Net-Zero Emissions Primer for Professional Services Companies

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

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Aussi disponible en français

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SECTION 1 Introduction

1.1 Background and Context

Environment and Climate Change Canada's (ECCC) Net-Zero Challenge, in collaboration with the Transition Accelerator, has created a series of industry specific Net-Zero primers. The purpose of this collaboration is to provide support to businesses and organizations and help them create a strategy to reduce emissions while improving their competitiveness and resilience in a net-zero economy.

1.2 Purpose of this Primer

The purpose of this Net-Zero Emissions Primer is to help companies and organizations in the professional, scientific and technical services subsector (professional services subsector) in Canada:

a) improve their understanding of the importance of net-zero and what the transition to net-zero could look like, both for their subsector and globally; and
b) develop a net-zero strategy and plan for their company or organization

1.3 Primer Audience

The objective of this primer is to help companies and organizations in the **professional, scientific and technical services subsectors** reach net-zero emissions by 2050. It can be used either by companies and organizations who are just starting out on their journey towards net-zero emissions, or those who are further along in the process and are looking for more concrete advice on what steps they can take.

1.3.1 Overview of the Subsector

Companies in the professional services subsector provide expert advice and services to clients. They do not provide physical goods and are typically office-based, although employees may also work from home. The subsector can include accounting firms, investment advisors, engineering consultants, management consultants, legal advisors, human resource specialists, planners, architects, advertising, marketing, and procurement companies.

The full list of the relevant North American Industry Classification System (NAICS) codes for this subsector is provided in ANNEX 1.

In Canada, there are more than 500,000 businesses in the professional services subsector, most of which are small or medium-sized enterprises (SMEs) ranging in size from a few to several hundred employees. The sector as a whole employed over 1.2 million people in 2024 [1] and contributed a total of $133 billion to Canada's gross domestic product (GDP) in 2022 (~ 6% of Canada's total GDP) [2]. Total greenhouse gas (GHG) emissions from this subsector are estimated to be over 11 megatonnes (Mt) of carbon dioxide equivalent (CO_2 eq) per year (~1.5% of Canada's total emissions) [3].

In most cases, professional services firms are not major emitters individually and will not have to make significant changes to their business model as the economy shifts to net-zero emissions. However, the subsector's total emissions are still significant and must be addressed if Canada is to meet its net-zero target.

1.3 How to Use This Primer

This primer is separated into two main sections:

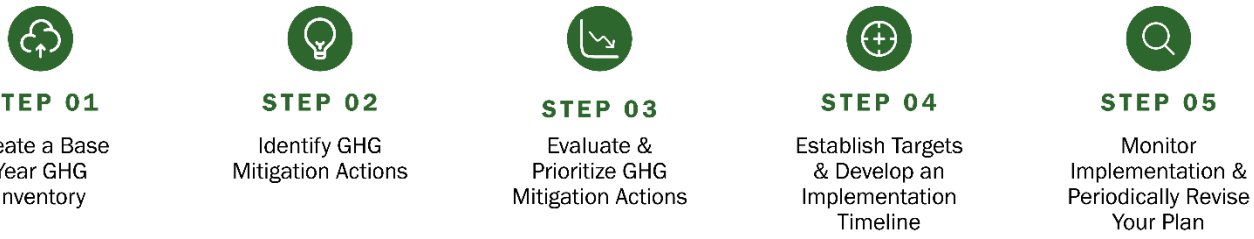
SECTION 2: The Shift to Net-Zero Emissions; and

SECTION 3: Net-Zero Strategy and Planning for Professional Services Companies

The purpose of SECTION 2 is to provide information on what net-zero is, why it is important, and what the shift to net-zero could look like both for the professional services subsector and globally. This section provides important background and context that companies should be aware of before developing their net-zero strategy and plan.

The purpose of SECTION 3 is to provide companies with guidance on how they can develop a net-zero strategy and a concrete plan for implementation. Note that this primer is based on the typical activities of a firm in the professional services subsector. While it provides a general guide to simplify and support the process of net-zero planning, the information in the primer should be applied to the specific circumstances of each company to develop a path forward.

The following steps in net-zero planning will be covered in SECTION 3:



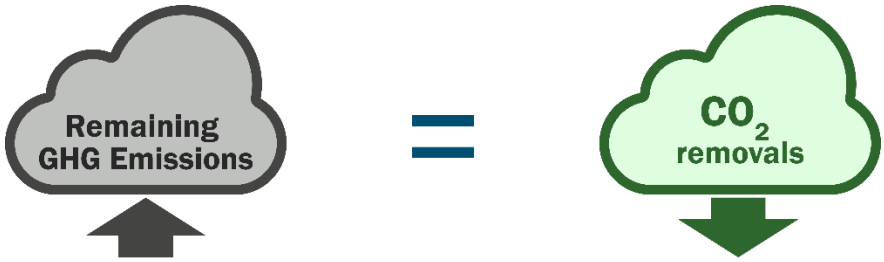
SECTION 2 The Shift to Net-Zero Emissions

The purpose of this section is to provide relevant background and context on the shift to net-zero emissions, to help professional services companies understand their role in the transition and prepare to develop their net-zero strategy and plan.

This section describes what net-zero is, why it is important, and what the shift to net-zero will look like for companies and organizations in the professional services subsector in Canada and globally. It also gives an introduction on how to measure emissions using internationally recognized GHG emissions accounting practices.

2.1 What is Net-Zero?

Net-zero emissions are achieved when anthropogenic[1] GHG emissions to the atmosphere are balanced by anthropogenic removals over a specified period [4].



Net Zero means emissions are balanced by removal

GHGs are gases emitted from both human and natural sources, that once in the atmosphere, absorb and release heat. Rising concentrations of GHGs in the atmosphere contribute to climate change. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. A commonly used unit of measurement for GHGs is CO_2e, which stands for carbon dioxide equivalent, and takes into account the global warming potential (GWP) of all of the GHGs.

