The NET-ZERO Challenge

Committed to a clean future

# Reference Document for Small- and Medium-Sized Enterprises (SMEs) to the Net-Zero Challenge Technical Guide

Environment and Climate Change Canada
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Aussi disponible en français

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# 1 Introduction

This is a Reference Document to the Net-Zero Challenge Technical Guide for Small- and Medium-Sized Enterprises (SMEs). It is designed to specifically help SMEs identify the program requirements and develop a net-zero plan.

This document is a complement to the Net-Zero Challenge Technical Guide. The Net-Zero Challenge Technical Guide is the primary source of information for all participants on net-zero planning. We recommend that SMEs read the Technical Guide to become familiar with the aspects of net-zero planning and then use this Reference Document to develop their net-zero plan and complete their participation checklists. Note that all information in the Net-Zero Challenge Technical Guide applies to SMEs, except where noted in this reference document.

The Guidance for SMEs section provides guidance and requirements specific to SMEs who wish to commit to net-zero by 2050 and join the Net-Zero Challenge program (the Challenge). It highlights important differences in the minimum requirements of the Net-Zero Challenge for SME participants and provides additional guidance for them, where appropriate.

The How to Develop a Net-Zero Plan section provides step-by-step instructions on how to create net-zero plans and complete the Net-Zero Challenge requirements. This section is designed specifically for those newer to net-zero planning as a step-by-step guide on how to create a credible net-zero plan that meets the minimum requirements of the NZC. It is structured as per the various checklists that NZC participants must submit, outlining the minimum requirements of the program for SMEs at each of these reporting stages.

Non-SME participants may also use this reference document as a resource when creating their net-zero plans and completing their checklists. However, participants should refer to the Technical Guide when determining the minimum requirements for their own participation stream.

# 2 Guidance for SMEs

## 2.1 SME Participation in the Net-Zero Challenge

**Who can join the Net-Zero Challenge?**

All businesses operating in Canada can join the Net-Zero Challenge, including SMEs, which are defined as companies with 499 or fewer employees.

SMEs have an important role to play in the net-zero economy. This is especially true when considering emissions across the entire value chain. For this reason, the Net-Zero Challenge welcomes SME participation in the program and recognizes that the elements included in a net-zero plan for SMEs may differ to those for large companies. Further, SMEs may face different challenges when it comes to net-zero planning, which may require certain flexibilities in the program.

## 2.2 Net-Zero Challenge Minimum Requirements

**What are the participation requirements?**

By signing a commitment letter, SMEs agree to:

- Set a **net-zero emissions target for 2050** or earlier;
- Set at least **two interim emission reduction targets** consistent with achieving net-zero emissions by 2050 or earlier;
- Develop a **preliminary net-zero plan** within 12 months of joining the Challenge and a **comprehensive net-zero plan** within 24 months of joining;
- **Complete Participation Checklists** attesting to the content of the preliminary and comprehensive plans, and progress reports; and
- **Report on progress annually** and review and update plans every five years.

### 2.2.1 Participation Stream

SMEs can join the Net-Zero Challenge as Stream 3 participants by signing the Commitment Letter. SMEs are exempt from some of the Stream 3 requirements, as detailed below in Section 2.2.3.

Participants must select the proper participation stream. The Net-Zero Challenge reserves the right to discuss a participant's self-selection, including designation as an SME. In case of dispute, the Net-Zero Challenge has the right to remove a participant from the program.

#### 2.2.1.1 Becoming a Large Enterprise

**What if the business grows?**

If a participant has joined the Challenge as an SME and grows to 500 or more employees, they are required to notify the Net-Zero Challenge in their next Annual Checklist. The participant will no longer be considered an SME and will be reclassified as a regular Stream 3 participant.

The participant has 12 months from the submission of their Annual Checklist to update the information in their Preliminary Checklist. The participant has 24 months from the submission of their Annual Checklist to update the information in their Comprehensive Checklist. Specifically, the net-zero target inventory and targets must be updated to include at least the single most relevant category of scope 3 emissions, and climate-related financial disclosures based on the recommendations identified by the Task Force on Climate-related Financial Disclosures. The participant's Participation Tier status will be re-evaluated following the submission of their new Comprehensive Checklist.

## 2.2.2 GHG Emissions Inventory

### 2.2.2.1 Emissions Sources

For guidance on identifying and quantifying emissions sources, please refer to the Technical Guide section 4.4. The Technical Guide sections 4.4.1, 4.4.2, and 4.4.3 provide specific guidance and examples for scope 1, scope 2, and scope 3 emissions, respectively. Additionally, the third-party resources listed under GHG Inventory in section 2.6 below may be of use to participants when calculating emission inventories.

### 2.2.2.2 Categorisation of Leased Assets

Many SMEs lease some of their assets but may not know how to categorize the associated emissions. When creating their GHG emissions inventory, participants should refer to Chapter 4 of the GHG Protocol's *Corporate Accounting and Reporting Standard – Revised Edition*.

## 2.2.3 Minimum Requirement Guidance Specific to SMEs

### 2.2.3.1 Scope 3 Emissions

SMEs are exempt from the requirement to include the single most relevant category of scope 3 emissions; however, SMEs are encouraged to include relevant scope 3 emission categories in their net-zero plan. The inclusion of Scope 3 categories in emissions reductions targets is rewarded through the program's tier system.

### 2.2.3.2 Climate-Related Financial Disclosures

SMEs are exempt from the requirement to provide information on climate-related financial disclosures based on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). It is recommended that all companies follow the recommendations of the Task Force.

## 2.3 Mitigation Strategies

### 2.3.1 Mitigation Strategies Minimum Requirements

In the Participation Checklists, participants must provide high-level information on planned mitigation strategies, for each applicable scope of emissions. One example per emissions scope will be considered sufficient to meet this minimum requirement.

