



National
Defence

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CANADIAN
ARMED FORCES

DEFENCE CLIMATE AND SUSTAINABILITY STRATEGY 2023-2027

Defence and a sustainable vision for the future



Canada 



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Defence Climate and Sustainability Strategy
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Photo: MCpl True-dee McCarthy, Canadian Forces Combat Camera

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Photo: Corporal Ken Beliwicz

MESSAGE FROM THE MINISTER



I am pleased to present the Defence Climate and Sustainability Strategy 2023-2027 (DCSS). The DCSS provides an account of National Defence and the Canadian Armed Forces' (CAF) activities and contributions to support sustainable development, reduce our environmental impact, and adapt to the defence and security implications of climate change.

Through the DCSS, we continue to support the Government of Canada's commitment in the *Federal Sustainable Development Act*, the [Federal Sustainable Development Strategy \(FSDS\)](#), the [Greening Government Strategy \(GGS\)](#), and [Canada's Federal Implementation Plan for the 2030 Agenda](#), which supports the 2030 United Nations (UN) Agenda for Sustainable Development.

At Defence, we recognize the many impacts climate change has on Canadians and our economy. We are committed to supporting a green economy and green jobs by investing in energy-efficient military equipment and infrastructure upgrades. We continue to partner with industry to reduce the environmental impact of our operations and create economic opportunities across Canada.

Climate change also has real impacts on people's lives and our communities. The rising frequency and severity of natural disasters and extreme weather events are increasing demands on the CAF, which is called on as a last resort to assist communities when they need it most. We continue to work with our government partners and local authorities to provide support for Canadians, especially those most vulnerable in times of crisis. Managing the increase in such calls has implications for Canada's security and defence, at home and abroad. Climate change also has geopolitical implications, so it is critical that we adapt to our changing environment while mitigating the impact of our defence activities.

Across our great country, we remain committed to strengthening our relationships with Indigenous peoples, especially in communities where we operate. With open dialogue, the Defence Team, which includes National Defence and the CAF, will continue to regularly engage First Nations, Inuit, and Métis governing bodies and organizations on our planned projects, training exercises and military activities, particularly when they could affect Indigenous rights, lands and water. This supports Canada's [United Nations Declaration on the Rights of Indigenous Peoples Act Action Plan](#).

Moving forward, alongside our allies and partners, we will continue to address the defence and security impacts of climate change. To this end, Montréal, Que., will become the host city for the [NATO Climate Change and Security Centre of Excellence](#), an initiative led jointly by Global Affairs Canada and National Defence.

Continuing to work with our Allies, we look to the [NATO Climate Change and Security Action Plan](#) as a vital guide. Endorsed by Canada in March 2021, this action plan provides measures to address the impacts of climate change on security.

With the DCSS as our guide, we will work to increase sustainability across our operations, and demonstrate progress on our goals.

A handwritten signature in blue ink, appearing to read 'W. Blair', written over a light blue circular watermark or seal.

The Honourable Bill Blair,
Minister of National Defence



Photo: Corporal David Veldman, Canadian Armed Forces Photo

1. INTRODUCTION

1.1 SUSTAINABILITY AND NATIONAL DEFENCE

This Defence Climate and Sustainability Strategy (DCSS) outlines the Defence Team's plan to achieve a sustainable vision for our assets and operations, in Canada and around the world. It provides direction and renewed commitments to improve our environmental footprint and respond to a changing climate.

The DCSS is aligned with the Government of Canada's (GC) sustainability priorities detailed in the Federal Sustainable Development Strategy (FSDS), and the requirements of the *Federal Sustainable Development Act* (FSDA). This includes seven principles, which must be considered in the development of the FSDS, as well as Departmental Sustainable Development Strategies.

The DCSS also supports the Greening Government Strategy (GGS), which sets the GC's direction to transition to net-zero emissions and climate-resilient government operations, while also reducing environmental impacts beyond carbon, including on waste, water and biodiversity. The GGS also targets the federal environmental footprint, including real property, procurement and fleet modernization. As the largest owner of real property and purchaser of machinery and equipment in the federal government, it is of particular importance that we take concrete steps to reduce our environmental footprint and improve our resilience to climate change, in support of the GGS, FSDS and United Nations Sustainable Development Goals (UN SDGs).

With a core mandate to protect and defend Canadians and Canadian interests at home and abroad, the Defence Team must have a focused approach to sustainability, while ensuring continuity of our operational readiness. The DCSS also considers the intersection of climate change and security on the national and international stage.

The DCSS articulates our commitments to help meet the GC's greening targets, adapt to climate change, maintain sustainable real property and strengthen green procurement processes as we continue our evolution as an environmentally sustainable and climate resilient organization.



Photo: MCpl Jennifer Kusche, Canadian Forces Combat Camera

1.2 DEFENCE POLICY

Canada's 2017 Defence policy, Strong, Secure, Engaged (SSE), recognizes that climate change has emerged as a complex security challenge both at home and around the world. SSE includes several initiatives dedicated to enhancing our readiness and capabilities, in anticipation of increased demands on the CAF to respond to more frequent and extreme weather events exacerbated by climate change. SSE also recognizes the central role that National Defence must play in contributing to the GC's environmental objectives.