2.2 Why is Planning for Net-Zero Emissions by 2050 Important?

The world is moving toward net-zero emissions because the science is clear: to avoid the worst impacts of climate change, we must ultimately eliminate all net addition of GHGs to the atmosphere. Achieving the Paris Agreement goal of limiting warming to 1.5°C requires immediate action across all sectors of the economy. Not taking action will increase risks to health, ecosystems, and economic stability and make future transitions more difficult and costly. As the costs and impact of climate change continue to grow, the case for climate action is clearer than

[1] GHG emissions originated from human activity.

ever – that's why governments, businesses, and communities are committing to actively cut emissions and build a climate-resilient future.

For the professional services subsector, reaching net-zero emissions is important since the aggregate emissions from it are significant, even if those from individual firms are usually small.[2] The subsector as a whole has a role to play in the global transition to net-zero.

For individual companies in the professional services subsector, planning for net-zero emissions is important as it allows firms to prepare for the future. Companies can increase their resilience to climate risk, identify business opportunities, secure a competitive advantage in a decarbonizing market, and build their reputation with clients and investors. Net-zero planning is also useful for complying with evolving regulatory standards and participating in voluntary emissions reduction programs (such as the Government of Canada's Net-Zero Challenge).

2.3 The Global Shift to Net-Zero

Globally, the main sources of GHG emissions come from the burning of fossil fuels (oil, natural gas, propane, and coal) for energy production, industry, transportation, and buildings. Other significant sources of GHGs come from agriculture, forestry, and land use changes [5].

[2] The total GHG emissions from this subsector are estimated to be over 11 Mt CO_2e/year (~1.5% of Canada's total emissions) [3].

Broadly speaking, the main actions required to reach net-zero emissions in Canada include:

- **Decarbonize and expand the electricity grid** using technologies such as wind, solar, and nuclear, to electrify end-uses (such as light duty vehicles, building heating, and industry) that currently rely on fossil fuels
- **Increase the production and use of low-carbon fuels** – such as hydrogen and advanced biofuels to address end-uses that are not easily electrified, for example, high temperature industrial processes and certain types of transportation
- **Promote energy efficiency** to reduce costs and minimize the scale of the new clean energy infrastructure that must be built over the coming years
- **Address non-energy related emissions** from industrial processes (such as the production of cement or steel), waste management practices, and agriculture
- **Deploy carbon removal approaches** – including nature-based solutions (such as tree planting) and direct air capture (DAC)- to trap GHG emissions that cannot be eliminated and permanently remove them from the atmosphere

Getting to net-zero will require efforts from every economic sector. Economic sectors are intertwined: products from one firm are used by others; goods and services flow across borders and production chains link many disparate activities. Change on this scale will be spread over decades, with some countries and sectors able to move more quickly than others. Canada has committed to achieving net-zero emissions by 2050 through the *Canadian Net-Zero Emissions Accountability Act*, which became law in June 2021 [6].

2.4 The Shift to Net-Zero for the Professional Services Subsector in Canada

This section describes what the shift to net-zero could look like for the professional services subsector as a whole in Canada (what this could look like for your company specifically is addressed in SECTION 3).

2.4.1 Where do Emissions in the Professional Services Subsector Come From?

The activities of firms in this subsector are typically office-based. The main emissions associated with these activities typically come from the operation of business premises, travel and the purchase of supplies and services. Details on where these emissions typically come from are provided in Table 1.

Table 1. Main sources of emissions in the professional services subsector

Category	Description	Explanation	Relative magnitude of emissions	Degree of company control

Business Premises	Space and water heating, air-conditioning, lighting, powering computers and servers.	These emissions come from fossil fuels burned on-site for heating, or from the electricity purchased and used on-site. Small amounts of emissions can also come from the refrigerants used in HVAC systems.	Low to high	Low to high
Travel	Employee travel for business and commuting.	These emissions result from gasoline or diesel fuel used for ground transportation (cars, buses, trains, etc.) and aviation fuel for air travel.	Medium to high	Medium to high
Supplies & Services	Purchased inputs for operations.	These emissions come from the production and transport of office supplies (paper, printer cartridges, etc.). equipment (furniture, computers, printers), and other inputs. Typically, quite small for most companies, some inputs can be more substantial (e.g. off-site data processing, AI services).	Low to medium	Low to medium

2.4.2 How to Reduce Emissions in the Professional Services Subsector

There are several actions that can be taken to reduce emissions in the professional services subsector. Some actions are under the control of the company, whereas others are actions that need to occur across the broader economy. Table 2 summarizes the main mitigation actions that need to happen in order for the professional services subsector to reach net-zero emissions.

Table 2. Main emissions mitigation actions in the Professional Services Subsector

Category	Actions Companies Could Take	Actions Across the Broader Economy
Business Premises	• Replace fossil fuel space and water heating equipment with low-emission alternatives, such as electric heat pumps • Reduce building energy demand through energy efficiency measures (e.g. insulation and building controls) • Replace refrigerants used in building HVAC systems with low-emission alternatives	• Decarbonize electricity grids • Decarbonize building construction (heavy equipment, generators, etc.) and materials (steel, concrete, plastics, etc.) used for new-build offices and the retrofit of existing buildings
Travel	• Switch from internal combustion engines (ICE) to zero emission vehicles (ZEV) for road transport	• Build-out urban mass transit systems and either electrify or shift to low-carbon fuels

Category	Actions Companies Could Take	Actions Across the Broader Economy
	• Install electric vehicle (EV) chargers on-site • Adopt active transport (biking, walking, etc.) for commuting • Choose rail travel instead of air travel for short journeys • Avoid travel where possible and encourage remote work when possible	• Expand charging infrastructure for electric vehicles and increase availability of ZEVs • Expand and upgrade passenger rail travel networks, and switch to electric or hydrogen fuel-cell powered locomotives • Replace jet fuel with sustainable aviation fuel (SAF), hydrogen, synthetic fuels or electric propulsion
Supplies & Services	• Seek out supplies and services from low-carbon providers • Purchase used goods where possible (used office furniture)	• Decarbonize production chains involved in the manufacture and transport of office supplies and equipment, including computers, phones, printers, and scanners • Decarbonize IT services, including AI services, that involve extensive physical infrastructure and a large and growing energy footprint

The emissions mitigation actions in Table 2 cover emissions sources that can be quantified using internationally recognized accounting practices, such as the GHG Protocol and the International Organization for Standardization (ISO) 14064 standards (see section 2.5 for more information). However, companies in the professional services subsector can also influence emissions in other ways, such as through:

- **Client Advice** – A professional services company may influence emissions indirectly through the content of the advice they provide to clients. This is especially true for companies that design or manage projects related to the construction of buildings, infrastructure and manufacturing facilities, or involve the transport and energy sectors. In some cases, emissions reductions secured through client advice may greatly exceed the potential for direct reductions in the service company's own operations. By staying abreast of developments in the fields in which they provide services, they may be able to identify solutions that could contribute to decarbonizing a client's projects.