Participants should refer to the Technical Guide sections 5.3.2 – 5.3.4 for more information and examples of mitigation strategies.

### 2.3.2 Offsets

Participants may use offset credits as a strategy to achieve net-zero emissions in their net-zero plans. In all cases, participants should first seek to avoid and reduce as much of their own scope 1, 2, and 3 emissions as possible, and then use offset credits as a last resort to compensate for any residual emissions, including hard-to-abate emissions.

All participants must report whether they plan to use offset credits in their net-zero plans and for which scope of emissions they anticipate using those offset credits.

All participants should ensure that all offset credits used in their net-zero plans follow the guidelines and recommendations set out below. All participants are encouraged to be as transparent as possible when it comes to the use of offsets in their net-zero plans.

If participants choose to use offset credits in their net-zero plan, it is strongly recommended that domestic credits be used only for a participant's domestic operations (see section 2.3.2.2 below) and that international credits be used only for a participant's international operations (see section 2.3.2.3 below).

#### 2.3.2.1 General Guidelines

Offset credits can be generated by projects that avoid releasing emissions to the atmosphere, such as landfill methane destruction, as well as from projects that remove carbon from the atmosphere, such as nature-based solutions (e.g., improved forest management) or technology-based solutions (e.g., direct air carbon dioxide capture and sequestration). Offset credits from compliance-based offset systems or reputable voluntary programs[1] can be used. If a participant chooses to use offsets from voluntary programs, it is recommended the credits come from one of the Endorsed Standards by the International Carbon Offset and Reduction Alliance (ICROA).

Participants should ensure that all offset credits used in their net-zero plan, regardless if they are from a compliance-based system or a reputable voluntary program, are high quality, reflecting additional, quantified, verified, unique, permanent and real emissions reductions.[2] When purchasing credits, participants may also wish to consider the project type, as well as other social or economic goals such as job creation, economic opportunities for local and

[1] Reputable voluntary offset programs are those in which robust governance structures are established that provide appropriate oversight to safeguard environmental integrity of offset credits and ensure the accuracy of publicly available information. A credit listing service is not considered to be a reputable voluntary offset program.

[2] In line with ISO 14064-2: 2019 *Greenhouse gases - Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements* and the Pan-Canadian Greenhouse Gas Offsets Framework, agreed by the Canadian Council of Ministers of the Environment in 2018.

Indigenous communities and supporting broader efforts related to reconciliation. Once purchased, offset credits are retired, voluntarily cancelled, or otherwise removed from circulation in the associated offset system registry.

Participants should also ensure that any offset credits used are valid at their time of use and reflect reductions or removals with comparable timescales and environmental integrity as emissions reductions achieved in house. This means that offset credits can only be used if they reflect emissions reductions that have occurred after the participant's baseline year (e.g., if you have a baseline of 2015, you cannot use a credit that represents emissions reductions from the year 2014). In a given year, participants should aim to use offset credits that have been issued no more than 8 years ago. Offset credits should represent emissions reductions or removals for one or more of the GHGs (i.e., $CO_2$, $CH_4$, etc.) reported in Canada's most recent National Inventory Report. In addition, if an offset credit is used, and is then found to be invalid at a later time, the participant must add those emissions back to their GHG emissions inventory, or compensate for those emissions by purchasing and retiring additional offset credits, unless the offset system under which those credits were issued has seller liability (see of the Technical Guide section 4.5.4)[3].

Participants may wish to align their net-zero plan with the Voluntary Carbon Markets Integrity Initiative Claims Code of Practice to align their use of carbon offsets with the goals of the Paris Agreement.

#### 2.3.2.2 Domestic Offsets

Participants may choose to purchase domestic offset credits generated from the voluntary offset market. These offset credits should meet the general guidelines outlined above. For Canadian operations, it is strongly recommended that participants seek offset credits generated from reputable voluntary offset programs such as one of the Endorsed Standards by the International Carbon Offset and Reduction Alliance (ICROA), that also align with the best practices outlined in the Canadian Council of Ministers of the Environment *Pan-Canadian Greenhouse Gas Offsets Framework*.

#### 2.3.2.3 International Offsets

Participants are allowed to use international offset credits. It is strongly recommended that these credits be used only for a participant's international operations. International offset credits should be generated from established and reputable offset systems or programs and any offset credits used should have high environmental integrity, such as Endorsed Standards by the International Carbon Offset and Reduction Alliance (ICROA). These offset credits should meet the general guidelines mentioned above.

For domestic operations, it is strongly recommended that post 2025, international offset credits should only be used if they fully comply with the rules for Internationally Transferred Mitigation Outcomes (ITMOs) established in Article 6 of the Paris Agreement, and with all subsequent applicable decisions adopted by the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties, and any further criteria for international offsets developed by Environment and Climate Change Canada.

[3] An offset system has seller liability if it requires the project proponent to replace credits that are later found to be invalid, as in the case of Canada's GHG Offset Credit System.

## 2.4 Corporate Governance

As part of the comprehensive net-zero plan, all participants including SMEs must provide a description of their corporate governance strategy. This should demonstrate how net-zero planning, climate change targets, and, more broadly, climate change risks and opportunities, are incorporated into business and/or investment decisions.

There are no specific criteria that participants must present in their net-zero plan to demonstrate that they are meeting this requirement, since a corporate governance strategy may look different for each participant. Rather, **participants must simply provide evidence that there is publicly available information on their corporate governance strategy and how it considers the net-zero plan**.

