 emissions (assuming we can obtain the data), means banks risk double and sometimes triple counting the same emissions many times over. For example, banks finance companies in the power generation sector, who produce electricity and sell it to customers. Banks also finance companies that use purchased electricity. The electricity producer's Scope 1 (direct) emissions are their customers' Scope 2 emissions. If a bank reports its total financed emissions across its portfolio, it would therefore be double-counting financed emissions: the Scope 1 emissions of its Power and Utilities portfolio and the Scope 2 emissions of all the other sectors that use the electricity. These are the same emissions, counted twice.

The challenge is also apparent if banks incorporate clients' Scope 3 emissions in financed emissions measures. For example, the Oil and Gas sector's Scope 3 emissions include emissions from the eventual downstream combustion of the oil and gas. Emissions from downstream combustion of oil and gas would also represent Scope 1 emissions for the Transportation sector and for the Auto Manufacturing sector. All three sectors are financed by Scotiabank; therefore, including client Scope 3 emissions in the Bank's financed emissions reporting means reporting the same emissions at least three times over.

Scotiabank will continue advocating for better emissions data and methods that avoid double and triple counting emissions. Scotiabank will report on Scope 3 emissions from our key sectors, where material and where data allows, within 36 months of joining the NZBA as a signatory.

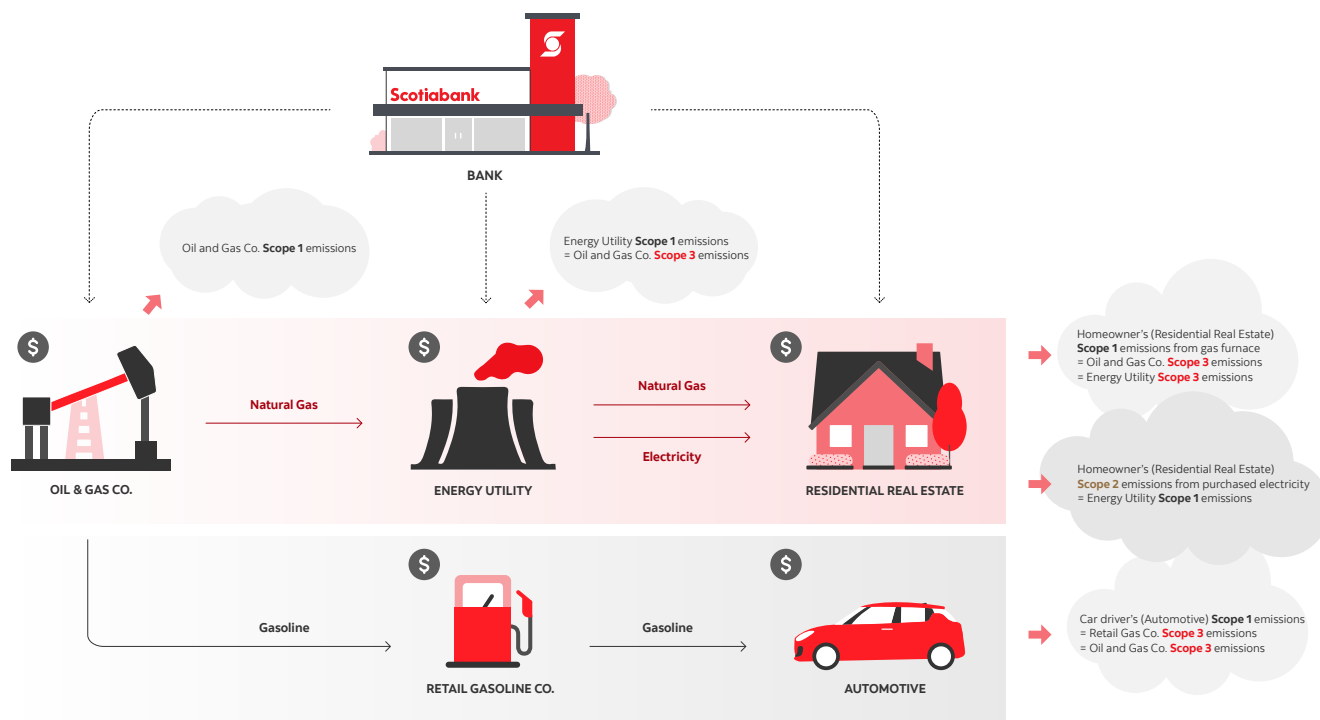


Figure D. A bank's Scope 3 emissions cover many parts of the value-chain, creating potential for double counting

SCOTIABANK'S FOCUS ON DECISION-USEFUL METRICS

Clients have the greatest control over their Scope 1 (direct) emissions, and some control over their Scope 2 (purchased electricity, steam, heat, and cooling) emissions. Measuring and setting targets for our clients' Scope 1 and 2 emissions allows Scotiabank to work in partnership with our clients as they make changes to reduce their carbon footprint. Clients' Scope 3 emissions are not part of the activities financed by a bank; rather they result from upstream activities such as purchased goods and services as well as the downstream use of a product or service by the bank's clients. Downstream activities and, to an extent, upstream activities are typically outside of the direct control of clients and banks.

2. Measuring the Baseline

Setting credible net-zero targets requires first estimating sector-specific financed emission baselines. Several different carbon accounting standards and methodologies have been developed and validated to help banks estimate financed emissions and set targets.

Portfolio emissions can be measured in a number of ways, and Scotiabank has set out to characterize our baseline portfolio emissions by measuring them on a sector-by-sector basis in two ways: absolute financed emissions from a sector, and sector emissions intensity, which calculates the greenhouse gas emissions of each client company against its primary output (e.g. tonnes of CO₂ per unit of electricity produced).

Scotiabank is a member of The Partnership for Carbon Accounting Financials (PCAF), whose Global GHG Accounting and Reporting Standard for the Financial Industry has been used as the basis for many banks' financed emissions estimates. Several banks have also developed proprietary methodologies using the PCAF standard as the starting point to estimate financed emissions. The PCAF Standard:²¹

- Defines an approach to attribution based on asset classes
- Provides a database of estimated proxy sources to help address data gaps
- Enables disclosures that are consistent and comparable across banks
- Provides detailed methodological guidance for six asset classes

²¹ PCAF defines the following as asset classes: listed equity and corporate bonds, business loans and unlisted equity, project finance, commercial real estate, mortgages, and motor vehicle loans.

Scotiabank uses the PCAF Standard as the methodology for calculating the sector financed emission baselines wherever possible, and where the methodology provides reliable, decision-useful information. This means that for most of our priority sectors, we use the following PCAF measurement methodologies to estimate our absolute financed emissions (based on outstanding amounts, excluding derivatives) each year:

Business Loans and Unlisted Equity

$$\frac{\text{Outstanding amount}}{\text{EVIC or Total company equity + debt}} \times \text{Company emissions}$$

EVIC = Enterprise value including cash

Project Finance

$$\frac{\text{Outstanding amount}}{\text{Total project equity + debt}} \times \text{Project emissions}$$

[From The Global GHG Accounting & Reporting Standard for the Financial Industry, Executive Summary, p. 3](#)

However, we have identified instances where deviations from the PCAF methodology are justified. For example, when calculating Scope 1 and Scope 2 Oil and Gas sector portfolio emissions, we observed that the PCAF standard methodology could produce highly volatile results, unrelated to actual changes in emissions. The volatility is caused by the cyclical nature of oil prices resulting in material fluctuations in enterprise value and clients drawing on committed facilities at different times even if underlying client emissions changed very little, or not at all. As a result, financed emission numbers calculated according to the PCAF methodology will appear to change by large factors, sometimes over relatively short timeframes. Scotiabank, like several other global banks, has adopted a modified method for calculating and tracking financed emissions intensity in our Oil and Gas portfolio to reduce volatility caused by factors besides changes in actual emissions.

Accordingly, our clients' financed emissions intensity in our Oil and Gas portfolio is estimated using the following "equations":

$$\text{Financed Emission} = \frac{\text{Committed Authorized Amount to Client}}{\text{Client's Total Assets}} \times \text{Client's Emissions};$$

$$\text{Financed Production} = \frac{\text{Committed Authorized Amount to Client}}{\text{Client's Total Assets}} \times \text{Client's Production};$$

$$\text{Portfolio Aggregated Emissions Intensity} = \frac{\sum \text{Financed Emissions}}{\sum \text{Financed Production}}$$

Client-specific greenhouse gas emission data is largely unavailable in the Residential Mortgages and Agriculture sectors, therefore Scotiabank is only able to estimate financed emissions (for Scope 1 and 2) for those sectors at this time. We continue to work towards developing a more accurate baseline for Scope 1 and Scope 2 emissions intensity and targets for our Residential Mortgages and Agriculture sector portfolios. Our work will focus on first addressing Scope 1 and Scope 2 data challenges and pathways, and subsequently Scope 3 challenges and pathways.

THE CHALLENGE OF OBTAINING EMISSIONS DATA

Quantifying emissions from thousands of clients across many sectors requires access to timely, accurate emissions and production data for each client. The availability of quality data underpins a bank's ability to produce emissions baselines, targets, and transition plans along with decision-useful information to track portfolio decarbonization. The challenges associated with obtaining such data are further exacerbated by the fact that data reporting varies by country and company; large numbers of clients in different portfolios do not report emissions data at this time; emission intensity estimates for large companies may not be applicable to the subsidiaries financed by the bank; and mergers and acquisitions activities in select sectors may have material impacts on emissions profiles.

Addressing data challenges in the following ways could help banks and industry more accurately characterize emissions, and thus set more meaningful targets and transition plans:

- Increase availability of client emission data, by geography, asset/project, and subsidiary over time
- Increase timeliness of data disclosures to address data lag issues in reporting
- Improve access to data for private companies
- Create credible data sources, preferably through open data portals overseen by regulators or governments
- Improve consistency in data types used across financial institutions for comparability
- Publish detailed government-led reference pathways for each country with material emissions

We are committed to continue working with other banks, governments, corporates, and global partnerships to collectively solve these challenges.

3. Selecting Reference Pathways

A reference pathway (or emissions scenario) provides an organization with a projection of potential future emissions, based on different actions and levers. These pathways help set the foundation for a net-zero strategy, as they can be used to set portfolio targets and provide a benchmark to monitor progress.

For each priority sector examined in our Net-Zero Pathways Project, we selected what we considered to be the most appropriate reference scenario, applying the following criteria, in accordance with best practices recommended by the UNEP FI and supported by the NZBA. Such selected scenarios should:

- Be based on thorough scientific, economic and technological modeling to ensure they are accurate and realistic
- Not overshoot temperature targets (or should minimize duration of overshoot)²²

UNDERSTANDING SCENARIOS

It is important to recognize that a scenario is not a forecast. The above IEA scenarios are normative scenarios. They put forward possible views of a future world and tell us what actions are needed to help achieve that future. The IEA's NZE scenario is aspirational. It reflects a significant transformation of the global energy system, achieving net-zero energy, universal energy access, and lower air pollution. Although each of these reference pathways chart a possible path toward a lower carbon economy, no single reference pathway is appropriate for every sector or region in our portfolio.

- Not depend on (or minimize dependence on) negative emissions technologies and solutions to remove CO₂ from the atmosphere²³
- Avoid negative socio-political consequences and minimise misalignment with the UN Sustainable Development Goals
- Be disaggregated by geography or sector. Scenarios that are disaggregated by geography and sector offer greater detail and insight into the net-zero pathways that clients might take

Furthermore, we prefer scenarios that are updated frequently, as they are better able to capture recent scientific, technological and economic developments. Pathways that include all greenhouse gases (not just CO₂) are also preferred, as they more accurately depict broader climate impact, especially in sectors where non-CO₂ emissions are significant. We considered several globally determined reference pathways when developing our net-zero ambitions, including:

- International Energy Agency Net-Zero Emissions by 2050 (IEA NZE) (2021)²⁴
- IEA Beyond 2°C Scenario (B2DS)²⁵
- IEA Sustainable Development Scenario (SDS)^{26, 27}

²²For an illustration of no- or low-overshoot temperature targets, see model pathways P1 and P2 in the [IPCC's Special Report on Global Warming of 1.5°C](#)

²³[UN PRI, 2020, An investor guide to negative emission technologies and the importance of land use](#)

²⁴[IEA \(2021\), World Energy Model, IEA, Paris](#)

²⁵[IEA Energy Technology Perspectives, 2017](#)

²⁶IEA ETP SDS vs. IEA WEO SDS: The ETP SDS scenario is broadly consistent with the SDS presented in 2019 edition of the IEA WEO, however the time horizon of analysis and projection is extended from 2040 to 2070

²⁷[IEA World Energy Outlook, 2020](#) and [IEA Energy Technology Perspectives, 2020](#)

Pathway Components	IEA Net-Zero Emissions by 2050 (NZE) Scenario (2021)	IEA Sustainable Development Scenario (SDS)- North America (WEO SDS, 2020)	IEA Sustainable Development Scenario (SDS)- Central and South America (WEO SDS, 2020)	Canada's Reference Pathway (2020)	
				Emissions Projections (Environment and Climate Change Canada's Greenhouse Gas and Air Pollutant Emissions Projections, 2020)	Electricity Generation Projection (Canada Energy Regulator's Electricity Generation Projection - Evolving Scenario, 2020)
Temperature ambition	1.5 degrees	Well below 2 °C (1 °C, with a 66% probability)		Not specified	NA
Net-zero Target Year	2050	2070		2050	Does not include Canada 2050 Net-zero Target
Regional coverage	Global	North America	Central and South America	Canada	Canada (24% of Scotiabank's Power and Utilities portfolio)
Key features of the pathways	<ul style="list-style-type: none"> • Net-zero in the Power sector by 2040 globally and by 2035 in advanced economies • Phase out unabated coal in advanced economies by 2030 • 90% of global electricity generation in 2050 comes from renewable sources, with solar PV plus wind accounting for ~ 70% • All new buildings are zero-carbon-ready by 2030 • Sales of new internal combustion engine passenger cars halted by 2035 	<ul style="list-style-type: none"> • Ambitious transformation of the energy sector: surge in clean energy policies and investments put the energy system on track to achieve the goals of the Paris Agreement • Emissions from the power sector drop by more than 40% • Share of coal in energy production falls to 15% by 2030 • Combined share of solar and wind energy rises from 8% in 2019 to 30% in 2030 		<ul style="list-style-type: none"> • Focuses on a series of new and strengthened federal climate actions to ensure Canada exceeds its current NDC target of 30% below 2005 levels by 2030 • The plans prescribes a two to threefold increase in the use of renewable energy by 2050 supported by policy prescriptions 	<ul style="list-style-type: none"> • Assumes a set of hypothetical future domestic climate policies with greater ambition and a greater rate of technological progress • Assumes weaker global demand for fossil fuels through lower assumed international prices for crude oil and natural gas • High carbon price

Table B. Features of reference pathways to net-zero

Among the IEA scenarios above, we are using the IEA NZE scenario as the reference pathway for our globally diversified sector portfolios where an IEA NZE sector-specific pathway is available (e.g. Power and Utilities), as it is closely aligned to science-based, no/low overshoot 1.5°C scenarios. NZE is the only eligible IEA scenario that aims for net-zero emissions by 2050, consistent with limiting the global temperature rise to 1.5 degrees.