Professional service companies can also contribute through:

- **Knowledge Sharing** – Ensuring staff receive ongoing training about climate change mitigation in the areas in which they provide advice and services, and so that they can act as thought leaders, publicly sharing their achievements.
- **Branding** – A company can market themselves as a net-zero leader, highlighting their ability to deliver low-carbon design or service solutions as part of their publicity. This can normalize net-zero planning and inspire others in the sector to take action.

2.5 Measuring GHG Emissions

Accurately determining a company or organization's emissions profile is critical to identifying where to direct mitigation actions. There are several widely accepted international resources that can be used to calculate a company's GHG emissions. The two most prominent resources are the GHG Protocol, and the ISO 14064 standards.

2.5.1 The GHG Protocol

The GHG Protocol is the most widely used framework for GHG accounting and identifies, explains, and provides options for GHG emissions inventory best practices. It is used widely across many voluntary GHG initiatives, including the Government of Canada's Net-Zero Challenge and the Science Based Targets initiative (SBTi).

The GHG Protocol adopts standard accounting categories companies can use to effectively communicate their emissions data with stakeholders, investors, and regulatory bodies. The GHG Protocol's categorization provides a holistic view of a company or organization's entire value chain, offering deeper insights into emissions sources and potential areas for cost and carbon reductions. These emissions categories will be referred to throughout this primer, and are as follows:

- **Scope 1 emissions**: Direct emissions from owned or controlled sources, such as company-owned facilities and vehicles
- **Scope 2 emissions:** Indirect emissions from purchased electricity, steam, heating, and cooling
- **Scope 3 emissions:** All other indirect emissions that occur throughout the supply chain, from raw material extraction to transportation, product use, distribution and disposal

Scope 3 emissions

In the GHG Protocol there are fifteen categories for Scope 3 emissions:

Category 1: Purchased goods and services

Category 2: Capital goods

Category 3: Fuel- and energy-related activities

Category 4: Upstream transportation and distribution

Category 9: Downstream transportation and distribution

Category 10: Processing of sold products

Category 11: Use of sold products

Category 5: Waste generated in operations

Category 6: Business travel

Category 7: Employee commuting

Category 8: Upstream leased assets

Category 12: End-of-life treatment of sold products

Category 13: Downstream leased assets

Category 14: Franchises

Category 15: Investments

2.5.2 International Organization for Standardization

The ISO 14064 standards can be used to quantify, monitor, report, and verify GHG emissions. Relevant standards include:

- ISO 14064-1 (GHG emissions and removals for organizations – corporate level); and
- ISO 14064-3 (validation and verification of GHG statements).

The ISO 14064 series is complementary to the GHG Protocol and companies could benefit from using both sets of guidance. Specifically, if a company wishes to have their GHG emissions inventory verified by an accredited third-party, it is recommended that they use the ISO 14064-1 standard to ensure that their GHG emissions inventory is developed in a way that can be easily verified and compared to the inventories of other organizations.

SECTION 3 Net-Zero Strategy and Planning for Professional Services Companies

The purpose of this section is to help professional services companies make a strategy and a plan to reach net-zero emissions by 2050 or earlier and position their company competitively in a net-zero world. This section is for companies who understand the background and context provided in SECTION 2 and are ready to take action.

Note that this primer is based on the typical activities of a firm in the professional services subsector. While it provides a guide to simplify the process of net-zero planning, your company or organization must apply it to your own specific circumstances to develop a path forward.

3.1 Corporate Strategy in a Net-Zero World

Before creating a detailed net-zero plan, your company should create a corporate strategy that determines broadly how your company wants to position itself in a net-zero emissions world. Your company should research and evaluate both the external competitive landscape and the company's internal strengths and weaknesses to determine the best path forward for the company.

Some of the questions you could ask include:

- What could the professional services subsector look like in Canada in 2050? How well would our company be positioned in a net-zero world?
- What aspects of our business may be the most exposed to change and risk - and where could we find strategic advantages in the transition to net-zero?
- What key risks should we mitigate to ensure our company's success as we eliminate our emissions over the coming years?
- Are there any new business opportunities that our company could pursue in the transition to net-zero?
- Does our company have any weaknesses that expose it to risk due to the effects of climate change and a changing economy?

3.1.1 Net-Zero Business Model

Next, you should reflect whether your company should make any changes to its business model.

For many companies in the professional services subsector, reaching net-zero emissions and operating in a net-zero world will not result in a significant change to their business models or everyday work practices. There will be changes in how office spaces are heated and how we move from place to place, but the daily work will not be affected.

For certain companies, there may be a more significant change in their business, especially if their clients are currently in heavy emitting sectors such as construction, transportation or energy. If this

is the case for you, your company should research these sectors and understand what the net-zero transition will look like for those sectors.

3.1.2 The Competitive Advantage of Net-Zero

Moving to net-zero is not just about managing risk—it also presents real opportunities.