In Budget 2022, the federal government committed to conducting a defence policy review. While this review is not yet complete, the updated policy may yield additional guidance and initiatives relevant to the DCSS.

1.3 A SUSTAINABLE VISION

1.3.1 THE PATH TRAVELLED

The Defence Team has set out sustainability priorities and targets in support of the FSDS in previous strategies. In the last strategy, the Defence Energy and Environment Strategy 2020-2023, we committed to ambitious greening targets to support Canada's FSDS and GGS. In our last yearly report, we made progress reducing greenhouse gas (GHG) emissions, charting pathways to reach net-zero emissions, implementing new directives and assessing defence risks related to climate change. The scorecard below shows our results.

TARGET	RESULTS	ON TRACK	ACHIEVED
Reduce GHG emissions by 40% below 2005 levels by 2025 and achieve net-zero emissions by 2050	35.7% reduction in buildings and commercial light-duty vehicle fleet relative to a 2005 baseline.	✓	
Assess 75% of eligible bases or wings for an EPC and move 50% to the implementation phase by 2023	90% of eligible bases have been assessed for EPC implementation. 64% of eligible bases have moved to implementation phase.		✓
100% of DND commercial light-duty vehicle fleet purchases will be zero-emission vehicles (ZEVs) or hybrid when available, with a ZEV procurement target of 50% by 2023	86% of commercial light-duty vehicles purchased were ZEVs or hybrid (limited by availability).		✓
Develop a strategy for aviation fuels that supports the Government of Canada's goal of achieving net-zero GHG emissions by 2050	The RCAF Path to Net Zero Strategy was completed and approved in Feb 2023.		✓
Complete baseline energy and fuel usage evaluations for select marine vessels by 2023	100% of the selected 7 ships have had a baseline study completed.		✓
Reduce DND's contaminated sites liability by an average of 10% per year by 2023	11% average reduction in contaminated sites liability over the years 2020-2023.		✓
Implement a centralized geographic information system (GIS) tool for species at risk information and capture 40% of historic data by 2023	85% of the species at risk data has been entered into the GIS tool.		✓

Listening to Canadians

In preparing the DCSS, the Defence Team considered the results of public consultations with Canadians on the draft 2022 to 2026 FSDS. We have reflected Canadians' input in the DCSS by, for example, including the Defence Team's approach to gender equity and our distinctions-based approach to engaging Indigenous peoples. We have incorporated new elements on climate change awareness to highlight climate literacy, research and technology, and training opportunities. We have also increased emphasis on net-zero procurement, particularly for sustainable fuel and materiel acquisition and support for our safety and security fleet, which includes military ships, vehicles and aircraft.

THE DCSS AIMS TO...



1.3.2 SCOPE OF THE DCSS

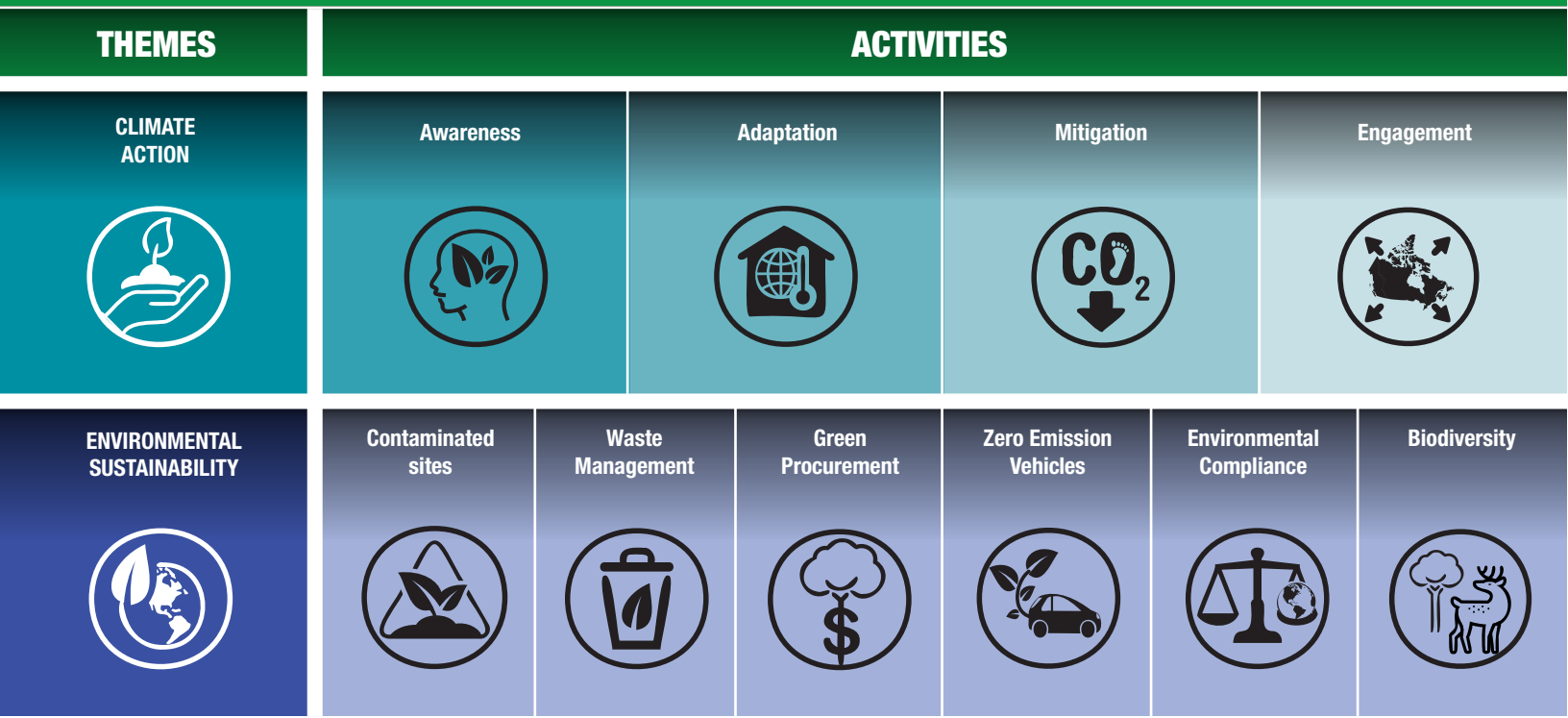
The DCSS has a broad scope. It aligns with federal initiatives to move the country in a common direction. It supports the department’s priorities, policies and strategies. It is the vehicle to communicate the Defence Team’s commitment to action and sustainable progress on climate and security. Finally, the DCSS recognizes the importance of working with allies and partners and the broader global effort to reduce the impacts of climate change.