For sector portfolios heavily weighted to one country (e.g. Residential Mortgages, Agriculture), we will review national decarbonization plans and reference pathways and use the corresponding net-zero sector-specific pathway where available.

For portfolios heavily weighted to Canada, and where an IEA NZE sector-specific was not available, we used the Canadian federal government's evolving decarbonization pathway, outlined in "*Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2020*."²⁸ This pathway will be updated to reflect Canada's new net-zero targets by the government's Net-Zero Advisory Body in 2022.

NET-ZERO ADVISORY BODY

The Net-Zero Advisory Body (NZAB) has been appointed to recommend pathways for Canada to reach its net-zero by 2050 target, provide advice on emissions reductions milestones leading up to 2050, and identify near-term actions and key building blocks that support this long-term target. The NZAB will release its first report in March 2022. Scotiabank supports the NZAB and the federal government's efforts to develop credible and granular Canadian-specific pathways that reflect the unique characteristics of Canada's economy.

Canada is committed to reaching net-zero GHG emissions by 2050, and the Canadian Net-Zero Emissions Accountability Act, 2021 codified the Government of Canada's commitment in this regard. This legislation requires the Government of Canada to set national emissions-reduction targets at five-year intervals for 2030, 2035, 2040, and 2045, and to develop emission reduction plans for each target as well as explain how each plan would contribute to reaching net-zero in 2050. The government has committed to reducing Canada's 2030 emissions by 40-45% below 2005 levels, a major increase from its previous target of 30%.

In 2021, the **United States** committed to reduce emissions by 50-52% below 2005 levels by 2030 — which more than doubles its previous Paris Climate Agreement target. This announcement is aligned with the types of climate change provisions proposed in the "Build Back Better" bill in which the country committed to carbon neutrality by 2050. The recently updated NDC submission outlines several sectoral measures to achieve these goals, with an additional goal of fully decarbonizing electricity generation by 2035.²⁹

WHAT IS AN NDC?

The Nationally Determined Contributions (NDCs) are country-specific goals and emission reduction targets that each signatory of the Paris Agreement will (aim to) contribute towards meeting its objectives.³⁰ Under the Paris Agreement, countries are required to update their NDCs every five years with more ambitious targets. NDCs can impact business and financial institution forecasting and scenario analysis in important ways. NDCs set climate-related targets, inform policies and include a measurement mechanism to measure progress. Resulting government policies will have a large impact on the Bank's ability to meet or exceed targets, since emissions are often dependent on drivers outside the control of banks. If achieved, NDCs will help close the gap between the Bank's current baseline and a net-zero future.

Scotiabank's other core markets form part of the **Pacific Alliance**, and these countries have different abatement approaches and challenges. The NDCs of Scotiabank's four core markets in Latin America are ranked as insufficient by the Climate Action Tracker.³¹ Chile is expected to meet its NDC targets with its planned policies, mainly through the energy sector. However, current targets are not seen as reflective of a high level of ambition. Mexico has not increased its ambition on its updated NDC. Although the government has announced a long-term strategy of carbon neutrality by 2050, no additional or stronger climate policy has been announced yet.

Agriculture, a hard-to-abate sector, is a material source of emissions across our Latin American core markets. This explains why a significant proportion of the mitigation potential of Colombia and Peru relies on land use change and forestry.

As we pursue a net-zero portfolio, we will continue to monitor the NDCs in core markets where we operate, examine their potential impact on the Bank's and our clients' portfolio emissions and strive to set targets that are in line with NDCs wherever we operate.

²⁸ [Environment and Climate Change Canada, 2020. Canada's Greenhouse Gas and Air Pollutant Emissions Projections 2020](#)

²⁹ [United States of America Nationally Determined Contribution, 2021](#)

³⁰ [UNFCCC. Nationally Determined Contributions](#)

³¹ [Climate Action Tracker, last updated December 2021](#)

4. Determining the Momentum Pathway

A sector's momentum pathway is its estimated near-term future assuming clients and governments meet their announced targets and planned interventions.

To understand our portfolio outlook, we have developed the "momentum pathway" for each priority sector that takes into account clients' transition plans, industry trends, and decarbonization activities that are already underway. Momentum pathways vary by sector and ambition (or, as in the case of Agriculture, can vary between different activities within a single sector).

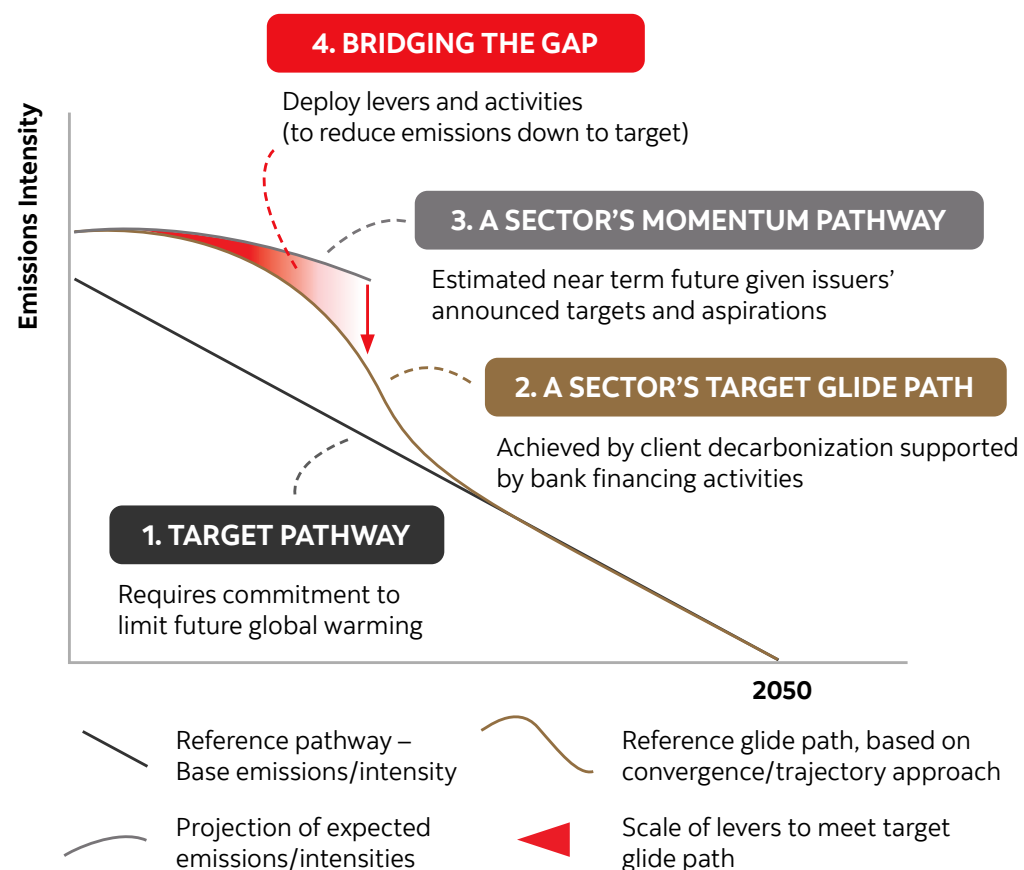


Figure E. Process of determining a sector's momentum pathway

5. Setting Targets

Portfolio emissions reductions can be measured, and targets established through a variety of approaches. We have elected to take a sector decarbonization approach, whereby the GHG emissions intensity of a client company is determined against its primary output (e.g. kg CO₂ per MJ of electricity produced). The approach, which is recognized by UNEP FI as one of the preferable ones for FIs, enables clear benchmark comparisons against their sector peers, and also against the decarbonization pathway for that sector in accordance with the relevant national or global climate scenarios.³²

We also decided to use this approach since it:

- Allows for easier comparison across a portfolio of companies within a sector and between companies of different sizes
- Is less affected than absolute emissions by year-to-year emissions volatility (such as changes in a company's production)
- Reduces the impact of market volatility (e.g. changes in company value) on measurement of the bank's financed emissions and progress against financed emissions targets
- Remains comparable over time regardless of changes in the size of a portfolio

- Creates an incentive for efficiency improvements. For example, as a population increases and demand for a sector's products or services (such as housing or food) increases in the coming decades, emissions reductions will have to come from efficiency improvements.

6. Building an Actionable Plan and Implementing Levers

We recognize that we have several levers we can implement to reduce our financed emissions, including promoting client decarbonization efforts through counterparty engagement, portfolio composition, and policy advocacy.

Counterparty Engagement — Scotiabank is committed to helping our clients develop, implement, and achieve their respective transition goals to a low-carbon economy. Given our one-to-one relationship and deep familiarity with our clients, we have the opportunity to support and encourage our clients to decarbonize their operations. This includes raising awareness of government supports to enable decarbonization, sharing sustainability best practices from other markets, working with clients directly to earmark funds for business model transition activities, and considering specialized green products and offerings. We will also share information with new clients, and we will share our own decarbonization journey to support others.

³² [UNEP Finance Initiative Recommendations for Credible Net Zero Commitments](#)

Portfolio Composition — Scotiabank has longstanding and close relationships with our clients. Our approach is to work closely with clients to support their transitions to net-zero emissions. Any changes in portfolio composition would occur over time, and could potentially arise through:

- **Transition Finance** — Scotiabank supports transition finance as a meaningful and practical financial instrument to enable the flow of capital into sectors and businesses that are committed to reducing GHG emissions. Transition finance is an important part of our commitment to mobilize capital to reduce the impacts of climate change. Transition finance will enable projects and activities within any sector and country to reduce GHG emissions and move towards net-zero emissions by 2050. This could include financing high-emitting companies to help them reduce their emissions. Withdrawing this capital too rapidly, in order to present a loan book as low-emitting, may be counterproductive to real world decarbonization of the economy.
- **Direct Green Investment** — Invest directly in low-carbon technology development through early-stage financing vehicles. Invest in assets that result in mitigation solutions.
- **Green Financial Products** — Develop innovative financing products to fund low-carbon technologies, emissions abatement technologies. Offer sustainability linked financial products.

- **Divestment** — Divestment is among the least effective approaches to achieving a net-zero economy. Divestment reduces portfolio emissions of the financial institution, but its impact on real-world emissions is questionable, as there are a wide range of capital providers that can step in to replace any single bank's financing. Conversely, by continuing to support clients in emission intensive sectors, we can work with company leadership to enable and influence emission reducing initiatives — things that we could not do if we exit the banking relationship. Further, this is consistent with the approach espoused by the NZBA to engage with clients and invest in decarbonization efforts in the real economy.

Policy Support and Advocacy — Scotiabank's ability to meet emissions targets is dependent on government policies, consumer demand, industry action, and ongoing technological innovation. Further, Scotiabank understands that the financial sector can play an important role in informing policymakers in regulating and incentivizing business model transition to achieve net-zero objectives across the economy. This includes supporting the government as it works to improve data quality across multiple sectors, release detailed net-zero pathways, and develop incentives to accelerate emissions reductions. Addressing climate change will require coordinated action; Scotiabank will continue to work collaboratively with government, regulators, advisory groups (such as the Net-Zero Advisory Body and the Sustainable Finance Action Council as these groups support the Federal Government), and industry to advance collective decarbonization efforts.

Our progress will not be linear or move at the same pace across all sectors in our portfolio. Furthermore, our progress will depend, in part, on policy support and government initiatives. Our net-zero approach is also, by design, dynamic — so that it will evolve to reflect updated industry trends and best practices. Scotiabank will therefore regularly review its progress and targets, and refine its approach over time to reflect the latest science and available data.

7. Disclosing Progress

We are committed to transparency on Scotiabank's climate-related initiatives and will continue to align climate related disclosures with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We currently disclose climate-related information in our Annual Report, ESG Report and annual CDP submission.

Going forward, we will publish an annual Net-Zero Progress Update. As a NZBA signatory, we are also committed to:

- Setting targets for all, or a substantial majority, of our carbon-intensive, high-exposure sectors (where data allows) within 36 months of signing the NZBA Commitment
- Publicly reporting our progress against disclosed targets on an annual basis
- Reviewing interim targets at a minimum every five years
- Setting the next interim five-year target, as we approach each previous interim target year (e.g. 2035 targets set prior to 2030)



Reducing Financed Emissions

The sections below outline Scotiabank’s financed emissions exposure to the Bank’s identified priority sectors: Oil and Gas, Power and Utilities, Residential Mortgages and Agriculture. Each also covers greenhouse gas emission sources, decarbonization trends, and decarbonization pathways and targets (where possible).

In all cases, the Bank’s ability to achieve our net-zero targets is dependent not only upon our use of the tools and levers available to the financial sector, but also on government policy and incentives, the breadth and depth of client and sector actions, social acceptability of deep economic changes, the pace of technological innovation, changes in consumer demand, and a host of other economic and social factors over which the Bank has little or no direct control.

Accordingly, consistent with our NZBA Commitment, our sector decarbonization targets are not guarantees of outcomes but are rather made in the context of a “comply or explain” framework. We recognize that the science surrounding climate change, and the strategies available to reduce greenhouse gas emissions are evolving rapidly. We understand that we may need to revise reference decarbonization pathways, targets, strategies and action plans as these factors evolve and as more accurate client-specific data becomes available. However, as climate change is a pressing issue, potential changes will not prevent us from taking action now.

OIL AND GAS

The Oil and Gas sector is large and multi-faceted, consisting of upstream activities — such as exploration, extraction, and production; midstream activities — such as storage and transportation; and downstream

activities — such as refining and distribution. The sector produces energy services (e.g. space heating, water heating, process heat) and products (e.g. transport fuels, plastics, textiles) that are critical to society and the economy. Scotiabank recognizes the Oil and Gas sector as an important part of the Bank’s net-zero strategy given the sector’s size and emissions profile.