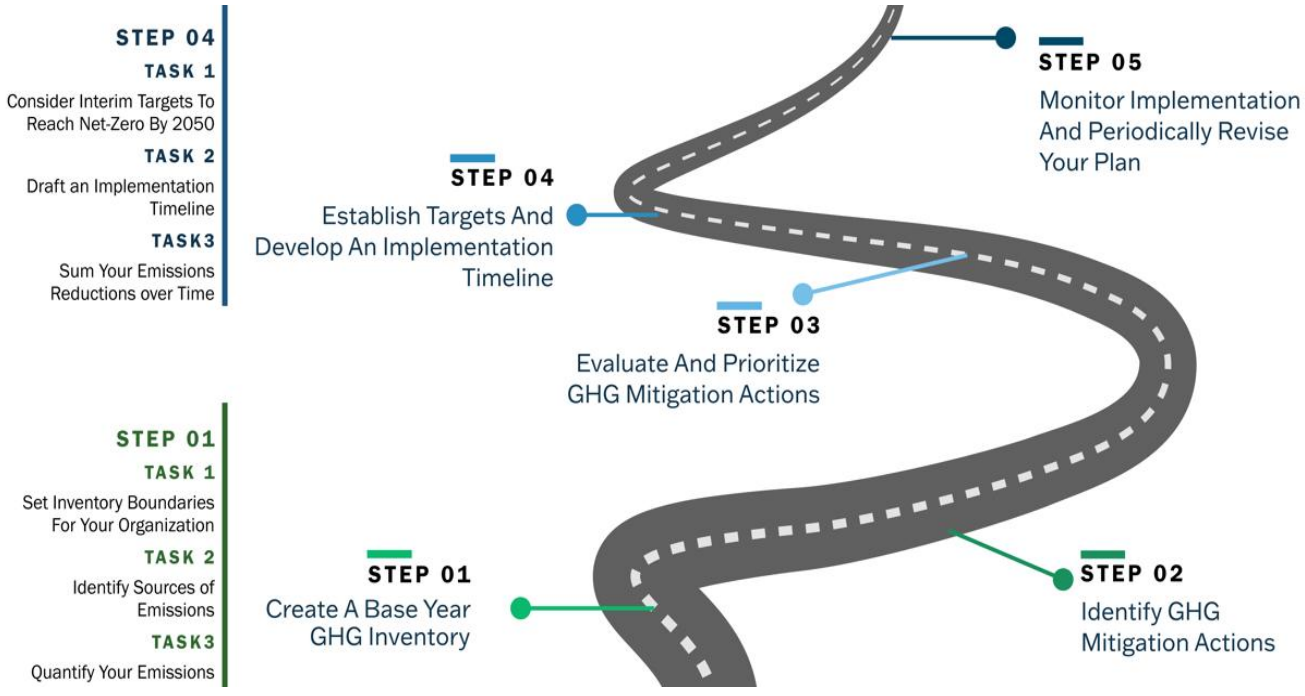
In Canada, several industries are expected to expand and flourish over the coming decades. These include natural resource-based industries such as clean electricity generation, critical minerals mining, and bio-based production from forestry and agriculture. There will be ample opportunities across the professional services subsector to support this growth.

Businesses that take early action can gain a competitive edge, reduce costs, attract talent, and build stronger relationships with clients and investors. In many sectors, being ahead of the curve on climate action is becoming a mark of leadership and credibility.

3.2 Net-Zero Planning for Professional Services Companies

Once you have an understanding of what the net-zero transition could look like globally and for your sector, and you have considered your company's strategy in a net-zero world, you are ready to create a net-zero plan that will outline the tangible actions you can take.

This section goes over the steps your company will need to complete to create a credible and achievable net-zero plan. The steps you will need to take are:



Details on how to complete each of these steps are given in the sections below.

For some professional services companies, doing a simple net-zero plan in house is possible. However, some companies may have more complex situations or lack the internal resources to create a credible net-zero plan. In these cases, companies may wish to avail themselves of external expertise in clean technology, the energy transition, energy and climate policy, and finance. For larger companies, developing and implementing a robust net-zero plan typically requires engagement from multiple departments. Planning is greatly facilitated by strong commitment and clear tone from senior management to ensure cross-functional collaboration and alignment on sustainability goals.

3.2.1 Step 1 - Create a Base Year GHG Inventory

The first step in creating a net-zero plan is creating an inventory of your GHG emissions for a one-year period, which will be your base year. To create the base year inventory, you will need to set inventory boundaries for your organization, identify your sources of emissions, and quantify your emissions over 12 consecutive months.

Set inventory boundaries for your organization

Setting the inventory boundary allows you to determine what sources of emissions result from your activities and, accordingly, what emissions will need to be addressed in order to reach net-zero emissions.

Generally, inventory boundaries can be set through three criteria: equity share, financial control and operational control. Please refer to Environment and Climate Change Canada's (ECCC) Net-Zero Challenge Technical Guide 2.0 and the GHG Protocol Corporate Standard for details on how to set inventory boundaries for your organization.

Identify sources of emissions

Table 3 shows common sources of emissions for professional services companies. Identify which of these sources apply to your organization.

Table 3. Common sources of emissions for professional services companies

Category	Common Sources of Emissions
Business Premises	• Space heating (furnaces, boilers, baseboard heating etc.) • Water heating (boilers, tank water heaters, tankless, etc.) • Air conditioning and mechanical ventilation • Other electricity consumption (lighting, computers, servers, etc.) • Chemicals from refrigerants used in air conditioners or heat pumps
Travel	• Employee commuting • Business travel

Category	Common Sources of Emissions
Supplies & Services	• Purchased inputs for operations (Note that for most companies, purchased supplies and services make a small contribution to GHG emissions)

Once you have identified the sources of emissions, you will need to identify which category each emissions source falls into (i.e. Scope 1, 2 or 3), as described in the The GHG Protocol.

While the table above identifies the most common sources of emissions for professional services companies, the full list of Scope 3 emissions should be reviewed to determine whether there are any other sources that could be relevant to your business.

Quantify your emissions

Once emissions sources have been identified, you must quantify your emissions. This is done by gathering activity data and emissions factors that quantify the GHG emissions associated with each type of activity.

Activity data are quantitative measures of activities that result in GHG emissions. Examples of activity data could include:

- Cubic meters of natural gas used to heat a building
- Liters of gasoline used by vehicles
- Kilowatt hours of electricity consumed
- Kilometers travelled by airplane
- Dollar amount of office supplies purchased

Emissions factors are calculated ratios that specify the amount of GHGs that are emitted per unit of activity. Multiplying the activity data by the correct emissions factor will produce an estimate of total emissions associated with this activity.