**Some questions that could be considered include:**

- How will the net-zero plan be incorporated into capital investment decisions to ensure that the right investments are made in a timely manner (e.g., when there is a capital stock turnover) to allow the company to meet its emissions reduction targets?
- Is there a member or members of your business who are responsible for overseeing net-zero planning and implementation? If your business has a board, what role does it and the executive leadership have in overseeing net-zero planning and implementation?
- What accountability mechanism within the corporate governance structure is in place to ensure sustainability targets are met (e.g., Environmental, Social, and Governance (ESG) criteria as a metric in executive compensation)?
- How is management informed about progress on implementing and meeting the targets of the net-zero plan?

## 2.5 Participation Tier Ambition Criteria Specific for SMEs

The participation tiers reward ambition in net-zero planning through five different participation tier levels: Bronze, Silver, Gold, Platinum, and Diamond. All participants will achieve the Bronze tier level for meeting the minimum requirements of the Net-Zero Challenge. If a participant wishes to advance to higher tier levels, they will have to meet additional criteria as described in Table 11 and explained in Section 2.5.1.

Participants will only receive a participation tier after submitting the Comprehensive Checklist, which is required within 24 months of signing the Commitment Letter. Participation tiers are re-evaluated each time a participant submits an Annual Checklist. In order to remain in a higher participation tier, participants must continually demonstrate how they are meeting its criteria, and the criteria for all the tiers below it, through the Annual Checklists.

**Table 11**: SME Specific Participation Tier Ambition Criteria

| Criteria | Bronze | Silver | Gold | Platinum | Diamond |
|---|---|---|---|---|---|
| 1) Must include one scope 3 category in the net-zero plan | | ✓ | ✓ | ✓ | ✓ |
| 2) Must have at least a 40% emissions reduction target for the first interim target for scope 1 and 2 emissions | | | ✓ | ✓ | ✓ |
| 3) Must have absolute reduction targets for the scope 1 and 2 interim targets | | | ✓ | ✓ | ✓ |
| 4) Must provide increased disclosure on planned and implemented use of offset credits | | | ✓ | ✓ | ✓ |
| 5) Must include two scope 3 categories in the net-zero plan | | | | ✓ | ✓ |
| 6) Must disaggregate scope 1, scope 2, and scope 3 interim targets | | | | ✓ | ✓ |
| 7) Must publish a stand-alone net-zero plan for Canadian facilities and operations | | | | ✓ | ✓ |
| 8) Must ensure that 50% of offset credits used to offset emissions from Canadian facilities and operations are from federal or provincial governments offset systems OR from domestic projects registered under an Endorsed Standard as listed by the International Carbon Reduction and Offset Alliance (ICROA) | | | | ✓ | ✓ |
| 9) Must have at least a 40% emissions reduction target for the first interim target for scope 1, 2 and 3 emissions | | | | | ✓ |
| 10) Must have absolute reduction targets for scope 3 interim targets | | | | | ✓ |
| 11) Must ensure that 100% of offset credits used to offset emissions from Canadian facilities and operations are from federal or provincial government offset systems OR from domestic projects registered under an Endorsed Standard as listed by the International Carbon Reduction and Offset Alliance (ICROA) | | | | | ✓ |

### 2.5.1 Participation Tier Ambition Criteria

Please note that SME Participation Tier Ambition Criteria points 1, 5, 8, and 11 differ from regular Stream 3 Participation Tier Ambition Criteria.

1) **Must include one scope 3 category in the net-zero plan:** The net-zero plan, including the GHG emissions inventory, the interim targets, and the net-zero target, must include the most relevant scope 3 category (see Technical Guide section 4.3.3 for defining relevant scope 3 categories).

2) **Must have at least a 40% emissions reduction target for the first interim target for scope 1 and scope 2 emissions:** The first interim target ambition must be at least a 40% emissions reduction target compared to the baseline for scope 1 and scope 2 emissions. This applies regardless of whether it is a combined scope 1 and 2 target or if scope 1 and 2 targets are set separately. In the latter case, both must meet the 40% emissions reduction threshold.

3) **Must have absolute reduction targets for the scope 1 and scope 2 interim targets:** The interim targets for scope 1 and scope 2 emissions must be expressed as absolute reduction targets rather than as emissions intensity targets (see Technical Guide section 6.2.3).

4) **Must provide increased disclosure on planned and implemented use of offset credits:** In addition to the minimum requirements, participants must specify from which organizations they plan to purchase offset credits or explicitly state that this information is to be determined and will be disclosed at a later date. Once offset credits are purchased and used to declare lower emissions, participants must disclose in progress reporting the organizations from which the credits were purchased. If a participant does not include the use of offset credits in their net-zero plan, then they do not need to meet this criterion in the participation tiers.

5) **Must include two scope 3 categories in the net-zero plan:** The net-zero plan, including the GHG emissions inventory, the interim targets, and the net-zero target, must include the two most relevant scope 3 categories (see Technical Guide section 4.3.3 for defining relevant scope 3 categories).

6) **Must disaggregate scope 1, scope 2, and scope 3 interim targets:** The interim targets for scope 1, scope 2, and scope 3 emissions must be stated separately.

7) **Must publish a stand-alone net-zero plan for Canadian facilities and operations:** A net-zero plan is developed and published for the participant's Canadian facilities and operations. A published stand-alone net-zero plan means the key non-confidential content of the net-zero plan is presented in a contained or stand-alone manner, rather than the information being embedded throughout sustainability or other annual reports. For multi-national companies, this could mean having a Canadian-specific portion in a global level plan, such as in a separate section, an annex, or an appendix.

8) **Must ensure that 50% of offset credits used to offset emissions from Canadian facilities and operations are from federal or provincial government offset systems OR from domestic projects registered under an Endorsed Standard as listed by the International Carbon Reduction and Offset Alliance (ICROA):** Note

that this only applies to offset credits that are used in the current and future reporting years. If a participant does not include the use of offset credits in their net-zero plan, then they do not need to meet this criterion to achieve the participation tier.