The Oil and Gas sector generates upstream emissions from production, collection, and processing — most notably methane (CH₄), an extremely potent, though shorter-lived, greenhouse gas than carbon dioxide.³³ Upstream emissions are also generated from the use of fuel to generate power for operations. The sector’s downstream emissions can also be significant. The petroleum oil refining industry is the third-largest stationary (i.e. non-transport) emitter of greenhouse gases in the world, contributing 6% of all industrial greenhouse gas emissions. Approximately 98% of greenhouse gas emissions from petroleum refineries are CO₂.³⁴ Given their use across the global economy, refined oil and gas products, when consumed, are a source of emissions from many sectors.

In order to meet shifting demands and enable a low-carbon future, the Oil and Gas sector will need to continue to innovate and transform. Numerous sector-initiated decarbonization activities are available and, in many cases, already underway, including: electrification of upstream extraction and drilling, improved methane leak detection, and investment in hydrogen and carbon capture, utilization and storage technologies (CCUS).³⁵ We recognize that enabling this transition will require significant investment of capital and strategic support. While Oil and Gas represents less than 2% of the Bank’s outstanding loans and acceptances, the sector represents an area of opportunity for us to work with these companies to advance a sustainable net-zero future.

Oil and Gas will continue to play a role in the global economy for the foreseeable future. The IEA’s “Stated Policies Scenario” forecasts an increase in oil demand from approximately 88 million barrels per day in 2019 to 104 million barrels per day in 2030.³⁶ While other IEA scenarios consider different trajectories for oil demand over the same period, including a significant drop in demand under the IEA Net-Zero Emissions by 2050 Scenario, none posit oil demand disappearing by 2030 or even 2050.

COMMON EMISSION SOURCES FROM THIS SECTOR

Canada’s oil sands contributed 11% of the country’s emissions in 2019.³⁷ Financed CO₂ and CH₄ emissions fall across upstream and midstream processes, including:

- Upstream: Oil and Gas exploration and production (offshore oil and gas platforms, and onshore pump jacks)
- Midstream: Processing, storage and transportation
- Downstream: Emissions from downstream refining are included only for integrated oil companies

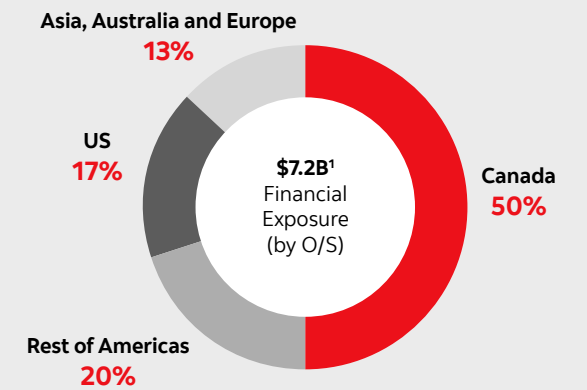
³³ IEA (2020), *Methane Tracker 2020*, IEA, Paris

³⁴ ScienceDaily, 2021, *We can expect more emissions from oil refineries in the near-term future, analysis finds*

³⁵ IEA, *Oil demand by scenario, 2010-2030*, IEA, Paris

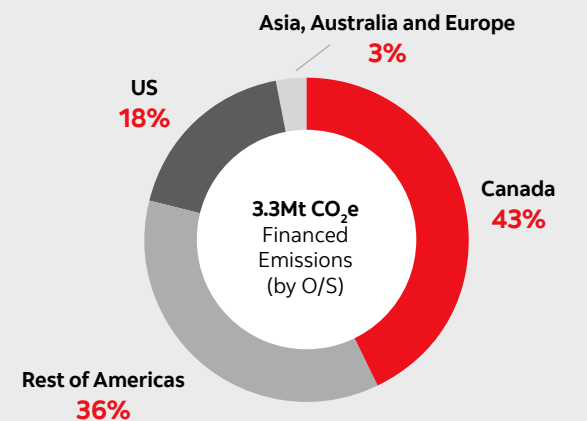
³⁶ McKinsey & Company, 2020, *The future is now: How oil and gas companies can decarbonize*

³⁷ CAPP, *Climate change*. Accessed January 2022.



¹ Outstanding CAD\$, as of October 31, 2019.

Note: Financed emissions for oil and gas only capture those from E&P and integrated companies.



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Figure F. Oil and Gas sector financial exposure, as at year end 2019

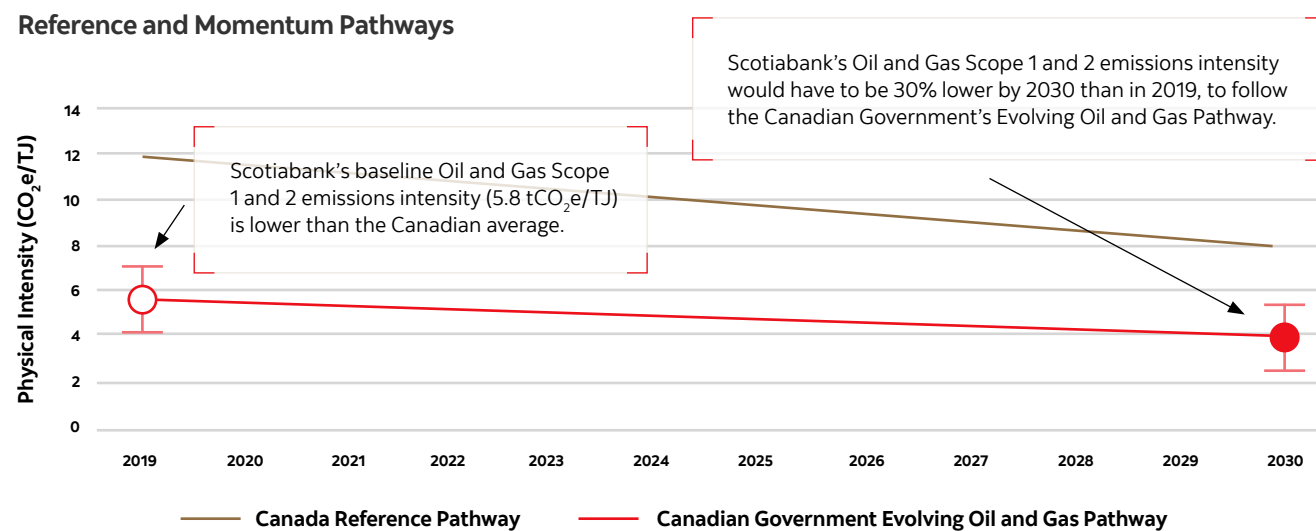


Figure G. Scotiabank's Oil and Gas baseline, emission reduction reference pathways, and 2030 emission reduction target³⁸

Sector Target

Scotiabank commits to a CO₂e emissions intensity reduction target of 30% by 2030 for our Oil and Gas Sector portfolio Scope 1 and Scope 2 emissions.

Scotiabank's Oil and Gas portfolio is comprised of producers operating in highly regulated jurisdictions in Canada and internationally. We anticipate regulations to evolve over time and increasingly more clients' business strategies will include emissions reduction targets which will be evaluated as part of our credit adjudication process.

We are encouraged by the announcement of 2050 and interim net-zero goals of many of many of our oil producer clients. Scotiabank will support our clients in their efforts to realize these goals over the coming years.

Scotiabank's baseline portfolio emissions (Scope 1 and 2) from Oil and Gas clients are lower than the Canadian industry average.³⁹ Currently, the Scope 1 and 2 baseline emissions intensity of our Oil and Gas portfolio is 5.8 tCO₂e/TJ. By 2030, the emissions intensity of our Oil and Gas portfolio would need to decrease by approximately 30% to follow the Canadian Government's Evolving Pathway.⁴⁰

Levers to Decrease Emissions in this Sector

While existing sector plans and regulatory requirements are forecasted to reduce Oil and Gas sector emissions, additional efforts will need to be undertaken over time to meet our portfolio intensity target in this sector (see Figure G above). These actions or levers are summarised in Table C.

Levers	Scope 1 + 2 Emission Intensity (tCO ₂ e/TJ)	Comments
2019 Baseline	5.8	7.8 Scotiabank's current baseline (5.8 tCO ₂ e/TJ) is already lower than Canada Strengthened Climate Plan's 2030 target (7.8 tCO ₂ e/TJ).
Momentum Case		Combining the targets for those companies who have set and reported targets, with the ECCC's reference scenario of policies in place up to September 2020 for companies that have not set targets.
1 Remaining Companies Set 2030 Targets¹		Of the top 20 highest-exposure companies in our portfolio, 5 North American (NA) companies have announced Scope 1 + 2 targets. The assumption is that among the 30 NA companies with the highest exposure (56% of the total exposure), any without targets disclosed will set 2030 targets at the same level of ambition as the average of the 5 NA companies with Scope 1 + 2 targets.
2 Methane Abatement¹		In addition to the aforementioned levers, we assume governments continue incentivizing NA companies to install zero net-cost methane abatement technologies with remainder operated under business-as-usual.
Expected 2030 Emissions Intensity After Levers Execution	4.0	5.8 The expected emissions intensity after executing Lever 1 and 2 implies 31% reduction from 2019 baseline. Scotiabank's portfolio is already below the reference pathway.

Numbers are estimated and assumption-driven, errors bars indicate expected relative deviation

¹ Levers 1 and 2 are based on client engagement with companies in North America. This is because it may be more feasible for Scotiabank to influence these clients until 2030 and focus on other clients in the next phase.

Figure H. Impact of levers on Oil and Gas portfolio emission reductions by 2030

³⁸ Estimates will be improved in the future. Scotiabank continues to address key challenges associated with Oil and Gas emissions estimates, including accounting for differences between parent/subsidiary emissions; increasing data availability for non public companies; and using more accurate emissions factors to estimate client-level emissions.

³⁹ The 2019 emission data is taken from Canada's Reference Case emissions projections to 2030. (The data reports Scope 1 emissions. Scope 2 emissions are estimated based on a proportional share of Scope 1). The 2019 Oil and Gas production data is collected from the reference case for crude oil and natural gas production in Canada's Energy Future 2020, published by Canada Energy Regulator.

⁴⁰ The Canadian Government's Evolving Pathway assumes new climate policies will be established that build on the 2016 Pan-Canadian Framework. The Oil and Gas emissions data for this pathway follows Canada's strengthened climate plan in ECCC GHG Projections (Table 2, Page 3), and an evolving case of crude oil and natural gas production from Canada's Energy Future 2020.

A range of levers exist that we can use to encourage the decarbonization of the Oil and Gas sector. These include:

Lever Categories	Levers for Consideration	Timeline to Impact
Client emission reduction trends: Scopes 1 and 2	Work with clients to continue reducing emissions, especially since many large clients have committed to net-zero emissions by 2050	2030
	Continue to support clients' process-efficiency improvements, resulting in ongoing reduction of production emissions intensity for crude oil and natural gas	
Client emission reduction trends: Offsets and removals	Customer offset programs for emissions that cannot be abated	
	Financing carbon removal projects	
Changing portfolio composition	Finance CCUS projects	2030
	Support borrowers with strong ESG programs (e.g. net-zero pledges)	
	Electrification by connecting project sites to the grid, and investing in natural gas power and solar generation for powering wellsites	
	Increase financing of low-carbon fuel alternatives (e.g. biofuels, syn-fuels)	
	Increase financing of the development of hydrogen infrastructure (e.g. blue hydrogen, from natural gas, or green hydrogen, from electrolysis)	
Policy advocacy	Advocate for government incentives to accelerate industry-wide operational improvements and clean hydrogen economy development	2030
	Advocate for government support for the timely ramp-up of CCUS projects	
	Encourage collection and dissemination of high-quality, decision-useful, sector-wide data	

Table C. Potential levers for emissions reduction for Scotiabank's oil and gas portfolio

In addition to the levers used to support the reduction of Scope 1 and Scope 2 emissions from our clients in the Oil and Gas sector, Scotiabank will also work with clients, governments and other organizations to advocate for a taxonomy that will help direct capital in a manner that enables a smooth and just energy transition.

Oil and Gas Scope 3 Emissions

NZBA guidelines require reporting on and setting targets for our clients' Scope 3 emissions "where significant and data allows."⁴¹ Oil and Gas sector Scope 3 emissions are known to be significant as they include emissions across the many parts of the economy that use fossil fuels for process inputs, electricity and heat generation and transport.

At the present time, company-specific data on Scope 3 emissions is not widely available in any sector, including the Oil and Gas sector, and the data that is available is often estimated based on sector aggregates, and not company-specific data, and hence not useful with respect to managing portfolio emissions. In the absence of reliable, quality client Scope 3 data, and using the estimates derived from aggregated sector data, Scotiabank has estimated our financed Oil and Gas Scope 3 emissions to be **65 tCO₂/TJ** (physical intensity).

Furthermore, based upon the North American momentum pathway for Oil and Gas as well as the IEA WEO SDS pathway for North America, we estimate that Oil and Gas portfolio Scope 3 emissions could be reduced by approximately **15–25% by 2030**. This will depend on the actions taken by not only the Oil and Gas sector, but also the many industrial sectors and end-use consumers in the economy currently reliant on oil and gas, particularly transportation (gasoline, diesel, aviation fuels), petrochemicals, industrial processes, heat generation, and electricity.

This estimate of Oil and Gas portfolio Scope 3 emissions serves as a starting point for more detailed analysis. As portfolio emissions data improves, we will work to refine our estimate, and Scotiabank's 2023 Net Zero Pathways Report will include a reduction target for our Oil and Gas portfolio Scope 3 emissions.