There are several reputable organizations that provide publicly available emissions factors. ECCC publishes the following resources to find emissions factors:

- For electricity: National Inventory Report, Part 3, Annex 13
- For other activities: National Inventory Report, Part 2, Annexes 3 and 6

Other helpful resources to create your GHG inventory include:

- ECCC's Net-Zero Challenge Technical Guide 2.0

- ECCC's Net-Zero Challenge Emissions Calculator[3]
- GHG Protocol Corporate Standard

3.2.2 Step 2 - Identify GHG Mitigation Actions

Once the base year GHG inventory is complete, the second step is to identify possible actions your company could take to mitigate those emissions. Possible mitigation actions for each category of emissions are given in the sections below.

If none of these mitigation actions are feasible for your company, you can consider purchasing Carbon Offset Credits.

Business Premises

Table 4 presents the top mitigation actions for GHG emissions from business premises. These possible mitigation actions are presented roughly in order of what will be the most impactful and practical, to the least.

Table 4. Practical actions to reduce GHG emissions for Business Premises

Source of Emissions	Possible mitigation actions
Space or Water Heating	• Replace fossil-fuel space and water heating with low-carbon alternatives, such as air or ground source heat pumps or connection to a low carbon district heating system • Reduce demand for space heating by making upgrades to the building (windows, air sealing, improved insulation, smart thermostats, etc.) or reducing the footprint of your office space • If you do not have operational control over your buildings' heating system, you can speak with the landlord and determine if they are open to making changes to the building.
Air Conditioning & Other Electricity Consumption (lighting, computers, servers, etc.)	• If your company is located in a province with a low-carbon electricity grid, these emissions will already be close to net-zero • If your company is located in a province with a high-carbon grid, you have several options:

[3] Please contact the Net-Zero challenge team at defizeronet-netzerochallenge@ec.gc.ca to receive a copy of the emissions calculator

Source of Emissions	Possible mitigation actions
	○ Upgrade your AC to a more efficient cooling system, like a heat pump (this should be coordinated with replacement of your space heating)[4] ○ Upgrade other sources of electricity consumption (lighting, computers, etc.) to a more energy efficient technology ○ Supply your own renewable electricity, for example through roof-top solar panels ○ Use Power Purchase Agreements (PPAs) ○ Use Renewable Energy Certificates (RECs) ○ Wait until the provincial grid is decarbonized[5]
Refrigerants used in air conditioners or heat pumps	• Replacement of GHG forming refrigerants with low emission substitutes

Travel

Table 5 presents the top mitigation actions for GHG emissions from travel. These possible mitigation actions are presented roughly in order of what will likely be the most impactful and practical, to the least.

Table 5. Practical actions to reduce GHG emissions for Travel

Source of Emissions	Possible mitigation actions
Employee commuting	• Encourage employees to travel by public transport or adopt active modes of transport (biking, walking) when possible • Encourage employees to switch from internal combustion to electric or hybrid personal vehicles. Employers can encourage this change through the installation of charging facilities, purchase support or prestige parking spots • Avoid commuting and encourage remote work when possible

[4] Note that there are non-climate related benefits to energy efficiency, such as reduced costs, so this option should still be considered even if the company is located in a province with a low-carbon electricity grid.

[5] All provincial governments have committed to a non-GHG emitting grid by 2050. For detailed carbon accounting, estimates provided by provincial electricity regulators can be used to forecast these levels.

Source of Emissions	Possible mitigation actions
Business travel	• Avoid business travel where possible through consolidating trips or holding meetings virtually • If your company owns or holds long term leases on light duty gasoline-powered vehicles, replace them with battery electric or hybrid vehicles • Specify that car rentals should be battery electric or hybrid, unless there is a particular reason that an internal combustion vehicle is necessary (for example travel to a remote community) • Prioritize rail over air travel for short to medium length journey

Supplies & Services

For most professional services companies, purchased supplies make a small absolute contribution to GHG emissions. Approaches to reducing emissions include buying used, recycled or refurbished products (e.g. paper, ink cartridges, furniture, and so on), switching from paper-based to digital processes, and procuring products with improved emissions performance.

Assessments of emissions from individual products can be time consuming. Therefore, the most practical approach is to work with major supply companies that offer reduced emissions alternatives.

Other

Companies in the professional services subsector can also influence emissions in other ways that are not directly measured in internationally recognized standards such as the GHG Protocol.

- **Client Advice** – A professional services company may be able to reduce emissions indirectly through the content of the advice they provide to clients. For example, an engineering services company could recommend a decarbonized space and water heating system for a client's new building. While reducing emissions through client advice may appear less tangible than some of the more direct measures listed above, it is an important means through which professional service companies can contribute to the overall decarbonization of the economy. Ensuring staff receive ongoing training about climate change mitigation in the areas in which they provide advice and services and routinely offering clients low or zero carbon options for realizing their projects are ways to capitalize on these opportunities.
- **Knowledge Sharing** – Companies can act as thought leaders, publicly sharing their knowledge and achievements, learning from other leaders, and encouraging adoption of low carbon approaches.
- **Branding** – A company can market themselves as a net-zero leader, highlighting their ability to deliver low-carbon design or service solutions as part of their publicity. This can normalize net-zero planning and inspire others in the sector to take action.

Carbon Offset Credits

Purchasing carbon offset credits is a mitigation action that can be taken when no other option is feasible.

Carbon offset credits represent GHG emissions reductions or removals generated from activities that are additional to what would have occurred in the absence of the offset project. These credits are generated from activities that go beyond legal requirements and a business-as-usual scenario. Each offset credit generated by an offset project represents one tonne of CO_2e reduced or removed from the atmosphere.

Today, most offsets are emissions reductions. But as the economy approaches net-zero, emissions reductions offset opportunities will decline as emissions fall across all sectors of the economy. Companies that do rely on offsets should therefore, over time, increase the proportion of offsets that come from carbon removals.

3.2.3 Step 3 – Evaluate and Prioritize GHG Mitigation Actions

Now that several possible mitigation actions have been identified, companies will need to evaluate and prioritize them. Each company will have a different evaluation framework depending on various factors, including their level of ambition, financial position, resourcing and management support.

Table 6 shows common factors that companies should consider when evaluating and prioritizing emissions mitigation actions. Companies should also consider supporting Canadian businesses when selecting mitigation strategies.