9) **Must have at least a 40% emissions reduction target for the first interim target for scope 1, scope 2, and scope 3 emissions:** The first interim target ambition must be at least a 40% emissions reduction target compared to the baseline for scope 1, scope 2, and scope 3 emissions. As per criteria 6, mentioned above, this criterion will apply to the disaggregated scope 1, scope 2, and scope 3 interim targets (i.e., each target must meet the 40% threshold).

10) **Must have absolute reduction targets for scope 3 interim targets:** In conjunction with criteria 3, mentioned above, the interim targets for scope 1, scope 2, and scope 3 emissions must all be expressed as absolute reduction targets rather than as emissions intensity targets (see Technical Guide section 6.2.3).

11) **Must ensure that 100% of offset credits used to offset emissions from Canadian facilities and operations are from federal or provincial government offset systems OR from domestic projects registered under an Endorsed Standard as listed by the International Carbon Reduction and Offset Alliance (ICROA):** Note that this only applies to offset credits that are used in the current and future reporting years. If a participant does not include the use of offset credits in their net-zero plan, then they do not need to meet this criterion to achieve the participation tier.

## 2.6 Resources for SMEs

**What resources are available for SMEs?**

Below are links and brief descriptions of tools and resources that may be useful to SME participants, especially those at the beginning of their net-zero journey. More resources are available under the resources section of the Net-Zero Challenge website.

### 2.6.1 From the Government of Canada

- Business Benefits Finder
  A tool to help businesses find government programs to help grow their business.
- Clean Growth Hub
  The whole of government focal point for clean technology that helps innovators and adopters navigate and access federal programs and services.

### 2.6.2 Third Party Links

#### Net-Zero Planning

- Guide to Greenhouse Gas Management for Small Business & Low Emitters
  This guide walks the user through the following key steps: getting started, calculating greenhouse gas emissions, creating a GHG inventory management plan, setting a reduction goal, and tracking progress.

- Net-Zero Ambition Disclosure (NAD) Tool
  The Net-Zero Ambition Disclosure (NAD) Tool is a generic, SME-friendly self-assessment tool that scores the organization's commitment to, and progress toward, science-based net-zero targets. It also suggests over two dozen actions that would reduce Scope 1, 2, and 3 GHG emissions.

## GHG Inventory

- GHG Protocol's Corporate Accounting and Reporting Standard
  The GHG Protocol Corporate Standard provides standards and guidance for companies and other types of organizations preparing a GHG emissions inventory.
- Simplified GHG Emissions Calculator
  The EPA Simplified GHG Emissions Calculator is designed as a simplified calculation tool to help small business and low emitter organizations estimate and inventory their annual greenhouse gas (GHG) emissions.
- Business Carbon Calculator
  The Business Carbon Calculator helps SMEs estimate their company's full carbon footprint and find quick-win actions to reduce emissions.
- Emission Factors and Reference Values
  This document provides emission factors and reference values that a participant may use to quantify the GHG emissions.

## Disclosure and Reporting

- A Climate Disclosure Framework for Small and Medium-sized enterprises
  This framework provides guidelines for SMEs on measuring their emissions, setting greenhouse gas reduction targets grounded in science, taking bold actions, reporting on progress and ultimately reducing emissions.
- Financial Impacts of Climate Form
  The Financial Impacts of Climate Form (FICF) is a free, open-source tool, designed to help companies develop qualitative TCFD-aligned disclosures of climate-related information.

# 3 How to Develop a Net-Zero Plan

## 3.1 Preliminary Checklist

The Preliminary Checklist is due within 12 months of submitting the Commitment Letter; however, participants can submit it earlier, should they wish.

For this checklist to be approved, participants must meet the following minimum requirements:

- have a publicly announced net-zero target for 2050 or earlier for all appropriate scopes (see section 3.1.1);
- provide a baseline greenhouse gas (GHG) emissions inventory that meets the requirements of the NZC (see section 3.1.2); and
- provide Greenhouse Gas Reporting Program (GHGRP) emissions reporting information, if applicable (see section 3.1.3).

More detailed information on each of the minimum requirements for the Preliminary Checklist are outlined in the following sections.

### 3.1.1 Net-Zero Target

Participants must have a publicly announced net-zero target for 2050 or earlier for all scope 1 and 2 emissions (see section 3.1.2.4). The target can be announced on the company's website, in a public-facing report, or in any manner that is available to the public. The Net-Zero Challenge recommends an absolute emissions reduction target, but either an absolute emissions reduction or emissions intensity target is acceptable.

An **absolute emissions reduction target** is defined by a percentage reduction in absolute emissions. An **emissions intensity target** is defined by a reduction in emissions relative to productivity or economic output. In either case, the target must be net-zero, meaning that either no GHGs are emitted, or all remaining emissions are offset.

### 3.1.2 Baseline GHG Emissions Inventory

The initial GHG emissions inventory is the baseline or starting point for the net-zero plan, clearly showing the gap between a participants' current emissions and its goal for net-zero emissions by 2050. The more accurate the inventory, the more accurate the estimate of the gap to net-zero.

The GHG emissions baseline is the GHG emissions inventory at one point in time, serving as the reference point for the interim and net-zero targets. If a participant has an existing GHG emissions inventory that meets the requirements stipulated in the following sections, it may be used as the baseline. If a participant does not have an existing GHG emissions inventory, their first inventory will serve as their baseline.

In the future, changes to the GHG emissions baseline may be needed due to changes to the company (e.g., mergers, acquisitions, expansions), to the calculation methods (e.g., more accurate measurement), or for other unforeseen reasons. If this occurs, participants should update their baseline when updating their net-zero plan and include an explanation for the changes.