⁴¹Net-Zero Banking Alliance Commitment Statement, accessed January 2022

POWER AND UTILITIES

Power and Utilities is one of the most emissions-intensive sectors in our portfolio, and Scotiabank directly finances and lends to the Power and Utilities sector in Canada, the U.S., and internationally. Utilities distribute generated power to customers and the sector is essential in supporting the daily needs of society. The Power and Utilities sector comprises electricity generation, transmission, and distribution to residential, commercial, and industrial customers. Power generation requires generators that are powered by varying energy sources, including renewables (e.g. hydroelectric, solar, etc.), nuclear, natural gas, petroleum, and coal. Utilities can be owned by investors (most common), governments, or cooperatives.⁴²

Globally, electricity consumption is led by industry, and followed by residential, commercial uses, and to a lesser extent transportation (see Figure I).⁴³ Canada’s electricity comes predominantly from non-emitting sources, with hydropower and nuclear sources generating the majority of Canada’s electricity (see Figure J).⁴⁴ Generation sources vary largely between provinces and territories. In 2018, the Government of Canada also announced regulations to phase out coal-fired electricity by 2030, with various regions having already completely phased out coal fired electricity generation.⁴⁵ Comparatively, electricity generation in the U.S. is largely from natural gas, followed by nuclear, renewables, and coal (see Figure J).⁴⁶

⁴²[Electricity generation, capacity, and sales in the United States - U.S. Energy Information Administration \(EIA\)](#)

⁴³[Electricity total final consumption by sector, 1971-2018 – Charts – Data & Statistics - IEA](#)

⁴⁴[CER – Canada’s Energy Future 2021 Fact Sheet : Electricity \(cer-rec.gc.ca\)](#)

⁴⁵[Government of Canada coal phase-out: the Powering Past Coal Alliance](#)

⁴⁶[Electricity in the U.S. - U.S. Energy Information Administration \(EIA\)](#)

⁴⁷[IEA, Electricity total final consumption by sector, 1971-2018, IEA, Paris](#)

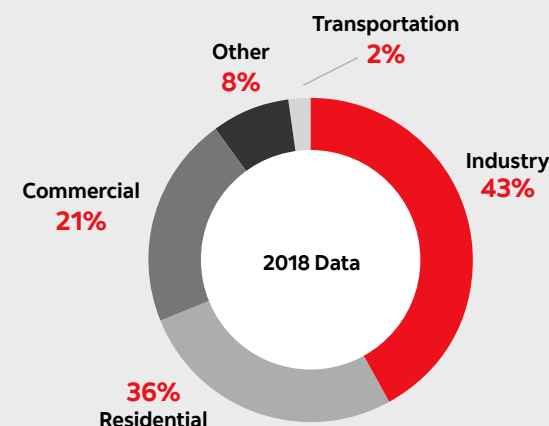
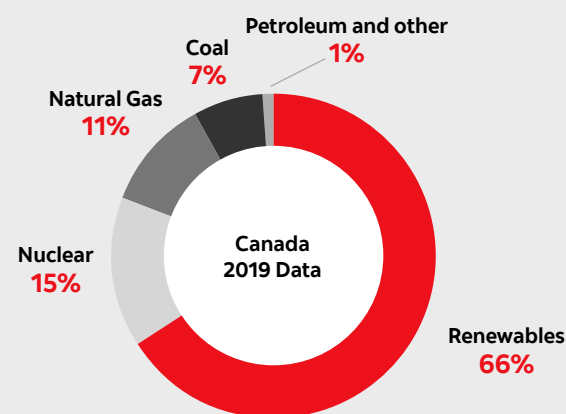


Figure I. Global electricity total final consumption, by sector ⁴⁷

A: PRIMARY ENERGY SOURCES TO GENERATE ELECTRICITY (CANADA)



B: PRIMARY ENERGY SOURCES TO GENERATE ELECTRICITY (U.S.)

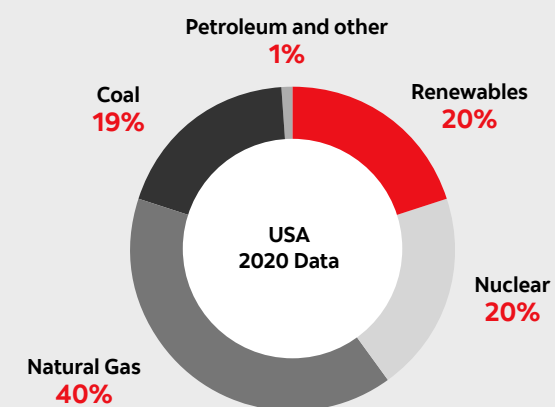


Figure J. Primary energy sources used to generate electricity in Canada and USA, in TWh ^{44, 46}

While fossil fuels continue to play an important role in power generation in North America, and globally, the Power and Utilities sector is in a state of transition. Many companies in this sector are releasing net-zero targets and plans, while simultaneously reporting on climate impact. Many of these clients are investing in more clean and renewable sources of power, a shift enabled by the decreasing costs of clean power sources. For example, the median global cost (measured in dollars per MWh) of onshore and offshore wind, and utility-scale solar photovoltaic, declined between 2015 and 2020.^{48, 49} In parallel, governments in many of the countries where Scotiabank operates are encouraging the development of more renewable energy supply sources through new incentives and regulations. The Government of Canada is setting natural gas electricity generation performance standards and allocating resources to expand hydrogen's role in the country's energy systems.^{50, 51} Power grid operators are also investing in more transmission capacity, smart grids, and ancillary storage for renewables.

As low-carbon electrification is a key strategy for decarbonizing the North American economy, the Power and Utilities sector is expected to continue to grow. The Canadian Energy Regulator's Canada Energy Future 2020 report predicts electricity demand to grow from 555TWh in 2018 to 733 TWh in 2050, with a large projected increase from the transportation sector (see Figure K).⁵² In the U.S., electricity demand is expected to increase across all sectors, particularly in the transportation sector (see Figure L).⁵³

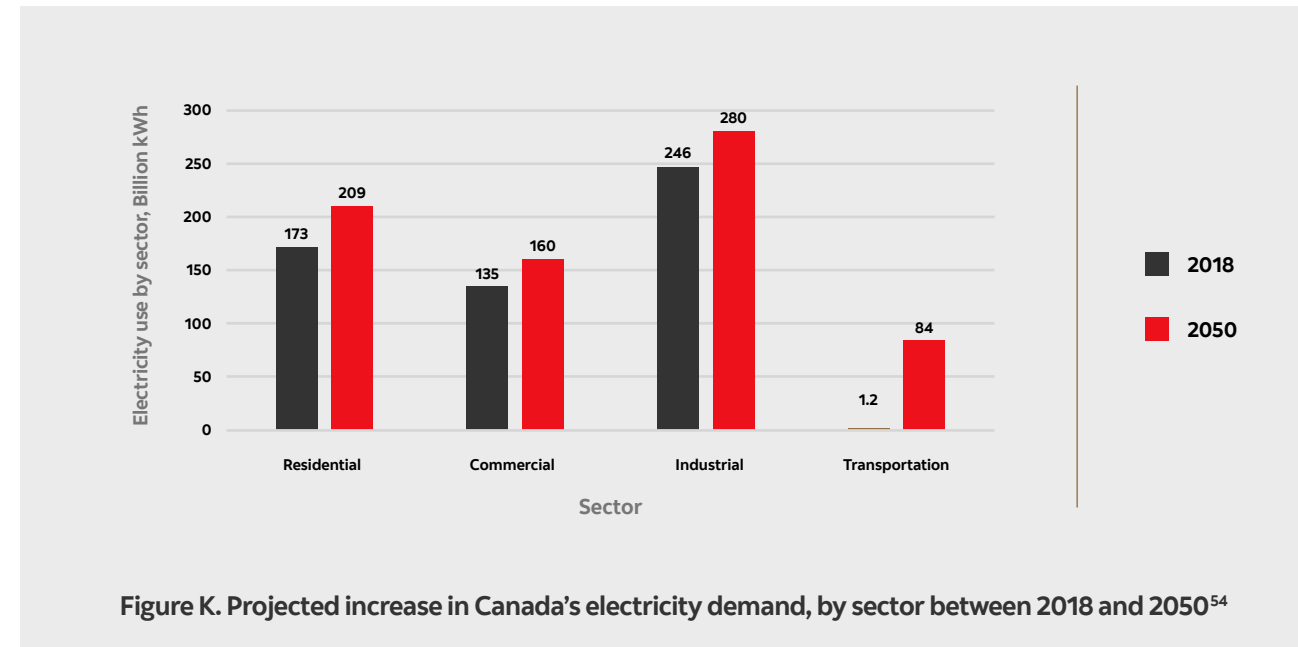


Figure K. Projected increase in Canada's electricity demand, by sector between 2018 and 2050⁵⁴

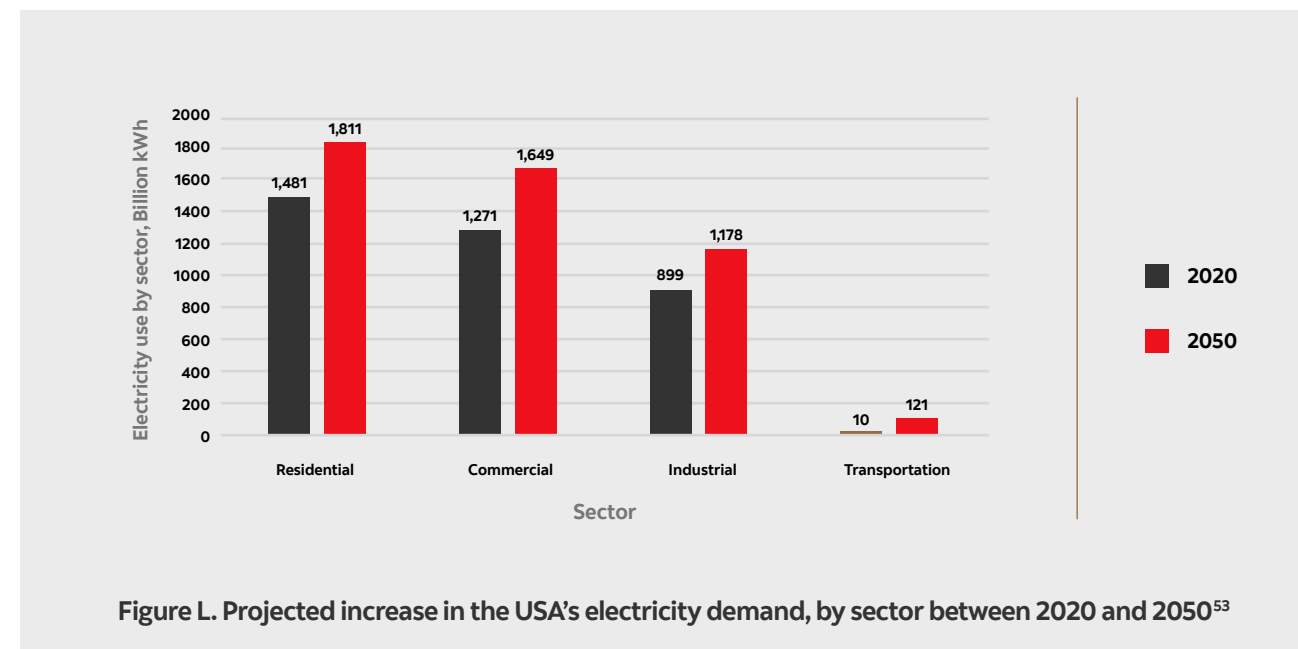


Figure L. Projected increase in the USA's electricity demand, by sector between 2020 and 2050⁵³



⁴⁸IEA (2015), *Projected Costs of Generating Electricity 2015*, IEA, Paris

⁴⁹IEA (2020), *Projected Costs of Generating Electricity 2020*, IEA, Paris

⁵⁰Government of Canada. (2018). *Federal actions for a clean growth economy: Electricity*

⁵¹Government of Canada. (2021). *The Hydrogen Strategy*

⁵²CER, 2020. *Canada's Energy Future 2020 Results*

⁵³US Energy Information Administration. (2021). *Annual Energy Outlook 2021 – Electricity*

⁵⁴Data from Figure R.17 of CER, 2020. *Canada's Energy Future 2020 Results*

Sector Exposure

Scotiabank's targets encompass the Scope 1 and Scope 2 emissions of the electricity generation portion for our international (including Canada) Power and Utilities portfolio. Scope 3 emissions from this sector are not deemed to be significant compared to its Scope 1 and 2 emissions, and thus are not included in our calculations of baseline financed emissions or decarbonization targets. Figure M shows the international diversity of the Bank's portfolio.

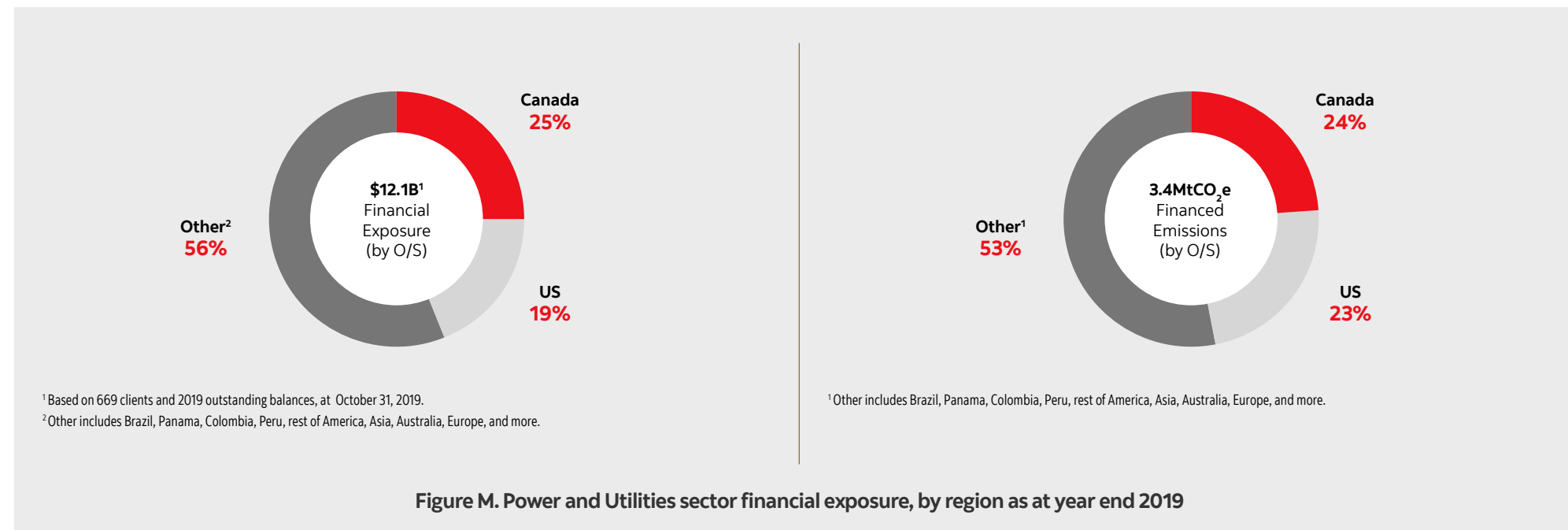


Figure M. Power and Utilities sector financial exposure, by region as at year end 2019

COMMON EMISSION SOURCES FROM THIS SECTOR:

- Fuel combustion (e.g. natural gas to electricity) to generate power
- Energy losses from inefficiencies in conversion

Reference and Momentum Pathways

As our Power and Utilities portfolio is global, the Bank has selected the IEA's Net-Zero Emissions by 2050 (IEA NZE) pathway as the reference pathway for this sector. IEA is one of the few sources providing the required level of detail for portfolio alignment.