Table 6. Factors you should consider when selecting which mitigation actions to prioritize

	Possible Pros	Possible Cons
Emissions Impact	• The mitigation action will have a significant impact on reducing the firm's emissions	• The mitigation action will have a small impact on the firm's emissions
Technology Maturity	• The mitigation action has been successfully used in real life conditions • The mitigation action is a non-technical solution (e.g. walking to work)	• The mitigation action has not yet been commercially deployed
Capital Cost	• The capital cost is similar to or lower than the high-emitting option • There are funding, grants or incentives available to help reduce the capital cost	• The capital cost is much higher than the existing option • There are limited funding options available
Operation and Maintenance (O&M) Costs	• The O&M costs are lower than the existing option (e.g. high efficiency equipment will have lower energy costs) • Government policy can lower the ongoing O&M cost (e.g. a price on carbon can make electrification more cost effective)	• The O&M costs are higher than the existing option (e.g. switching to electricity may be more expensive than natural gas)
Availability	• The mitigation action is readily available • Enabling infrastructure is available (e.g. charging stations for EVs)	• There are supply chain constraints, making the solution less readily available • The enabling infrastructure is not yet in place
Timing	• The timing of implementing the mitigation action is logical (e.g. equipment is reaching	• The timing of implementing the mitigation action is not ideal (e.g. equipment was recently replaced, and it

	Possible Pros	Possible Cons
	the end of its lifetime and will need to be replaced anyways)	would not make sense to replace it again in the short term)
Lifestyle Considerations	• Mitigation action increases quality of life, is more convenient (e.g. no more pumping gas when you own an EV)	• Mitigation action decreases quality of life, is more inconvenient (e.g. a longer commute)

Completing this analysis of the mitigation actions, along with understanding your company's available resources and strategic priorities, can help identify the top mitigation actions that your company would like to pursue. You will complete this exercise based on the situation as of today but note that all of these factors are constantly changing and this exercise will need to be repeated regularly as the landscape shifts.

3.2.4 Step 4 - Establish Targets and Develop an Implementation Timeline

Now that you have identified your main emissions sources and potential actions to decarbonize your activities, it is time to bring it all together, to assess what is possible within specific time horizons, and to formulate or adjust targets.

Task 1: Consider Interim Targets to Reach Net-Zero by 2050

Targets provide crucial grounding for decarbonization efforts. They communicate a company's ambition, allow the organization to coordinate its response, and provide a benchmark against which progress can be measured. Many voluntary initiatives, including the ECCC's Net-Zero Challenge, require member companies and organizations to set interim targets as part of a plan to reach net-zero emissions by 2050 or earlier. This aligns with Canada's legislative commitments to net-zero and the recommendation of the Science Based Targets initiative.

Interim targets are important to focus attention on what can be done in the short-term and to ensure progress. Some companies have adopted shorter term targets based on an aspiration to be a leader in their sector and/or to harmonize with Canada's national goal of a 40-45% reduction in emissions by 2030. Nevertheless, interim targets are more likely to be achieved when they align with your strategic objectives and are grounded in a solid analysis of the costs, timing, and effectiveness of proposed mitigation measures.

Task 2: Draft an Implementation Timeline

The mitigation actions should be placed on a timeline to establish and/or confirm interim targets and to form the basis for a phased decarbonization plan.

In Step 3 – Evaluate and Prioritize GHG Mitigation Actions, you evaluated several possible emissions mitigation actions, and this evaluation can help you determine a realistic implementation timeline.

Factors that influence the implementation timeline will include:

- Availability of equipment and enabling infrastructure (e.g. low carbon grid, EV charging infrastructure)
- Technology life cycle (e.g. end of life of HVAC equipment, average vehicle lifetime).
- Upfront cost and financing options

Task 3: Sum Your Emissions Reductions Over Time

Each of the actions you have decided to take can be included in your plan together with the anticipated reductions over time. Summing up the proposed reductions at key interim dates (e.g. 2030, 2035, etc.) can then allow you to validate (or establish) appropriate interim targets.

It is important to remember that net-zero emissions can only be achieved if other organizations up and down your value chain are also decarbonizing their activities at the same time. Therefore, in consideration of this, the pathway to full decarbonization may be unclear. However, over time, as manufacturing, transport, and energy production are increasingly decarbonized, the carbon intensity of the goods and services needed by your business will in turn decrease and net-zero will become more achievable. Accordingly, fostering collaboration and maintaining open communication with your value chain partners will be essential to accelerating the transition and providing greater clarity around your own net-zero plan.

3.2.5 Step 5 - Monitor Implementation and Periodically Revise Your Plan

Full decarbonization of the economy will take time. It is hard to anticipate developments five years from now, let alone in 30 years. Net-zero planning will necessarily be an iterative process, with plans adjusted periodically to reflect changing circumstances – including technological, economic, social and geopolitical – and as the whole economy moves towards net-zero emissions.

You should establish a regular process for monitoring the implementation of your plan, such as:

- **At least once a year**, formally review progress, assessing whether the assumptions on which the plan was based have shifted, whether the proposed actions have been taken, and the extent to which they are attaining the desired objectives.
- **Every five years**, a new plan can be developed that draws on the lessons learned and charts the remainder of the journey towards net-zero.

SECTION 4 Conclusion

Reaching net-zero emissions is a long-term journey, but every business has a role to play—and every step matters. Whether your company or organization is just starting to think about climate action or already exploring or implementing emissions reductions measures, the most important thing is to begin with what you can control and to put a plan in place.

This primer has laid out how to:

- Reflect on how your firm fits into a net-zero economy
- Understand where your emissions come from
- Identify practical actions across your operations and value chain
- Set short- and long-term targets and goals
- Adapt your plan as the world changes

Remember: this is not about perfection. Your first plan does not need to solve everything all at once. Focus on taking meaningful action in the next 1–3 years. Talk to your employees, clients, and suppliers. Learn as you go. Use this plan to guide decision-making, communicate your direction, and build momentum.

As markets, technologies, and other factors evolve, so will your opportunities to reduce emissions. Revisit your plan regularly and update it as new solutions become available. As you reduce your own footprint, look for ways to amplify your impact.

Net-zero is a collective effort. Professional services firms like yours are critical to shaping the path forward—for your clients, your sector, and your community. Start where you are, aim high, and keep going.