#### 3.1.2.1 Baseline Year

A baseline year needs to account for 12 full months of emissions data for the company's scope 1 and 2 GHG emissions. SMEs are also encouraged, but are not required, to include scope 3 emissions in their inventory. It can either be a full calendar year, or 12 contiguous months spanning two years (e.g., March 2019 to February 2020).

If a participant is using a new baseline, it should be set as close to the present date as possible, but no earlier than five years prior to developing the preliminary plan. The baseline year must be provided along with the scope 1 and 2 emissions when completing the Preliminary Checklist.

For companies not yet in production, they can select a year in the future within five years of developing the preliminary plan that would be estimated to have stable production, and provide estimates for the baseline inventory.

#### 3.1.2.2 Inventory Boundary

Inventory boundaries determine the extent of the GHG emissions inventory. These boundaries can be conceptualized by three complementary criteria: geography, organization, and emissions scopes.

**Geographic boundaries** refer to the geographic area where emissions are produced. As much as possible, net-zero plans and GHG emissions inventories should centre on Canadian domestic operations. Participants who are multi-national companies or subsidiaries of a multi-national company may use their (or their parent company's) existing global plans and targets. However, it is strongly recommended that participants develop Canadian-specific plans and targets after joining the NZC, if possible.

**Organizational boundaries** refer to how to define the company or corporation for the purposes of establishing a GHG inventory. These boundaries are easily defined for smaller organizations that wholly own all their operations. It is a more complex task for larger corporations. The GHG Protocol Corporate Standard describes three standard approaches to define these boundaries: 1) equity share; 2) operational control; and 3) financial control. Participants may use any of these approaches when defining their organizational boundary. Appendix F to the GHG Protocol Corporate Accounting and Reporting Standard details how to account for the emissions associated with leased assets.

Within the organizational boundaries, it is important to determine the scope of emissions to be included (see section 3.1.2.4).

#### 3.1.2.3 Emissions Inventory Data

GHGs include a range of gases, such as carbon dioxide (CO2) and methane (CH4). For the Net-Zero Challenge, where relevant and to the extent possible, net-zero plans, interim targets, and the GHG emissions inventory should cover all the GHGs that are subject to reporting for the Greenhouse Gas Reporting Program (GHGRP). As of December 18, 2021, this includes carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulphur hexafluoride (SF6), 13 different hydrofluorocarbons (HFCs), and seven different perfluorocarbons (PFCs).

All of the identified GHGs that fall within the participant's operational boundaries should be quantified separately and then reported as a total in CO2 equivalents (CO2 eq). GHGs can be converted to CO2 eq by using the GHG's global warming potential (GWP). The GWP is a common metric that was developed to allow comparisons of the warming impacts of different

GHGs relative to CO2. Participants should use the most recent updates to the GWPs as reported by Canada's GHGRP.

For more information about the data needed to quantify emissions, please refer to section 3.1.2.4 on emissions scopes.

### 3.1.2.4 Emissions Scopes

Emissions scopes can be divided into two main categories: direct and indirect emissions. The GHG Protocol defines direct emissions as "emissions from sources that are owned and controlled by the company." These are known as scope 1 emissions (see section 3.1.2.4.1). The GHG Protocol defines indirect emissions as emissions that "are a consequence of the activities of the company but occur at sources owned or controlled by another company." They result from a company's activities, but the actual release of emissions occurs elsewhere. Indirect emissions can be divided into purchased energy, known as scope 2 emissions (see section 3.1.2.4.2), and value chain emissions, known as scope 3 emissions. Please refer to the GHG Protocol Corporate Standard for more details on these emissions scopes.

All participants must include scope 1 and 2 emissions in their net-zero plans and GHG emissions inventory. If a participant does not have scope 1 or 2 emissions to report, this must be explained in the checklists. SMEs are encouraged, but not required, to include as many categories of scope 3 emissions as possible.

Participants must state their baseline emissions in absolute terms (e.g., XXX kt $CO_2$ eq) for scope 1 and scope 2 emissions.

Emission factors are pre-determined values that have been calculated to quantify emissions associated with various activities, following detailed methodologies. When using emission factors to quantify GHG emissions, participants should use those developed for Canada's latest National Inventory Report (Annex 6), to the extent possible. Additional resources for emission factors and quantifying GHG emissions can be found under the resources section on the Net-Zero Challenge Website.

#### 3.1.2.4.1 Scope 1

**Scope 1 emissions include the following:**

- Generation of electricity, heat, or steam: emissions from fuel combustion in company owned/controlled stationary sources (e.g., boilers, furnaces, turbines);
- Physical or chemical processing: emissions from the manufacturing or processing of chemicals and materials (e.g., cement, petrochemicals) and waste processing;
- Transportation of materials, products, waste, and employees: emissions from the fuel combustion in company owned/controlled mobile combustion sources (e.g., trucks, trains, ships, airplanes, buses, and cars); and
- Fugitive emissions: emissions from intentional or unintentional releases (e.g., equipment leaks from joints, seals, packing, and gaskets; methane emissions from coal mines and venting hydrofluorocarbon (HFC) emissions during the use of refrigeration and air conditioning equipment; and methane leakages from gas transport).

Scope 1 emissions are direct emissions principally resulting from the types of activities undertaken by a company.

When first compiling an emissions inventory, all participants will need to identify their direct emissions from one or more of the types of activities listed above. Each participant will have a different proportion of emissions from each category. Many Stream 3 SME participants, such as office-based organizations, may not have any direct emissions.

There are no specific methodologies for identifying scope 1 emissions. Rather, participants should have an understanding of where their direct emissions come from given their operations and given the descriptions of common direct emissions sources. Participants are encouraged to be as broad as possible when identifying their scope 1 emissions and should include even the smallest of sources in their GHG emissions inventory.