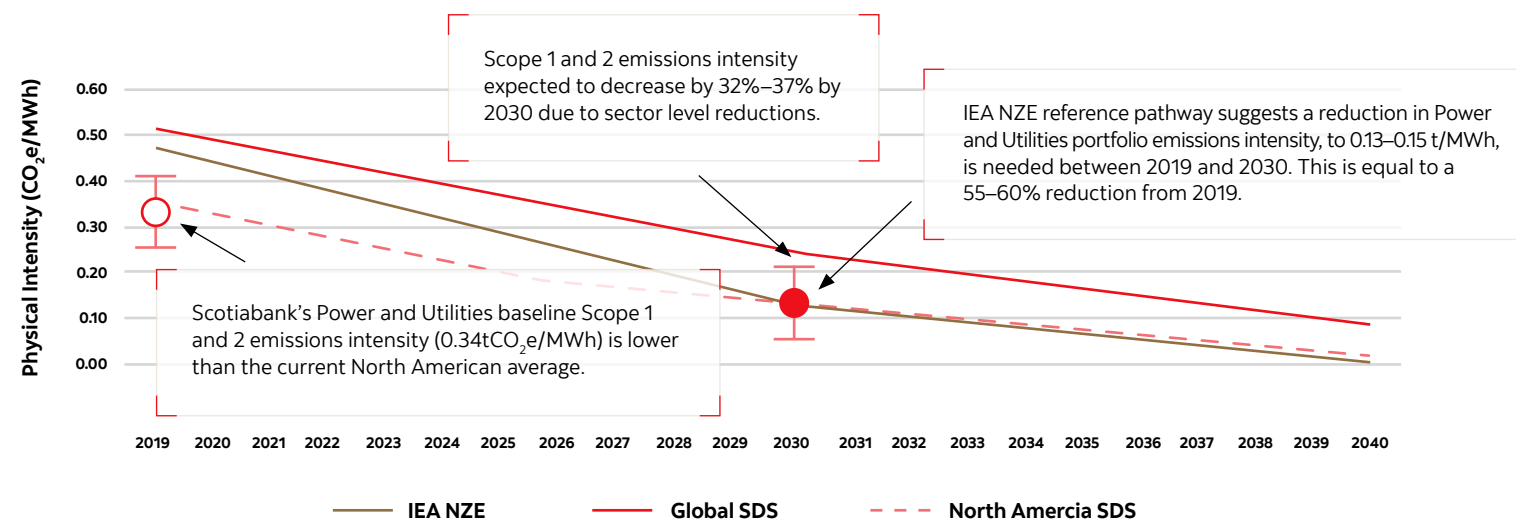


Figure N. Scotiabank's Power and Utilities baseline Scope 1 and 2 emissions intensity, emission reduction reference pathways, and 2030 emission reduction target

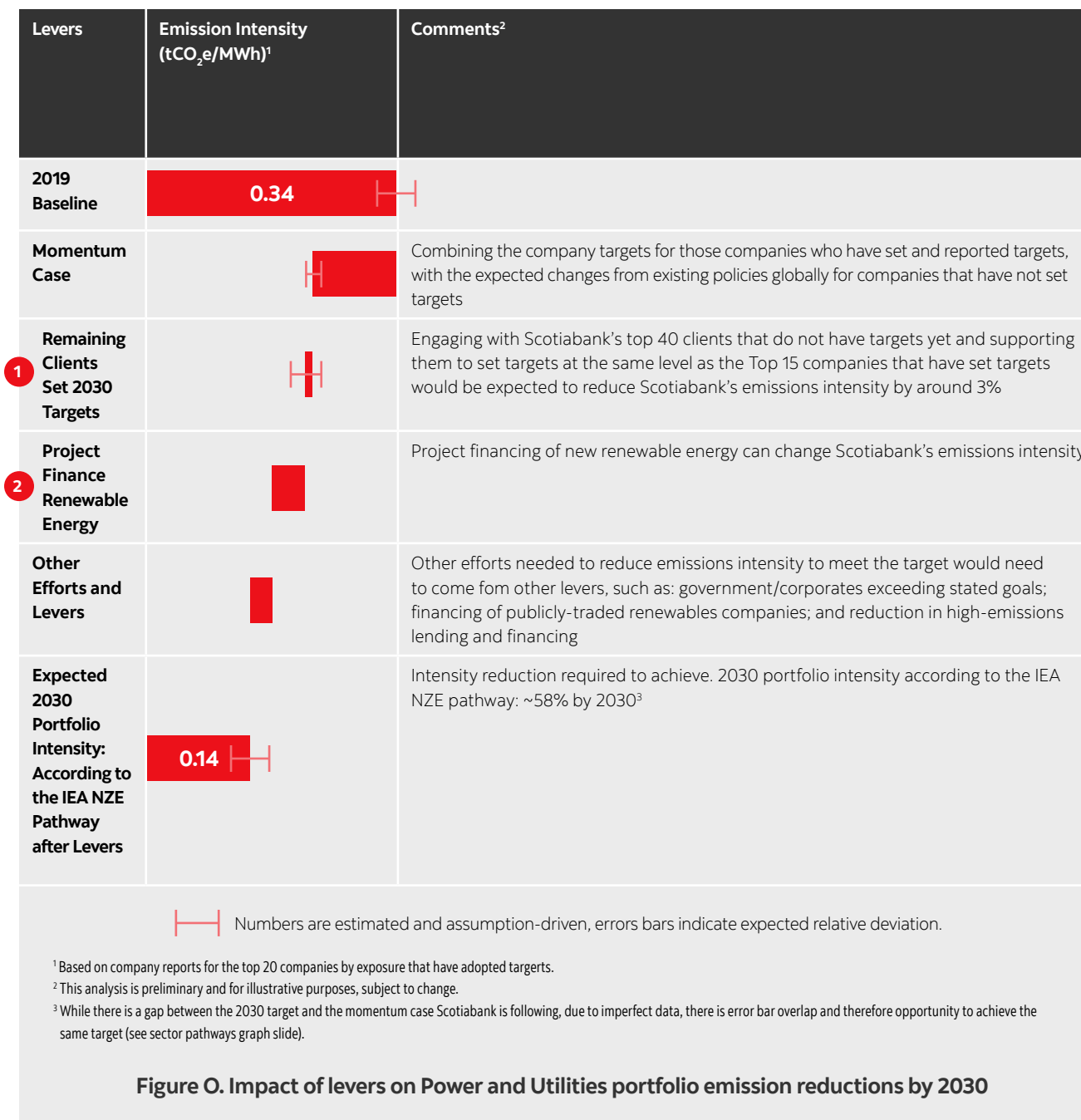
Pathway Components	IEA Net-Zero Pathway (2021)
Temperature ambition	1.5 degrees
Net-zero target year	2050
Residential coverage	Global
Key features of the pathways	<p>Net-zero in the Power sector by 2040 globally, and by 2035 in advanced economies</p> <p>Phase out of unabated coal in advanced economies</p> <p>90% of global electricity generation in 2050 comes from renewable sources with solar PV plus wind accounting for ~70%</p>

Table D. Features of the IEA Net-Zero Pathway

Sector Target

Scotiabank commits to reducing the Scope 1 and 2 financed emissions intensity of our Power and Utilities portfolio by 55–60% by 2030.

Scotiabank’s baseline Scope 1 and 2 financed emissions intensity of 0.34tCO₂e/MWh⁵⁵ is lower than the current North American average. The intensity is expected to reduce as a result of sector-level reductions (i.e. the momentum pathway), but further actions would be required to reach a 2030 portfolio intensity aligned to the IEA NZE pathway. The Scope 1 and 2 financed emissions intensity of Scotiabank’s Power and Utilities portfolio would need to be reduced by 55–60% to align with the IEA NZE pathway.



Levers to Decrease Emissions in this Sector

While existing sector plans and regulatory requirements are forecasted to reduce the emissions of the Power and Utilities sector, additional efforts will need to be enacted over time to meet our portfolio intensity target in this sector (see Figure O). These actions or levers are summarized in Table E.

⁵⁵ Calculated using 2019 power and utilities outstanding loans and acceptances, as per PCAF Standard methodology

Lever Categories	Levers for Consideration	Timeline to Impact
Improvements in data quality	Work to tie the CO ₂ data to the actual emitting entities vs. consolidating at the HoldCo level	2030
	Track year-over-year fossil fuel retirements	
	Further refine Scotiabank's internal data	
	Track client progress to announced goals	
Changing portfolio composition	Finance renewables growth	2030
	Increase support for lower carbon-emitting utilities	
Counterparty engagement	Work with clients to ensure consistency with clients' net-zero goals.	2030
	Share Scotiabank's net-zero targets and plans	
	Engage with high-performing clients to increase their CO ₂ reduction targets.	
Policy advocacy	Advocate for government publishing of physical, revenue, and asset emissions factors	2025
	Advocate for government 1.5°C pathway for sector	

Table E. Potential levers for emissions reductions for Scotiabank's Power and Utilities portfolio

As with other sectors, achieving our net-zero targets will require governments to set goals and introduce effective policies to ensure those goals are met. For example, the U.S. Government intends for the country's electricity grid to be running 100% on clean sources by 2035 to meet its net-zero goals. This involves cutting energy waste, shifting to cleaner electricity and electric vehicles, electrification of buildings, and parts of industry, and scaling up new energy sources.

The Government of Canada is phasing out coal-fired power across the country by 2030, increasing the supply of non-emitting electricity. At the same time, it is working to connect more parts of the economy to this supply. By 2050, Canada will need to produce two to three times as much clean power as it does right now, in order to accelerate the electrification of its economy. Canada is already a world leader in zero-carbon power, generating approximately 82% of its electricity from non-emitting sources, such as water, wind, solar and nuclear, and the Government of Canada intends to build on that foundation.⁵⁶

Consistent with the above, the Government of Canada's 2021 Climate Change Plan commits the federal government to investing in reducing emissions from power generated by burning fossil fuels, and connecting more places to non-emitting sources of power.

RESIDENTIAL MORTGAGES

Approximately 55% of Scotiabank's global outstanding loans and acceptances in 2019 (excluding personal loans and credit cards) was to residential mortgage holders in Canada. 84% of Scotiabank's residential mortgages in 2019 were located in Canada.

Decarbonizing the Residential Real Estate sector is key to the Bank's achievement of net-zero emissions. Emissions associated with this sector arise mainly from direct Scope 1 emissions (from home heating with oil or natural gas furnaces) and Scope 2 emissions (from electricity used for lighting, appliances, heating and cooling), all at the mortgage-holder level. Scope 3 emissions from this sector are not deemed to be significant in comparison with the Scope 1 and 2 emissions, and so are not included in our analysis at this time.

Scotiabank's Scope 1 and 2 financed emissions for Canadian residential mortgages are estimated to be 2.3MtCO₂e. However, this figure is associated with a large margin of error, as the estimate uses provincial averages for emissions intensity and area of homes.^{57,58}

This sector is an important part of Canada's goal to achieve a net-zero economy by 2050. The Government of Canada's Clean Canada 2030 economy-wide target is 513Mt CO₂e (or a 302Mt CO₂e reduction by 2030 from 2017), and the Building sector is expected to contribute 15% (44Mt CO₂e) of the total reductions required to achieve the 2030 target.⁵⁹ Energy consumption from the Canadian housing sector is expected to increase due to weather conditions (which increases the need for cooling), anticipated increases in population and increases in total floor space required. Energy efficiency and electrification of home heating is therefore required to achieve mitigation targets for the broader Building sector and, by extension, Scotiabank's Residential Mortgages portfolio.

⁵⁶ [Government of Canada Climate Plan 2020](#)

⁵⁷ Scotiabank calculated a PCAF data score of 4.5 for its financed emissions in the Canadian Residential Mortgages sector due to data limitations

⁵⁸ PCAF data scores range from 1 to 5, with 5 being poor data quality and 1 being excellent

⁵⁹ [Government of Canada. \(2019\). Clean Canada: protecting the environment and growing our economy](#)

Sector exposure (FY 2019)