If you are ready to take the next step, learn more about how to join the Government of Canada's Net-Zero Challenge.

Glossary

Base Year: A year in history against which a company's emissions are tracked over time to compare it with future emissions. It must be a consecutive twelve months, either as a full calendar year or consecutive over two calendar years.

Carbon dioxide equivalent (CO_2 eq): A unit of measure for comparison between greenhouse gases (GHGs) that have different global warming potentials (GWPs). This unit of measure allows other GHGs to be expressed in terms of the GWP of one unit of CO_2. To express GHG emissions in units of CO_2 eq, the quantity of a given GHG is multiplied by its GWP.

Decarbonization: The process of reducing carbon dioxide emissions from a product, process, facility, or sector.

Direct emissions: Emissions from sources that are owned or controlled by a company or organization (GHG Protocol 2004: 97).

Downstream emissions: Emissions from downstream activities associated with the operations of a company, including processing of sold products, use of sold products, investments, franchises, downstream transportation and distribution, end-of-life treatment of sold products, and downstream leased assets.

Emission factor: A value that quantifies an average amount of emissions associated with an activity. For more details on Canada-specific emission factors, see the latest National Inventory Report for Canada.

Emissions: The release of greenhouse gases (or other substances) into the atmosphere.

Emissions inventory: A quantified list of emissions and emission sources for a company, organization, municipality, region, province/territory, or country.

Energy Efficiency: A measure of how effectively energy is used for a given purpose. It is a ratio or other quantitative relationship between an output of performance, service, goods, commodities, or energy, and an input of energy.

Global Warming Potential (GWP): Allows the comparison of the global warming impacts of different gases or particles (such as black carbon). It is a measure of how much energy the emissions of 1 tonne of a gas or particle will absorb over a given period of time, compared to the emissions of 1 tonne of carbon dioxide. For the purposes of net-zero planning, use of 100-year GWP is recommended.

Greenhouse gas (GHG): A gas that absorbs and re-emits radiation, resulting in the greenhouse effect, which contributes to a warming climate. For the purposes of this guidance and for the Net-Zero Challenge, GHGs include all of those that are subject to reporting for the Greenhouse Gas Reporting Program. This includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur

hexafluoride (SF_6), 13 different hydrofluorocarbons (HFCs), and 7 different perfluorocarbons (PFCs).

Indirect emissions: Emissions that are a consequence of the activities of a company but occur at sources owned or controlled by another company (GHG Protocol 2004: 99).

Inventory boundary: Allows a participant to determine what sources of emissions are the result of their activities and accordingly, what emissions will need to be addressed in order to reach net-zero emissions by 2050. Generally, the inventory boundary includes geographical boundaries and organizational boundaries.

Mitigation strategy: A practice, process, or technology that contributes to mitigation, e.g., enhancing energy efficiency and adopting renewable energy sources.

Net-Zero Challenge: A voluntary Government of Canada program that encourages businesses to develop and implement credible and effective plans to transition their facilities and operations to net-zero emissions by 2050.

Net-zero emissions: Achieving net-zero emissions means that anthropogenic emissions of greenhouse gases into the atmosphere are balanced by anthropogenic removals of greenhouse gases from the atmosphere over a specified period. For organizations, net zero GHG emissions is commonly considered as the condition in which emissions have been reduced such that only residual emissions remain, and offsetting is restricted to removal credits (ISO 14068).

Net-zero plan: A net-zero plan includes an emissions inventory and base year, interim targets, descriptions of the considered scenarios, pathways and mitigation strategies, and an outline of how net-zero planning will be incorporated into a company's governance and disclosures.

Offset credits: Represent GHG emissions reductions or removals generated from activities that are additional to what would have occurred in the absence of the offset project. These credits are generated from activities that go beyond legal requirements and a business-as-usual standard. Each offset credit generated by an offset project represents one tonne of carbon dioxide equivalent (CO2 eq) reduced or removed from the atmosphere.

Organizational boundaries: The boundaries that determine the operations owned or controlled by a company, depending on the consolidation approach taken (equity share, operational control, or financial control).

Scope: Defines the operational boundaries in relation to direct and indirect emissions (GHG Protocol 2004: 101).

Scope 1 emissions: A company's direct emissions, principally the generation of electricity, heat, or steam, physical or chemical processing, transportation, and fugitive emissions (GHG Protocol 2004: 101).

Scope 2 emissions: A company's indirect emissions associated with the purchase of electricity, heating/cooling, and steam for own consumption (GHG Protocol 2004: 101).

Scope 3 emissions: A company's indirect emissions excluding those covered in scope 2. Also known as value chain emissions (GHG Protocol 2004: 101).

Upstream emissions: Emissions from upstream activities associated with the operations of a company, including purchased goods and services, capital goods, fuel- and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, and employee commuting.

Value chain: All business processes or activities involved in the production of a good or service for market, from conception to end use and beyond. A simplified value chain would include corporate services (e.g., marketing, logistics), research and development, inputs, assembly, distribution, sales, and after-sales service.

Value chain emissions: These are indirect emissions that may exist upstream or downstream of a company's operations. "Value chain emissions" are also known as scope 3 emissions.

Abbreviations

AI: Artificial intelligence

CH_4: Chemical formula for methane

CO_2: Chemical formula for carbon dioxide

CO_2 eq: Carbon dioxide equivalent

DAC: Direct air capture

EV: Electric vehicle

GDP: Gross domestic product

GHG(s): Greenhouse gas(es)

GWP: Global Warming Potential

HVAC: Heating, ventilation and air conditioning

ICE: Internal combustion engine

HFC: Shorthand for a group of chemicals called hydrofluorocarbons

ISO: International Organization for Standardization

kt: Kilotonne(s)

Mt: Megatonne(s)

NAICS: North American Industry Classification System

N_2O: Chemical formula for nitrous oxide

PFC: Shorthand for a group of chemicals called perfluorocarbons

PPA: Power Purchase Agreements

REC: Renewable Energy Credit

SAF: Sustainable aviation fuel

SF_6: Chemical formula for sulfur hexafluoride

ZEV: Zero emission vehicle

SECTION 5 References

[1] Statistics Canada, "Employment by industry, annual," [Online]