GHG emissions from the identified sources can be calculated either directly or indirectly. Monitoring and measuring GHG emissions is considered the “gold standard” for quantifying emissions, and thus participants with this capacity are encouraged to do so. GHG emissions from many common scope 1 activities can also be calculated indirectly by using emission factors.

If applying emission factors, participants will need to gather information related to scope 1 activities (e.g., the amount of fuel used in company-owned vehicles). Multi-national companies developing global net-zero plans should use country-specific or activity-specific emission factors whenever possible. The GHG Protocol provides several online calculation tools and calculation guidance, including cross-sector tools, for common emissions sources like stationary combustion and transportation, and sector-specific tools for specific industries.

#### 3.1.2.4.2 Scope 2

Scope 2 emissions are indirect emissions from electricity, heating, cooling, or steam that a company purchases for its own use. These purchased forms of energy include the direct transfer of these energy forms as well as electricity from electricity grids.

To quantify scope 2 emissions, participants need to determine their total consumption of these purchased energy forms on an annual basis. For electricity purchased from the grid, participants can simply refer to their utility bills to determine consumption. Emission factors can be used to quantify the emissions from this consumption. Canada’s latest National Inventory Report (NIR) includes electricity emission factors reflecting the Canadian federal, provincial, and territorial averages (found in Annex 13 of the NIR). Participants may also use more localized emission factors, should the information be available.

For guidance on determining the quantity of steam, heat, and cooling, and for complex electricity situations (e.g., shared buildings), refer to the GHG Protocol’s Scope 2 Guidance. Please refer to section 3.1.2.4, when quantifying emissions from leased assets.

### 3.1.3 Greenhouse Gas Reporting Program

Participants that have facilities reporting to the Greenhouse Gas Reporting Program (GHGRP) must include the aggregate total emissions reported to the GHGRP from all applicable facilities for scope 1, or submit scope 1 emissions for their Canadian operations. In the Preliminary Checklist, companies must provide this information for the baseline year that they are using. They must also provide this information for each subsequent annual GHG emissions inventory when submitting their Annual Checklist (see section 3.3).

Participants that do not have facilities reporting to the GHGRP are not subject to this requirement.

## 3.2 Comprehensive Checklist

The Comprehensive Checklist is due within 24 months of submitting the Commitment Letter; however, participants can submit it earlier, should they wish.

For this checklist to be approved, participants must meet all of the minimum requirements of the Preliminary Checklist (see section 3.1) as well as the following minimum requirements:

- provide evidence of scenario analysis (see section 3.2.1);
- provide evidence of mitigation strategies (see section 3.2.2);
- disclose information on offset credit use (see section 3.2.2.3);
- have a publicly announced first interim target(s) (see section 3.2.3); and
- provide evidence of corporate governance on climate change (see section 3.2.4).

More detailed information on each of the minimum requirements for the Comprehensive Checklist are outlined in the following sections.

### 3.2.1 Scenario Analysis

Scenarios serve as the framework for modelling different pathways to achieving net-zero. Developing scenarios and identifying pathways to net-zero are at the core of net-zero planning; without it, the net-zero target risks being little more than an aspiration. A pathway to net-zero informs how a participant can influence their current level of GHG emissions and reduce them to net-zero by 2050 or earlier. A detailed and plausible pathway to net-zero that clearly describes the actions to meet net-zero is one way a company can avoid "greenwashing."

Scenarios are not predictions of what will happen in the future; they are narratives of possible futures based on a set of assumptions. Different scenarios are based on different assumptions and mitigation strategies so that a variety of different futures can be explored.

In general, a pathway to net-zero will demonstrate the overall rate of emissions reductions needed to be consistent with net-zero by 2050, and whether a larger proportion of emissions reductions will occur earlier, later, or be consistent throughout the timeframe. This forms the basis for choosing robust interim targets grounded in carefully developed scenarios.

Participants are required to provide high-level information of their scenarios in their net-zero plans. Participants do not need to disclose detailed parameters of their scenario analysis; however, it is strongly encouraged that participants make as many details of their scenario analysis publicly available to the greatest extent possible.

Participants will need to continually assess their scenarios and adjust their assumptions and mitigation strategies based on changing information. The pathways to net-zero should be modified based on any changes made to the scenarios. This is why the Net-Zero Challenge requires that participants update their net-zero plans in the Updated Plan Checklist at least once every five years (see the Technical Guide section 3.4). There is also a list of resources to aid participants in scenario analysis on the Net-Zero Challenge website.

#### 3.2.1.1 Creating Scenarios

Participants must demonstrate that they have engaged in scenario analysis to develop their net-zero plans based on authoritative information. This could include using global scenarios developed by external sources or developing scenarios in-house. With either approach, participants should couple the scenarios with modelling of potential mitigation strategies to identify potential pathways to net-zero emissions by 2050.

Internationally-recognized scenarios, such as those produced by the Intergovernmental Panel on Climate Change (IPCC) or the International Energy Agency (IEA), cover a range of possible future developments and are created from a global perspective. Many of these scenarios take a top-down approach and are derived from integrated assessment models, while other scenarios are intended to achieve a specific goal and are derived from sub-global perspectives, back-casting, and sectoral roadmaps. These scenarios are useful as a starting point and are most useful for companies with a global reach.

Developing scenarios in-house can allow for a more tailored approach and the inclusion of more granular details specific to a participant's business. This approach, either alone or coupled with global scenarios, may be the most useful for developing a Canada-specific net-zero plan, although it carries the risk of being considered less robust by outside sources. When using in-house scenarios, participants should draw on credible sources such as the Canadian Energy Regulator, Statistics Canada, or United Nations agencies. If developing in-house scenarios, participants must indicate some of the information sources used to develop these scenarios. Participants who develop scenarios in-house may wish to use normative scenarios (see section 3.2.1.1.1).