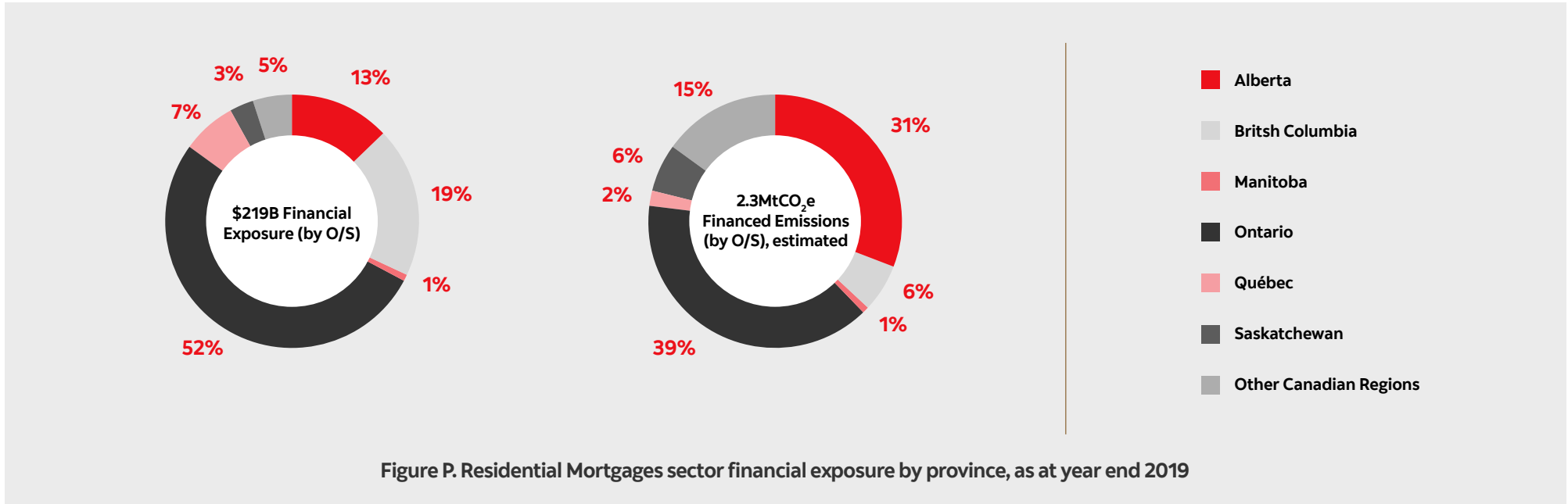
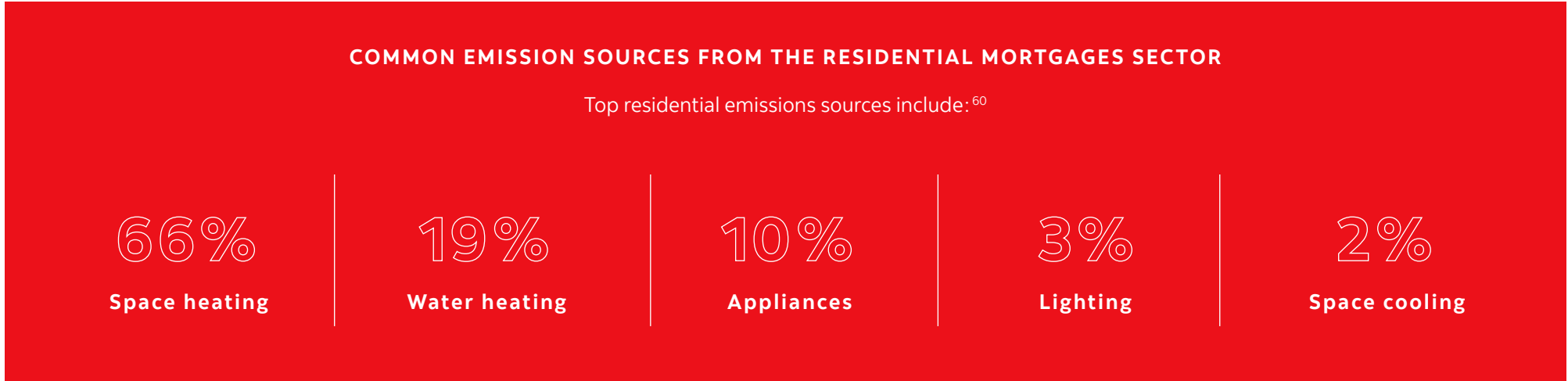
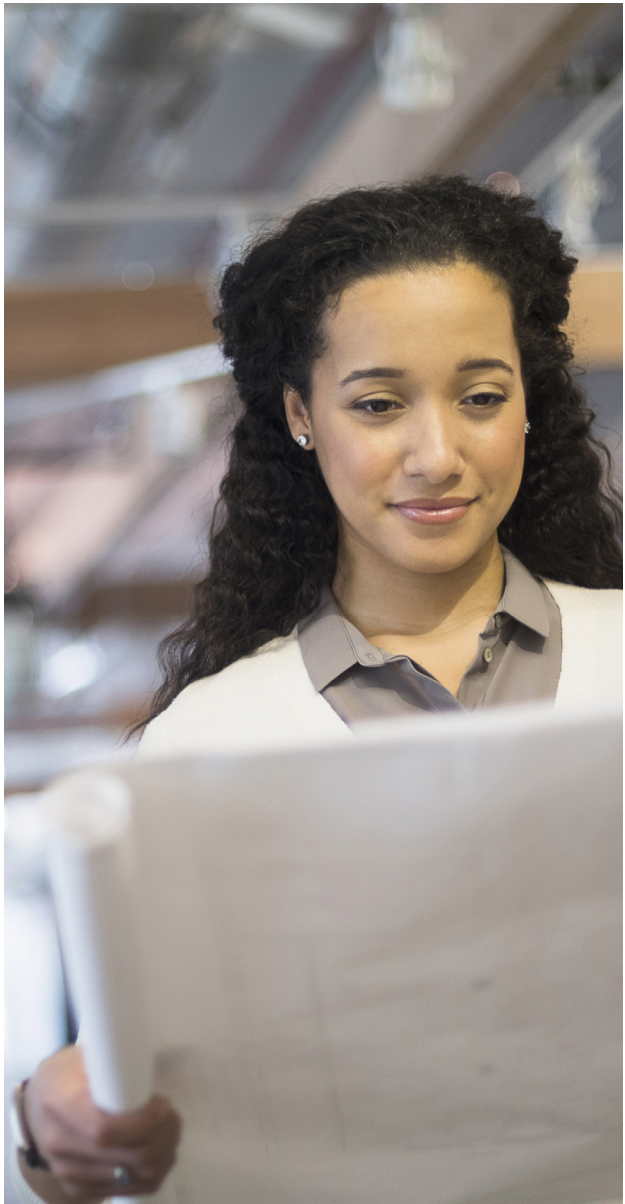


Figure P. Residential Mortgages sector financial exposure by province, as at year end 2019



⁶⁰Natural Resources Canada: Canada's GHG Emissions by Sector 2018 data

Reference and Momentum Pathways

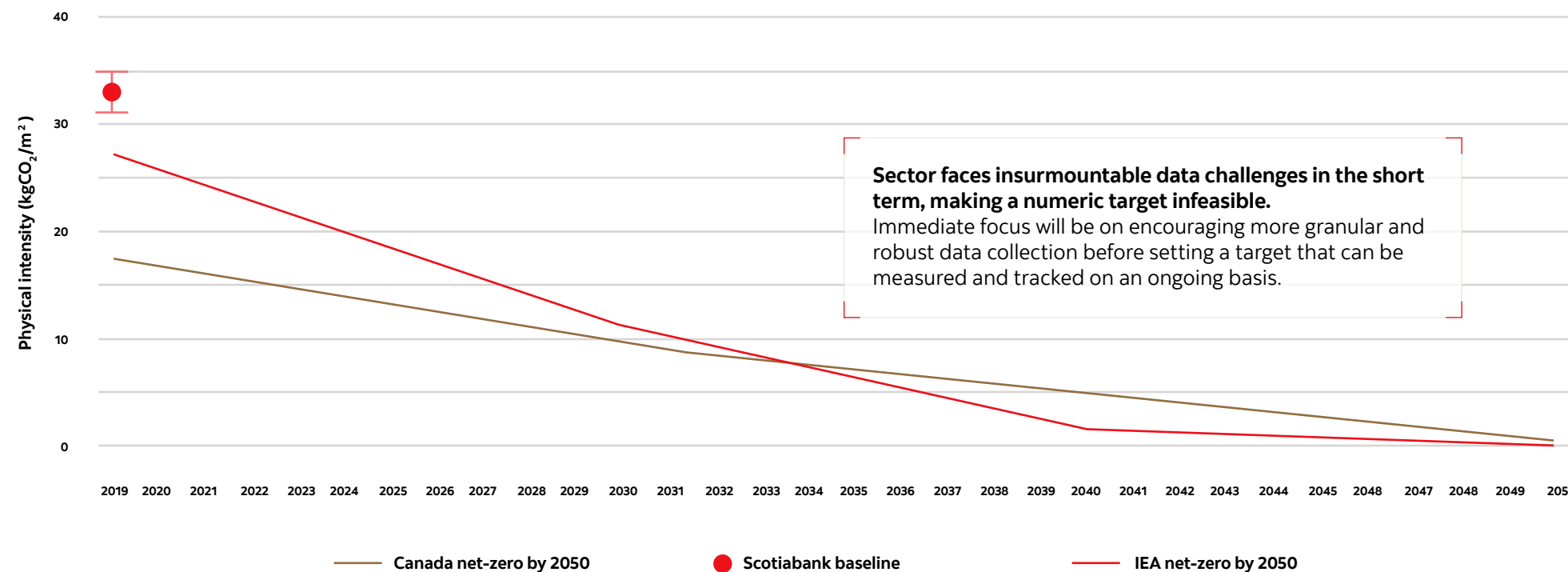


Figure Q. Estimated reference pathways for the Residential Mortgages sector

As the majority of Scotiabank’s residential mortgages are located within Canada, the Bank has selected a Canadian “Net-Zero by 2050 pathway”— which is aligned to a temperature ambition of 1.5 °C — as the reference case for its Residential Mortgages sector.⁶¹

The Canada-specific pathway combines emissions and floor space projections for residential buildings from different sources using various assumptions and may not be robust.⁶²

⁶¹This pathway was constructed internally based on data from [Trottier’s Canadian Energy Outlook 2021 report](#).

⁶²As Scotiabank secures better data, we will work to align our pathway and target to the government’s Canada-specific pathway. Scotiabank will also stay current on any evolution of the government’s pathway.

Pathway Components	Canada Net-Zero by 2050 Pathway
Temperature ambition	1.5 degrees
Net-zero target year	2050
Residential coverage	Canada
Key features of the pathways	<p>This pathway uses the NZ50 emissions projections from the Canadian Energy Outlook 2021</p> <p>The emissions scenario imposes an emissions target by 2030</p> <p>The floor space is projected based on 2018 data for the Canadian Residential sector and reference case growth projections from the ECCC 2021</p>

Table F. Features of Canada’s Net-Zero by 2050 Pathway

Sector Target

The availability of greenhouse gas emissions data for residential real estate is extremely poor.

Available emissions data is typically based on provincial averages and therefore does not reflect Scotiabank’s mortgage portfolio. Furthermore, information regarding floor space is estimated, making emissions-intensity calculations difficult. As a result, we are unable to establish an accurate baseline number for emissions associated with residential mortgages and unable to capture emissions reductions from client-level activities. For this reason, we are not setting a target for decarbonization in this sector at this time.

Levers to Decrease Emissions in this Sector

Addressing the challenges in the Residential Mortgages sector will require implementation of levers in a variety of areas, starting with enabling efforts to calculate and disclose greenhouse gas emissions data for individual homes. In spite of the lack of reliable residential mortgage emissions data, Scotiabank will proceed with activities to support the decarbonization of that sector. See table at right.

Challenges to Address	Levers for Consideration	Timeline to Impact
Data quality	Collaborate with industry experts, government, and peers to improve data availability and quality	Mid-term
Client awareness	Promote awareness and linkage to government incentives to encourage energy efficiency and fuel switching	Short-term
Policy advocacy	Raise awareness for policies to promote fuel switching, greening electricity supply, energy labelling, and minimum building standards	Mid-term

Table G. Potential levers for emissions reductions in the Residential Mortgages sector

We will focus on helping our clients collect more granular and robust data before setting a measurable target that can be tracked on an ongoing basis.

AGRICULTURE

Approximately 30% of Scotiabank’s Scope 1 and 2 financed emissions in the four priority sectors are estimated to come from the Agriculture sector, making decarbonization of this sector an essential part of our net-zero strategy. Scope 3 emissions from this sector are not deemed to be significant in comparison with the Scope 1 and 2 emissions, and so are not included in our analysis at this time.

Approximately 60% of the agriculture portfolio is based in Canada. Scotiabank’s financed emissions from our Canadian Agriculture portfolio are estimated to be approximately 3.9MtCO₂e. However, this figure is associated with a large margin of error, as client-specific data is currently largely unavailable.

Several decarbonization activities are already underway in the Agriculture sector. For example, the Government of Canada established the Agricultural Climate Solutions Program to research and promote uptake of low-carbon aligned agricultural practices.⁶³ Regenerative agricultural practices are being adopted to promote soil health and resiliency, including low/no till, shelterbelts, cover crops, and inter-species planting. Companies in the growing carbon credit market are leveraging agricultural lands for carbon sequestration.

In the digital space, emissions-tracking software solutions are being developed to help farmers calculate baseline and emission reductions for their operations.

However, continued decarbonization of the Agriculture sector also involves significant challenges:

- Given the various specializations within the sector (e.g. dairy, grains and oilseeds, poultry, cattle, wheat farming, etc.) selecting a single pathway and target is not feasible at this time.
- No granular data exists for the different sector specializations fully covered by the Bank’s portfolio.
- The emissions in the Agriculture sector are difficult to abate because significant coordination between many players is required, and sequestration sources and capacity is less well-understood.
- Many agriculture-related emissions are outside the control of individual farmers and the Bank.

⁶³ Government of Canada Agricultural Climate Solutions: Program, accessed January 2022

Sector Exposure

According to the Government of Canada, in 2019, Canada's Agriculture sector contributed 59MtCO₂e, or 8.1%, of Canada's total emissions; this includes 29% of Canada's methane emissions and 78% of national nitrous oxide emissions.⁶⁴

In 2019, emissions from livestock digestion (enteric fermentation) accounted for 41% of total agricultural emissions, and the application of inorganic nitrogen fertilizers accounted for 24% of total agricultural emissions.⁶⁵

The Canadian Agriculture sector also acts as a carbon sink, with cropland sequestering 4.2MtCO₂e in 2019. Canada's 2021 NDC submission⁶⁶ commits the federal government to support clean technologies in the Agriculture sector, supporting on-farm climate action (e.g., improve nitrogen management, increase adoption of cover cropping) through increased investments in agricultural climate solutions, and setting a national emissions reduction target for emissions from fertilizers of 30% below 2020 levels by 2030.