[2] Innovation, Science and Economic Development Canada, "Gross domestic product - Canadian Industry Statistics," [Online]

[3] Statistics Canada, "Physical flow account for greenhouse gas emissions: Interactive tool," [Online]

[4] IPCC, "Special Report: Global Warming of 1.5 ºC," [Online]

[5] United States Environmental Protection Agency, "Global Greenhouse Gas Overview" [Online]

[6] Government of Canada, "Net-zero emissions by 2050" [Online]

ANNEX 1 North American Industry Classification System

Based on the North American Industry Classification System (NAICS), businesses and organizations in the professional, scientific and technical services subsector (NAICS code 541) include the following industry groups and industries[6]:

Industry group	Industry
5411 - Legal services	54111 - Offices of lawyers
	54112 - Offices of notaries
	54119 - Other legal services
5412 - Accounting, tax preparation, bookkeeping and payroll services	54121 - Accounting, tax preparation, bookkeeping and payroll services
5413 - Architectural, engineering and related services	54131 - Architectural services
	54132 - Landscape architectural services
	54133 - Engineering services
	54134 - Drafting services
	54135 - Building inspection services
	54136 - Geophysical surveying and mapping services
	54137 - Surveying and mapping (except geophysical) services
	54138 - Testing laboratories
5414 - Specialized design services	54141 - Interior design services
	54142 - Industrial design services
	54143 - Graphic design services

[6] Note that a subsector is defined by a 3-digit NAICS code, an industry group is defined by a 4-digit code and an industry is defined by a 5-digit code.

Industry group	Industry
	54149 - Other specialized design services
5415 - Computer systems design and related services	54151 - Computer systems design and related services
5416 - Management, scientific and technical consulting services	54161 - Management consulting services
	54162 - Environmental consulting services
	54169 - Other scientific and technical consulting services
5417 - Scientific research and development services	54171 - Research and development in the physical, engineering and life sciences
	54172 - Research and development in the social sciences and humanities
5418 - Advertising, public relations, and related services	54181 - Advertising agencies
	54182 - Public relations services
	54183 - Media buying agencies
	54184 - Media representatives
	54185 - Display advertising
	54186 - Direct mail advertising
	54187 - Advertising material distribution services
	54189 - Other services related to advertising
5419 - Other professional, scientific and technical services	54191 - Marketing research and public opinion polling
	54192 - Photographic services
	54193 - Translation and interpretation services
	54194 - Veterinary services

Industry group	Industry
	54199 - All other professional, scientific and technical services[7]

[7] Some businesses that might otherwise be considered as 'professional services' are explicitly excluded from this guide. These include medical and dental clinics, other health-related business, educational establishments (tutorial colleges), and businesses offering specialized services to the fossil energy extraction sector. These companies have particular characteristics, and separate primers will be issued for these sectors in due course. In addition, a separate primer is planned for information technology companies.

ANNEX 2 Technology Descriptions

Table 7. Descriptions of technologies commonly used to decarbonize the professional services subsector

Technology	Description	Applications	Considerations	Additional Resources
Electric Heat Pump	An electric heat pump is a device that extracts heat from a low temperature place and delivers it to a higher temperature place. The two most common types of heat pumps are: • **Air-source heat pumps** – The heat source or sink is the outside air. • **Ground-source heat pumps:** The heat source or sink comes from the ground.	Heat pumps can be used for space heating, water heating and space cooling, replacing traditional HVAC technology (i.e. furnaces, boilers, ACs).	Heat pumps are very efficient, often over three times more efficient than furnaces or boilers. Heat pumps have a higher upfront cost than traditional HVAC equipment.	Heating and Cooling with a Heat Pump - Natural Resources Canada
District Heating	District heating involves distributing heat generated from a central plant to residences, businesses or industries in a local area. The central heat source can be generated from either from clean energy or fossil fuels.	District heating is used to heat multiple buildings in close proximity. Common applications include college and university campuses hospitals and densely populated residential or commercial settings.	District heating has the potential to be a low-cost and efficient way to implement clean energy. Requires coordination and a large upfront investment.	Combined Heat and Power Technology Fact Sheet Series: District Energy District Heating - Energy System - IEA
Building Envelope Improvements	**Upgrading windows and doors** to higher efficiency options can reduce heat loss from the building. **Controlling air leakage** can greatly reduce heart loss from a building. A systematic identification of air leaks should be followed	Residential and commercial buildings.		Keeping the heat in - Natural Resources Canada

Technology	Description	Applications	Considerations	Additional Resources
	by sealing leaks through weatherstripping and caulking and by applying gaskets and tapes. **Adding insultation** to a building's walls, roof, attic, basement reduces the amount of energy required for heating and cooling. There are many different types of insulation materials, with different applications, efficiency and costs.			
Smart Thermostats	A smart thermostat reduces the amount of energy required to heat or cool a building by learning the temperatures the occupants prefer and establishing a schedule that automatically adjusts to energy-saving temperatures while occupants are away or sleeping to help reduce energy usage.	Residential and commercial buildings.	Saves money on heating and cooling bills, while keeping building at a comfortable temperature.	Smart Thermostats - Natural Resources Canada
Zero Emission Vehicle (ZEV)	A ZEV is a vehicle that has the potential to produce no tailpipe emissions. They can have a conventional internal combustion engine (ICE) but must also be able to operate without using it. There are three types of ZEVs: • **Battery-electric vehicle (BEV)** – Run on electric motors, with rechargeable batteries. No tailpipe emissions. • **Plug-in hybrid electric vehicle (PHEV)** – Have rechargeable batteries and a gas engine and can run in either mode. No	ZEVs can be used to replace traditional ICE vehicles.	The upfront costs of ZEVs are typically higher than and ICE vehicles, while fuels costs are lower. When choosing what type of ZEV to select, one should consider available charging infrastructure, and the range of the vehicle required.	Types of zero-emission vehicles - Natural Resources Canada

Technology	Description	Applications	Considerations	Additional Resources
	tailpipe emissions when run in electric mode. • **Fuel cell vehicle (FCVs)** – Use hydrogen to power an electric motor. No tailpipe emissions.			