When developing or selecting a scenario, participants should ensure that the scenario is plausible, consistent, and responsible. In the context of the Net-Zero Challenge, this means that any scenario used by a participant should result in net-zero emissions by 2050. Ideally, a responsible scenario would focus on early emissions reductions to help ensure that goal is achieved. The scenario should have realistic assumptions in the early years and can have increasingly more ambitious assumptions in the later years – as needed – to help ensure that the goal is met.

##### 3.2.1.1.1 Normative Scenarios

Normative scenarios plan for a desired future outcome, such as net-zero by 2050, and can form the basis for identifying a pathway to net-zero and selecting interim targets. In this type of scenario, the endpoint (in this case, net-zero by 2050) is pre-determined and participants will need to work backwards to identify plausible pathways to reach this goal.

For a normative, net-zero scenario, there are a few key inputs that should be included:

- the GHG emissions baseline (see section 3.1.2), which is the pathway starting point;
- relevant assumptions on the policy and socio-economic environment, and future technology and/or infrastructure development (detailed below);
- mitigation strategies (see section 3.2.2); and
- net-zero emissions 2050 (see section 3.1.1), which is the pathway endpoint.

It is possible to develop a scenario by only modelling the chosen mitigation strategies. This may be sufficient to identify a reasonable – and actionable – pathway to net-zero, without taking into

consideration a broader context, especially for participants with a relatively small gap between their starting point and net-zero. However, most scenarios will need to make several assumptions regarding the following:

- Policies and regulations (e.g., carbon pricing, offset credits, GHG emissions regulations);
- Socioeconomic factors (e.g., expected prices or costs, population growth);
- Infrastructure (e.g., future availability of clean electricity, hydrogen, pipelines); and
- Technology (e.g., when known but nascent technology will become commercially viable; the potential for technology that is in the research, development, and demonstration (RD&D) phase).

## 3.2.2 Mitigation Strategies

Participants must provide high-level information on planned mitigation strategies for each applicable scope of emissions. One example per emissions scope will be considered sufficient to meet this minimum requirement. Mitigation strategies that include early actions and that result in early emissions reductions should be prioritized whenever possible, as these will contribute to the most likely pathways for Canada and the world to meet net-zero by 2050.

Strategies that avoid creating emissions in the first place are preferred. Emissions that cannot be avoided should be reduced, and emissions that cannot be reduced should be offset. There is a wide range of mitigation strategies that can be deployed to reduce scope 1 and 2 emissions, and the examples provided throughout the next sections are meant to be illustrative; they are neither exhaustive nor prescriptive. Additionally, mitigation strategies can be informed by resources produced by reputable organizations such as the IEA, the United Nations, the Government of Canada, the Canadian Net-Zero Advisory Body, and non-profit think-tanks. The Net-Zero Challenge website also includes a list of resources on net-zero planning to aid participants.

### 3.2.2.1 Scope 1

There are many potential mitigation strategies for scope 1 emissions. For example, electrification and energy efficiency are recognized as key mitigation strategies by Canada's Net-Zero Advisory Body. In addition, participants that own vehicle fleets can consider transitioning their fleets to zero-emission vehicles; participants that own or have operational control over buildings can look to replace less efficient heating and cooling systems with more energy efficient ones. Other mitigation strategies, especially for industrial emissions, include implementing clean technology solutions, such as carbon capture, utilization and storage (CCUS), capturing fugitive methane leaks, switching to cleaner fuels, or using renewable energy.

When identifying mitigation strategies for scope 1 emissions, participants should also be aware of any regulatory requirements that they must meet in their business sector. Please see Environment and Climate Change Canada's Acts and Regulations Website for more information.

### 3.2.2.2 Scope 2

When mitigating scope 2 emissions, participants should first seek to reduce their purchased electricity (and heat/steam/cooling) by reducing demand (where possible) and employing energy efficiency measures. This can range from simple and modest measures such as using less air conditioning, installing energy efficient appliances or lightbulbs, to investments in renewable energy produced on-site.

Once the available demand reductions and energy efficiency measures have been incorporated into the net-zero plan, remaining scope 2 emissions can be addressed through the purchase of offset credits (see section 3.2.2.3), by entering into off-site power purchase agreements, or by participating in utility green power programs.

#### 3.2.2.3 Emissions Offsetting

Participants may use offset credits as a strategy to achieve net-zero emissions in their net-zero plans. In all cases, participants should first seek to avoid and reduce as many of their emissions as possible, and then use offset credits as a last resort to compensate for any residual emissions, including hard-to-abate emissions. All participants must report whether they plan to use offset credits in their net-zero plans and for which scope of emissions they anticipate using those offset credits.

If participants plan to use offset credits, they should follow the guidelines and recommendations set out in the Technical Guide section 5.3.5. All participants are encouraged to be as transparent as possible when it comes to the use of offset credits in their net-zero plans.

Offset credits from compliance-based offset systems or reputable voluntary programs can be used. If a participant chooses to use offsets from voluntary programs, it is recommended the offset credits are issued by Canadian federal and provincial government offset systems or come from one of the Endorsed Standards by the International Carbon Offset and Reduction Alliance (ICROA).

### 3.2.3 Interim Targets

Participants must set two sets of sequential interim targets on the path to net-zero by 2050. This refers to two sets of interim targets set at different points in time. The first interim target must be defined in the Comprehensive Checklist. The second interim target can be left undefined until participants update their net-zero plans for the first time (up to five years after submitting the Comprehensive Checklist). Interim targets modifications must be detailed in the Annual Checklist or the Updated Plan Checklist, whichever comes first.