⁶⁴Government of Canada Greenhouse gas sources and sinks: executive summary 2021

⁶⁵Part 1 and 3 of 2019 data from the Government of Canada's National inventory report: greenhouse gas sources and sinks in Canada

⁶⁶Canada's 2021 Nationally Determined Contribution Under the Paris Agreement

⁶⁷Part 1 and 3 of 2019 data from the Government of Canada's National inventory report: greenhouse gas sources and sinks in Canada / Modified image from source: Government of Alberta Ministry of Agriculture, Forestry and Rural Economic Development- Beneficial Management Practices: Environmental Manual for Crop Producers in Alberta / Government of Canada greenhouse gas sources and sinks: executive summary 2021

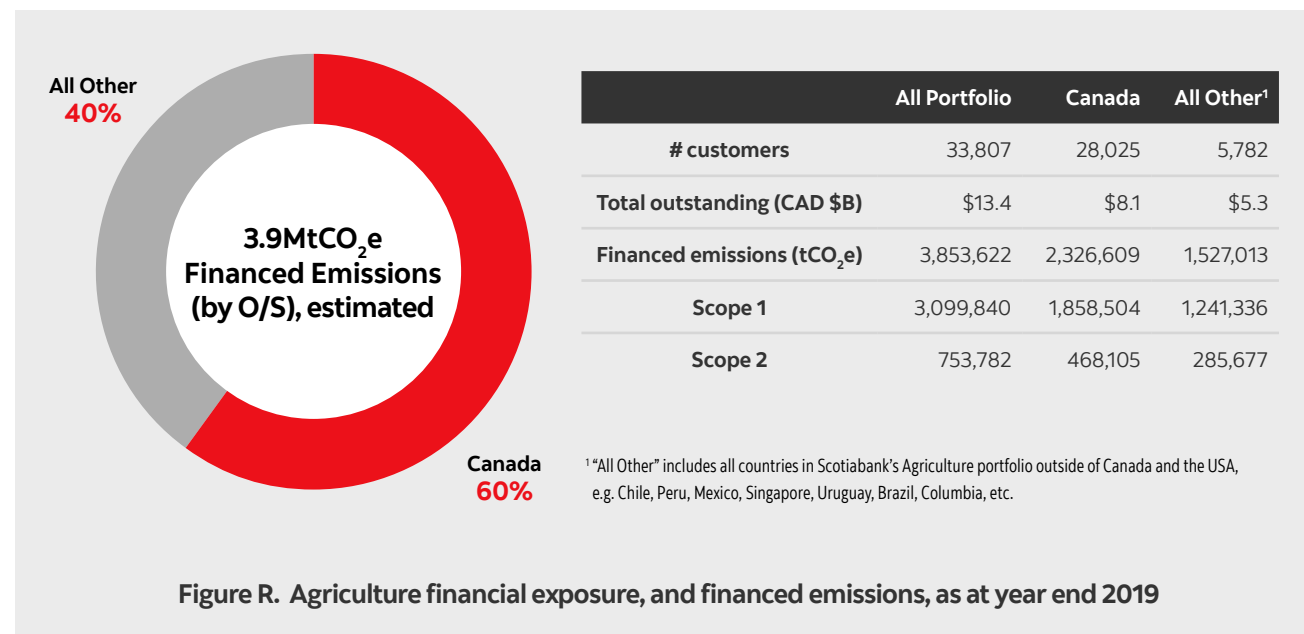


Figure R. Agriculture financial exposure, and financed emissions, as at year end 2019

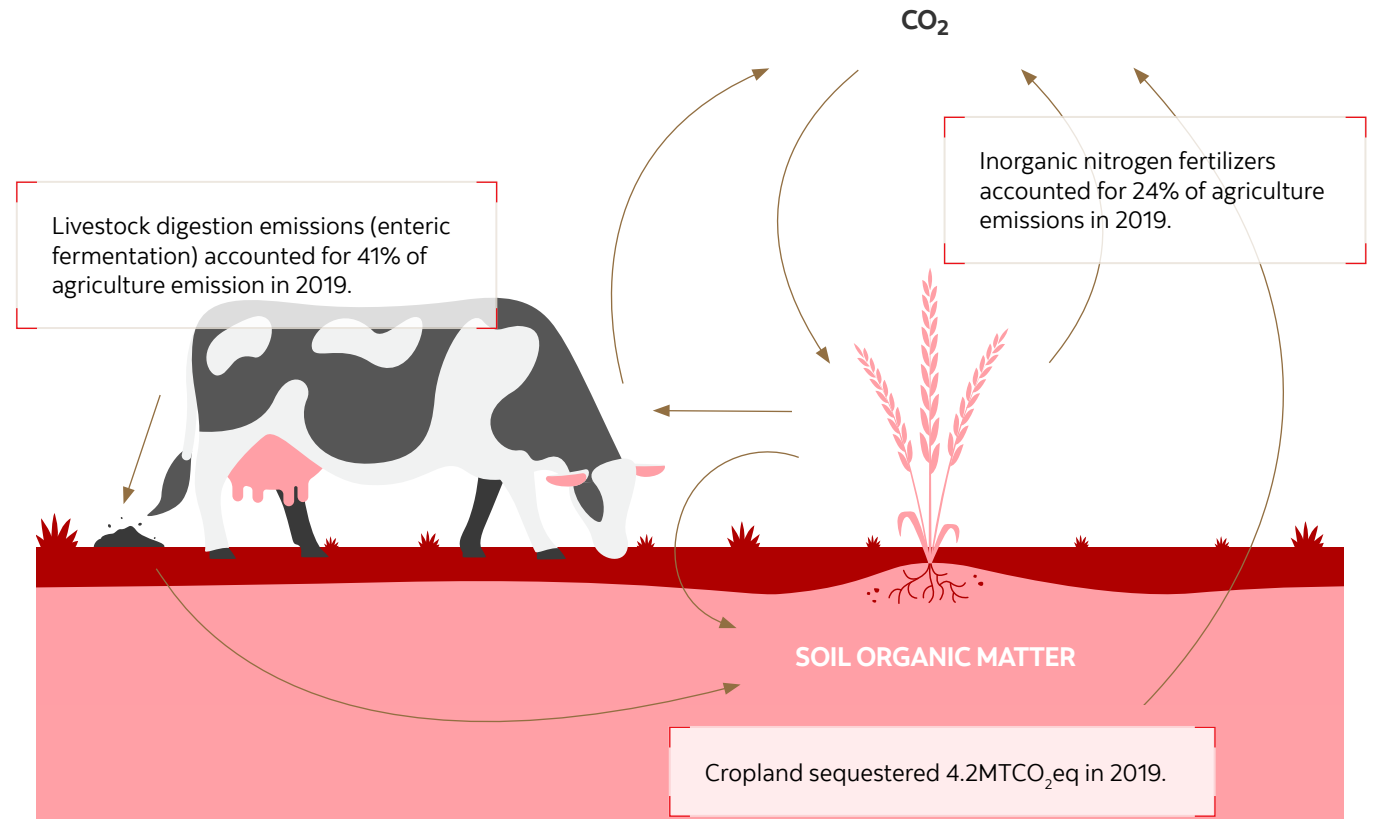


Figure S. Simplified diagram of the flow of CO₂e emissions in agriculture⁶⁷

COMMON EMISSION SOURCES FROM THIS SECTOR:⁶⁵

- Methane (CH₄) from livestock digestion accounted for 41% of Canadian agricultural emissions (2019).
- Nitrous oxide (N₂O) from fertilizer application to crops accounted for 24% of Canadian Agriculture emissions in 2019.
- On-farm fuel use from stationary combustion, transportation and agriculture process emissions also contributes to agricultural emissions.

Reference and Momentum Pathways

As the majority of Scotiabank’s agriculture clients’ GHG emissions originate within Canada, the Bank has selected Canada’s 2021 Climate Change Plan – A Healthy Environment and a Healthy Economy as the appropriate benchmark for the Agriculture sector (see table, right). However, there is presently no Canadian agriculture-specific pathway.

Sector Target

Given the lack of quality data in the Agriculture sector, it is premature to select a pathway and targets for the Bank’s Canadian Agriculture portfolio at this time.

Pathway Components	Canada’s Climate Plan (2021) ⁶⁸
Temperature ambition	2 degrees
Net-zero target year	2050
Residential coverage	Canada
Key features of the pathways	<p>Canada has an emissions-reduction target under the Paris Agreement of 40-45% below 2005 levels by 2030.</p> <p>Canada’s Climate Plan explicitly acknowledges the Paris Agreement’s ambition of limiting increases to “well below 2°C” — yet instead commits Canada to a relative percentage reduction rather than a temperature ambition.</p> <p>The Canadian Government has committed to achieving a net-zero emissions economy by 2050 — with a series of 5-year reduction targets, annual carbon price increases, and spending to decarbonize select sectors under its control.</p> <p>Sector-specific pathways will be published in early 2022.</p>

Table H. Features of Canada’s Climate Plan

⁶⁸ [Government of Canada, 2021-22 Departmental Plan: Environment and Climate Change Canada](#)
 [Note: this pathway is not agriculture-specific.]

Levers to Decrease Emissions in This Sector

In spite of the lack of reliable Agriculture sector emissions data at this time, Scotiabank will proceed with several activities to support sector decarbonization of that sector. Addressing these challenges will require implementation of levers in the following areas:

Lever Categories	Levers for Consideration	Timeline to Impact
Emissions data quality	Collaborate with peer banks and/or industry organizations and/or academic organizations to fund studies of emissions and emissions intensities in different parts of the Agriculture sector (including contributions as a carbon sink to reduce emissions)	Long-term
Awareness of low carbon opportunities	Help clients reduce emissions of existing operations by outlining best practices seen in similar operations and being a conduit of information around ways to reduce emissions.	Short-term
	Promote awareness and linkage to government incentives to enable energy efficiency and fuel switching	
Lack of incentives	Showcase sustainable agricultural best practices to stakeholders (including government and consumers) to further drive support for environmentally responsible farming	Mid-term
	Consider extended payment plans and incentive rates to operations focused on reducing emissions in their operations	
Policy advocacy	Participate in engagement opportunities to inform Canada’s Agricultural Policy Framework	Short-term

Table I. Potential levers for emissions reductions in the Agriculture sector

Scotiabank will focus on defining a more robust baseline and tracking emissions as more data are collected by clients. We will continue to monitor international developments (including the US government’s recently announced focus on reducing methane emissions in natural gas and agriculture) and consider setting targets as more region-specific pathways and data are available.

Net-Zero Operations

Scotiabank has committed to net-zero operations⁶⁹ by 2030. Most of the CO2 emissions from our own operations are Scope 1 emissions from the use of oil or natural gas in furnaces and boilers, and Scope 2 emissions from purchased electricity. In estimating our operational carbon footprint, we presently also include Scope 3 emissions associated with business travel.

Scotiabank has taken a leadership role in decarbonizing our own operations, across multiple markets, by employing an enterprise-wide strategy including:

- Reducing operational emissions from owned and leased spaces, and increasing our use of renewable energy
- Assessing climate change physical risks to build in resilience and help protect physical assets, business, and communities
- Revising procurement policies and procedures to incorporate climate change considerations

At year-end 2020 Scotiabank had achieved a 20% reduction in Scope 1 and 2 GHG emissions compared to 2016 through:

- Investments in building innovation including more efficient lighting and HVAC technology
- Increasing building standards for all new constructions
- More efficient use of space reducing total square footage while serving a growing customer base

Achieving net-zero status by 2030 will be enabled by continued investment in energy efficiency, while sourcing 100% of the Bank's electricity from non-emitting sources by 2025 in Canada and by 2030 globally. In markets where non-emitting sources are unavailable, we will consider the use of quality offsets to meet our operational emissions targets.

As part of our commitment to the Carbon Pricing Leadership Coalition, established in 2016, investments in energy efficiency are incented through a pool of capital generated through the Bank's internal price on carbon. Our internal carbon price was \$45/tCO₂e in 2021. This generated a \$5 million pool of capital deployed on solutions to reduce energy use and CO₂ emissions.

We will continue to apply an increasing internal price on carbon — \$60/tCO₂e in 2022 — to our own operational emissions.

With operations across the Americas, Scotiabank will manage decarbonization plans and efforts on a country-by-country basis. Scotiabank is considering different renewable energy and emission offset opportunities that address local needs, and the Bank's overarching climate targets. More information will be included in forthcoming annual updates.

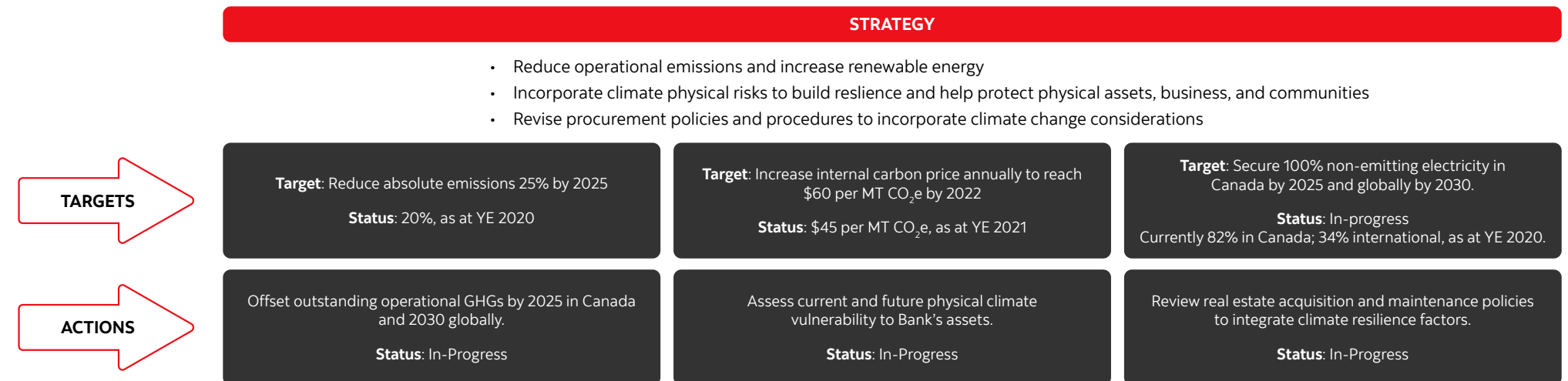


Figure T. Scotiabank's net-zero emissions operational strategy, targets and actions

⁶⁹Operations are defined as the Bank's footprint for completing its business activities, e.g. head office, branches, data centers, etc.

Deploying Climate-Related Financing

Moving forward, Scotiabank plans to mobilize **\$350 billion in climate-related capital by 2030⁷⁰** — replacing our previous goal of **\$100 billion by 2025** — in order to ensure we are playing a strong role in responding to the need for greater quantities of capital to address the causes and impacts of climate change.



Partnering to Advance a Net-Zero Economy

Moving toward a net-zero economy will require the scale up and deployment of effective public policy and technologies that enable changes in the way the economy operates, and particularly:

- Energy efficiency
- Massive electrification
- Zero-emissions electricity
- Zero-emissions transportation
- Decarbonizing industrial processes

Lowering emissions will also require sector-specific initiatives, for example, the need for enhanced building standards, or better data for the Agriculture sector.

To address such issues, **we have allocated \$25 million over 10 years to support non-profit and charitable partnerships that enable climate change mitigation and adaptation.** This includes our \$10 million Net-Zero Research Fund to help advance research in support of the transition to a low-carbon economy. In 2021 we provided \$1 million in grants to ten universities and research organizations to support public policy and science and technology research for the reduction of carbon emissions.

Scotiabank is committed to continued collaboration with industry experts, academic researchers, governments, financial sector peers and clients to effectively transition to a net-zero economy.

Scotiabank participates with various groups to help advance collaborative approaches to decarbonization. We are members of the UN's Net-Zero Banking Alliance (NZBA), a global, industry-led initiative to accelerate and support efforts of the banking sector to address climate change. This partnership allows us to work in lockstep with peers to encourage the transition to a net-zero economy. Since 1992, we have also been members of the UN Environment Programme Finance Initiative (UNEPFI), a partnership between the UN Environment Programme and the global financial sector to mobilize private-sector finance for sustainable development.

We are a member of Climate Engagement Canada, a finance-led initiative that drives dialogue between the financial community and corporate issuers to promote a just transition to a net-zero economy. We also hold a seat on the Canadian federal government's Sustainable Finance Action Council (SFAC), an organization that brings together public and private sector financial expertise to help strengthen the mobilization of private capital in support of the Government of Canada's climate goals.

We are a founding partner of the Institute for Sustainable Finance (ISF) at the Smith School of Business at Queen's University, applying Scotiabank's \$1.25 million in funding for further research and education to innovate for Canada's future in sustainable finance.

We actively coordinate with Canadian peers to help advocate for the development of more relevant decarbonization pathways, climate policies, and systems change and engage experts to bolster in-house training on climate change.

As progress will require collaboration with stakeholders at various levels of government, business, non-governmental organizations, and the general public, we have identified five areas of engagement for the Bank:

- Collaborate with other external stakeholders and experts to improve data availability and quality in order to strengthen sector-wide financed emission estimates
- Promote client awareness of financial incentives and best practices that encourage adoption of green and clean sustainable solutions
- Work with think tanks and governments to encourage greening the electricity supply mix and facilitate funding for individual actions towards sustainability
- Partner with thought leaders including academia and not-for-profit organizations to encourage, facilitate and fund new research, data collection and developments
- Support others in delivering innovative products and services designed to decarbonize the economy

⁷⁰Measured from November 1, 2018 starting date.

Governance, Management and Oversight

Enacting our net-zero ambition will require strong leadership and governance, a key strength of our Bank. In 2021, Scotiabank was awarded the highest available score in Corporate Governance by the Dow Jones Sustainability Index, placing it in the top 1% among global financial institutions.

Scotiabank has instituted various management and governance processes to ensure effective climate risk management, oversight, and reporting. Climate-related risks are identified using the Bank’s environmental risk management process, guided by Scotiabank’s Environmental Risk Management Framework.

Climate-related risks are reported quarterly to the Board of Directors and various committees, including: the Risk Committee which provides oversight of key climate-related risks; the Corporate Governance Committee, which oversees the Bank’s Environmental and Social Governance (ESG) strategy and annual report (of which climate-related issues are included); and the Audit and Conduct Review Committee which has oversight of climate-related disclosures in the Bank’s financial reporting. For more information, see Scotiabank’s 2020 Annual Report.

In 2021, we established a Corporate ESG Committee to provide strategic guidance and advice on the management and reporting of Scotiabank’s environmental, social and governance priorities. In early 2021, we launched our Net-Zero Pathways Project, led by our Global Corporate Sustainability group, and supported by the Net-Zero Working Group. The Project is guided by the Net-Zero Project Steering Committee made up of senior executives from business lines and functional units who report to the CEO and Executive Operating Committee.



Figure U. Board oversight of Scotiabank’s net-zero pathways and progress

Glossary of Terms

Term	Definition
Absolute emissions	Total emissions expressed in metric tonnes of CO ₂ e.
Asset class	A group of financial instruments that have similar financial characteristics. Asset classes consistent with the Partnership for Carbon Accounting Financials (PCAF) Standard for Financial Institutions include: listed equity and corporate bonds, business loans and unlisted equity, project finance, commercial real estate, mortgages, and motor vehicle loans.
CO₂e	Carbon dioxide equivalent. The number of metric tonnes of CO ₂ emissions with the equivalent warming potential as one metric tonne of another greenhouse gas (e.g. CH ₄ has ~28x the warming potential as CO ₂ and would have a higher CO ₂ e)
Enterprise value including cash (EVIC)	The sum of the market capitalization of ordinary shares at fiscal year end, the market capitalization of preferred shares at fiscal year end, and the book values of total debt and minorities' interests. No deductions of cash or cash equivalents are made to avoid the possibility of negative enterprise values.
Direct emissions	Emissions from sources that are owned or controlled by the reporting entity or the borrower or investee.
Double counting	Occurs when greenhouse gas emissions (generated, avoided, or removed) are counted more than once in a greenhouse gas inventory or toward attaining mitigation pledges or financial pledges for the purpose of mitigating climate change.
Emission intensity	Emissions per unit input or output. For example: tCO ₂ e/\$M invested, tCO ₂ e/MWh, tCO ₂ e/t product produced, tCO ₂ e/MWh, tCO ₂ e/t product produced, tCO ₂ e/\$M company revenue.
Financed emissions	Greenhouse gas emissions associated with the companies and projects that banks and investors finance through their loans and investments.
Glide path	Scotiabank's desired pathway, over time, of reaching each sector's emissions target. Glide paths will be influenced by where the balance of financing activities for that particular sector and geography lie.

Term	Definition
IEA scenarios	<p>Since 1993, the International Energy Agency (IEA) has provided medium- to long-term energy projections using the World Energy Model (WEM). The WEM is the principal tool used to generate detailed sector-by-sector and region-by-region projections for the World Energy Outlook (WEO) scenarios.</p> <p>The WEO does not provide a forecast of what will happen. Instead, it provides a set of scenarios that explore different possible futures, the actions — or inactions — that bring them about and the interconnections between different parts of the system.</p>
IEA sustainable development Scenario (SDS)	<p>Released in 2020, the SDS sets out an ambitious and pragmatic vision of how the global energy sector can evolve in order to achieve the three most critical energy-related Sustainable Development Goals: to achieve universal access to energy (SDG 7), to reduce the severe health impacts of air pollution (part of SDG 3) and to tackle climate change (SDG 13).</p> <p>The IEA SDS is aligned with the Paris Agreement objective of “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.” Other IEA scenarios include Stated Policies Scenario, Announced Pledges Scenario, and Net-Zero Emissions by 2050 Scenario (see definition below).</p>
IEA Net-zero by 2050 pathway (IEA NZE)	<p>The IEA NZE pathway is aligned to a 1.5°C temperature ambition and assumes a net-zero target year of 2050 for all economies (and a net-zero target year of 2035 for advanced economies).</p> <p>In the IEA NZE pathway, the world economy in 2030 is some 40% larger than today but uses 7% less energy. Electric vehicles (EVs) go from around 5% of global car sales today, to more than 60% by 2030. The pathway also assumes 90% of electricity generation coming from renewable sources by 2050.</p>
Indirect emissions	Emissions that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity (i.e. Scope 2 and Scope 3 emissions).
Investment intensity, physical intensity	Emissions targets are often measured in terms of i) investment intensity, which considers the tCO ₂ e for every dollar of investment; ii) physical intensity, which considers the tCO ₂ e for every unit of activity such as barrel of oil produced; or iii) absolute emissions.
Reference pathway	Possible scenario for greenhouse gas emissions over time for a sector, based on third party scenarios, such as national or IEA decarbonization scenarios and modelling.

Net-Zero Report Disclaimer

Scotiabank is committed to being a part of a global industry-led initiative to accelerate and support efforts to address climate change as evidenced by the Bank's recent pledge to join the Net-Zero Banking Alliance (NZBA). The Bank is prepared to play a significant role in financing the climate transition within our footprint and promoting collaboration by all stakeholders to reach the goal of net-zero emissions by 2050.

Leading up to and since the Bank's October 2021 NZBA announcement, considerable work has been dedicated to helping clients develop and start to implement their own transitions to a low-carbon economy, recognizing the complex and interdependent efforts of many stakeholders across the economy. To achieve the global net-zero goal by 2050, we understand that there will need to be an iterative and evolving process. Data, methodologies, science and financial service products will need to change and evolve.

Reliable, accurate data is an essential input to the development, measurement and eventual achievement of all net-zero targets. The bank has worked hard to select what we believe are the most accurate and useful data sources to set our targets for financed emissions, but since financed emissions are not directly owned or managed by the Bank, we are unable to control the quality of that data. In addition to our own in-house teams, we have engaged the services of external experts to assist in our processes.

We have worked with our clients to help them understand the importance of providing us with accurate and timely data, but recognize that data are, in many cases, not reliably collected at the asset and facility level. At the industry level, data sources, methods and accuracy continue to develop. While the Bank believes that we have employed a thoughtful and diligent process to establish our targets, we recognize that the margins of error are unavoidably large at this time, and corrections to, or inaccuracies in the data underpinning our targets could have a material impact on our ability to meet them.

Many of the key drivers for success in achieving these targets lie outside our direct control, such as regulation globally, capital investments made by our clients, government policies, scientific research, and many other factors. We can support and encourage these drivers but ultimate control rests with others and may necessitate us revising our targets, baselines etc.

We are committed to keeping all of our stakeholders informed as to our progress towards our targets — both the advances and the setbacks. As data and methodologies evolve, we will update our approach in response — as will many of our clients.

The Bank will report progress against our interim targets annually in a Net-Zero Progress Update in accordance with PCAF and NZBA guidelines. We will also disclose climate-related information in our [Annual Report](#), [ESG Report](#), and annual CDP submission.

FORWARD LOOKING STATEMENTS

From time to time, our public communications often include oral or written forward-looking statements. Statements of this type are included in this document, and may be included in other filings with Canadian securities regulators or the U.S. Securities and Exchange Commission, or in other communications. In addition, representatives of the Bank may include forward-looking statements orally to analysts, investors, the media and others. All such statements are made pursuant to the "safe harbor" provisions of the U.S. Private Securities Litigation Reform Act of 1995 and any applicable Canadian securities legislation.

Forward-looking statements may include, but are not limited to, statements made in this document, the Management's Discussion and Analysis in the Bank's 2021 Annual Report under the headings "Outlook" and in other statements regarding the Bank's objectives, strategies to achieve those objectives, the regulatory environment in which the Bank operates, anticipated financial results, and the outlook for the Bank's businesses and for the Canadian, U.S. and global economies. Such statements are typically identified by words or phrases such as "believe," "expect," "foresee," "forecast," "anticipate," "intend," "estimate," "plan," "goal," "project," and similar expressions of future or conditional verbs, such as "will," "may," "should," "would" and "could." By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, which give rise to the possibility that our predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that our assumptions may not be correct and that our financial performance objectives, vision and strategic goals will not be achieved.

We caution readers not to place undue reliance on these statements as a number of risk factors, many of which are beyond our control and effects of which can be difficult to predict, could cause our actual results to differ materially from the expectations, targets, estimates or intentions expressed in such forward-looking statements.

The future outcomes that relate to forward-looking statements may be influenced by many factors, including but not limited to: general economic and market conditions in the countries in which we operate; changes in currency and interest rates; increased funding costs and market volatility due to market illiquidity and competition for funding; the failure of third parties to comply with their obligations to the Bank and its affiliates; changes in monetary, fiscal, or economic policy and tax legislation and interpretation; changes in laws and regulations or in supervisory expectations or requirements, including capital, interest rate and liquidity requirements and guidance, and the effect of such changes on funding costs; changes to our credit ratings; operational and infrastructure risks; reputational risks; the accuracy and completeness of information the Bank receives on customers and counterparties; the timely development and introduction of new products and services, and the extent to which products or services previously sold by the Bank require the Bank to incur liabilities or absorb losses not contemplated at their origination; our ability to execute our strategic plans, including the successful completion of acquisitions and dispositions, including obtaining regulatory approvals; critical accounting estimates and the effect of changes to accounting standards,

rules and interpretations on these estimates; global capital markets activity; the Bank's ability to attract, develop and retain key executives; the evolution of various types of fraud or other criminal behaviour to which the Bank is exposed; disruptions in or attacks (including cyber-attacks) on the Bank's information technology, internet, network access, or other voice or data communications systems or services; increased competition in the geographic and in business areas in which we operate, including through internet and mobile banking and non-traditional competitors; exposure related to significant litigation and regulatory matters; climate change and other environmental and social risks, including sustainability that may arise, including from the Bank's business activities; the occurrence of natural and unnatural catastrophic events and claims resulting from such events; the emergence of widespread health emergencies or pandemics, including the magnitude and duration of the COVID-19 pandemic and its impact on the global economy, financial market conditions and the Bank's business, results of operations, financial condition and prospects; and the Bank's anticipation of and success in managing the risks implied by the foregoing.

A substantial amount of the Bank's business involves making loans or otherwise committing resources to specific companies, industries or countries. Unforeseen events affecting such borrowers, industries or countries could have a material adverse effect on the Bank's financial results, businesses, financial condition or liquidity. These and other factors may cause the Bank's actual performance to differ materially from that contemplated by forward-looking statements.

The Bank cautions that the preceding list is not exhaustive of all possible risk factors and other factors could also adversely affect the Bank's results, for more information, please see the "Risk Management" section of the Bank's 2021 Annual Report, as may be updated by quarterly reports.

Material economic assumptions underlying the forward-looking statements contained in this document are set out in the 2021 Annual Report under the headings "Outlook", as updated by quarterly reports. The "Outlook" sections are based on the Bank's views and the actual outcome is uncertain. Readers should consider the above-noted factors when reviewing these sections. When relying on forward-looking statements to make decisions with respect to the Bank and its securities, investors and others should carefully consider the preceding factors, other uncertainties and potential events.

Any forward-looking statements contained in this document represent the views of management only as of the date hereof and are presented for the purpose of assisting the Bank's shareholders and analysts in understanding the Bank's financial position, objectives and priorities, and anticipated financial performance as at and for the periods ended on the dates presented, and may not be appropriate for other purposes. Except as required by law, the Bank does not undertake to update any forward-looking statements, whether written or oral, that may be made from time to time by or on its behalf.

Additional information relating to the Bank, including the Bank's Annual Information Form, can be located on the SEDAR website at www.sedar.com and on the EDGAR section of the SEC's website at www.sec.gov.

“To achieve the global net-zero goal by 2050, we understand that there will need to be an iterative and evolving process. Data, methodologies, science and financial service products will need to change and evolve.”

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This document is based in part on discussions and work undertaken with the Advisory Panel. Their participation does not imply endorsement of Scotiabank, Scotiabank's Net-Zero Pathways Report nor of the materials referred to therein. Advisory panel participation does not imply any liability or commitment to any particular policy or course of action.