If a participant has set their net-zero target for the year 2040 or earlier, then only one interim target is required. If a participant has set their net-zero target for 2030 or earlier, then no interim targets are required.

The date of the first interim target must be at least five years from the date of joining the NZC, but no later than 2035. The date of the second interim target must be at least five years from the date of the first interim target, but no later than 2045. Interim targets must be anchored to specific years, such as 2030 and 2040. Participants can choose the years they wish, so long as the interim targets adhere to the timeline parameters described above.

Emissions reduction targets can be stated in terms of emissions intensity or absolute emissions reductions. It is strongly recommended that participants set an absolute reduction net-zero target for all of their emissions. An absolute emissions reduction target is defined by a percentage reduction in absolute emissions; for example, a participant's interim target could be a 50% reduction of GHG emissions by 2030. An emissions intensity target is defined by a reduction in emissions relative to productivity or economic output; for example, a participant's interim target could be a 50% reduction of GHG emissions per unit sold by 2030. Although these examples are expressed as percentages, this is not a mandatory requirement. Interim targets can be expressed as a specific reduction amount (e.g., 5 megatons (Mt)), so long as it is

measurable against the GHG emissions inventory baseline and meets the other parameters described in this section.

Scope 1 and 2 emissions can be aggregated together, but scope 3, if included, must be disaggregated. The first interim target for scope 1 and scope 2 emissions must meet a minimum threshold of ambition.

#### 3.2.3.1 Minimum Ambition Threshold

The Net-Zero Challenge stipulates a minimum ambition threshold for the first interim target for scope 1 and 2 emissions. Note that there is no maximum threshold; however, participants are encouraged to be as ambitious as possible with their first interim targets. The minimum ambition threshold is determined from a straight-line reduction path to net-zero: participants are allowed to set the first interim target for scope 1 and scope 2 emissions up to 40% less than an interim target based on the straight-line path. The minimum ambition threshold can be determined by calculating the minimum ambition annual reduction rate and multiplying that by the number of years to the first interim target.

**Equation 1. Minimum Ambition Annual Reduction Rate:**

$$0.6 \times \left(\frac{100\%}{(\text{Net-Zero Target Year} - \text{Base Year})}\right)$$

**Equation 2. Minimum Ambition Threshold:**

$$\text{Minimum Ambition Annual Reduction Rate} \times (\text{Interim Target Year} - \text{Base Year})$$

**Equations 1 & 2 Combined:**

$$\left[0.6 \times \left(\frac{100\%}{(\text{Net-Zero Target Year} - \text{Base Year})}\right)\right] \times (\text{Interim Target Year} - \text{Base Year})$$

### 3.2.4 Corporate Governance

As part of the comprehensive net-zero plan, all participants, including SMEs, must provide a description of their corporate governance strategy. This should demonstrate how net-zero planning, climate change targets and, more broadly, climate change risks and opportunities are incorporated into business and/or investment decisions.

There are no specific criteria that participants must present in their net-zero plan to demonstrate that they are meeting this requirement since a corporate governance strategy may look different for each participant. Rather, participants must simply provide evidence that there is publicly available information on their corporate governance strategy and how it considers the net-zero plan. A statement in a publicly facing report or on a public website answering some of the following questions will be considered to be sufficient evidence.

Some questions that could be considered include:

- How will the net-zero plan be incorporated into capital investment decisions to ensure that the right investments are made in a timely manner (e.g., when there is a capital stock turnover) to allow the company to meet its emissions reduction targets?
- Is there a member or members of the business who are responsible for overseeing net-zero planning and implementation? If the business has a board, what role does it and the executive leadership have in overseeing net-zero planning and implementation? How often do they meet to discuss net-zero planning and implementation?

- What accountability mechanism within the corporate governance structure is in place to ensure sustainability targets are met (e.g., Environmental, Social, and Governance (ESG) criteria as a metric in executive compensation)?
- How is management informed about progress on implementing and meeting the targets of the net-zero plan?

## 3.3 Annual Checklist

The first Annual Checklist is due within 18 months following the submission of the Comprehensive Checklist. All subsequent submissions are due within 12 months following the submission of the most recent Annual Checklist.

For this checklist to be approved, participants must meet all of the minimum requirements of the Preliminary Checklist (see section 3.1), the Comprehensive Checklist (see section 3.2), as well as the following minimum requirements:

- Provide evidence of a recent GHG emissions inventory and compare it to baseline (see section 3.3.1); and
- Provide evidence of the progress or implementation of mitigation strategies (see section 3.3.2).

More detailed information on each of the minimum requirements of the Comprehensive Checklist are outlined in the following sections.

### 3.3.1 Emissions Inventory

Participants must provide evidence of a recent GHG emissions inventory. This inventory should account for 12 full months of emissions data for at least scope 1 and 2 emissions.

When creating an annual GHG emissions inventory, participants must meet the same requirements as outlined in section 3.1.2.2 above.

Additionally, participants must clearly compare their recent GHG inventory to their baseline inventory. Any changes in the recent inventory from the baseline inventory must be highlighted and participants must explain the reasons for the change.

### 3.3.2 Implementing Mitigation Strategies

Participants must present evidence of progress in implementing mitigation strategies that were outlined in the Comprehensive Checklist, which can be a high-level overview. If no progress has been made, participants must indicate planned or future mitigation strategies. At least one mitigation strategy must be included for each scope of emissions in the participant's GHG inventory.

Participants must also disclose if they have used offset credits as a mitigation strategy in the current reporting year. If that is the case, participants must identify which scope of emissions the offset credits were used against.

**Contact**

This reference document is meant to complement the Net-Zero Challenge Technical Guide in aiding SME participants when completing their checklists. The Net-Zero Challenge is available to answer questions at defizeronet-netzerochallenge@ec.gc.ca.