The DCSS advances our environmental activities in alignment with the UN Sustainable Development Goals (SDGs), and the FSDS goals. Defence is responsible for responding to the following FSDS goals; Goal 10 advance reconciliation with Indigenous peoples and take action to

reduce inequality, Goal 12 reduce waste and transition to zero-emission vehicles and Goal 13 take action on climate change and its impacts. We have also included a commitment to support FSDS Goal 15, protect and recover species, conserve Canadian biodiversity.



THE DEFENCE CLIMATE AND SUSTAINABILITY STRATEGY



The DCSS is organized under two broad themes, climate action and environmental sustainability, which are aligned with the UN SDGs, FSDS goals and the NATO Climate Change and Security Action Plan.

These themes, outlined in the graphic above, contain actions, targets and foundational knowledge to help us reach our goals and increase our sustainability, resilience and environmental performance. More details on targets and alignment with the UN SDGs and FSDS can be found in the Appendix: Defence Commitments.

The Defence Team will continue to ensure that our decision-making considers FSDS goals and targets, through Gender Based Analysis Plus (GBA Plus) and strategic environmental assessment analyses.

GBA Plus is an analytical tool to assess systemic inequalities and ensure an intersectional lens is applied to all policies, programs and initiatives, including those pertaining

to the environment, to support diverse groups in Canada equitably. This analysis considers biological (sexes) and socio-cultural (gender) differences, as well as other identity factors such as race, ethnicity, religion, age, mental or physical disability.

When a Defence Team initiative undergoes a detailed strategic environmental assessment, we make a public statement to demonstrate that we considered the environmental impacts (including on FSDS goals and targets) of the approved policy, plan or program, and how we will mitigate them.

The Defence Team integrates environmental considerations in our decision-making by implementing the *Impact Assessment Act* (IAA), and through project planning and management, and departmental business processes.

Both a strategic environmental assessment and GBA Plus analysis have been completed for this strategy.



Photo: MCpl Genevieve Lapointe, Canadian Forces Combat Camera, Canadian Armed Forces photo

1.4 ADVANCING RECONCILIATION

The GC is committed to advancing reconciliation with Indigenous peoples across Canada. National Defence joins our federal partners in a whole-of-government approach to advancing and renewing the rights of First Nations, Inuit and Métis, to continue to build relationships and listen to Indigenous priorities.

In June 2023, Canada released its first [United Nations Declaration on the Rights of Indigenous Peoples Act Action Plan](#). This action plan is a starting point for ongoing consultation and cooperation with Indigenous partners and reflects another important step on our journey of reconciliation. To help align our operations with the Act, we launched the Indigenous Reconciliation Program, which supports collaboration and dialogue between Indigenous partners and National Defence.

To support FSDS Goal 10, the Defence Team is committed to renewing and strengthening our relationships with Indigenous peoples across Canada in the communities where we operate. We regularly engage First Nations, Inuit and Métis governing bodies and organizations on planned

projects, training exercises and military activities, particularly when they could affect Indigenous rights, lands and water. We have included our departmental actions toward reconciliation in the [Department of National Defence and Canadian Armed Forces Departmental Plan 2023 - 2024](#).

We have heard our Indigenous partners' concerns about the challenges posed by climate change and the shifting geopolitical context, particularly in the North and Arctic. This underscores the need to continue to advance our shared priorities and ensure Indigenous communities have meaningful opportunities for dialogue and participation in Defence activities and projects across the country.

1.5 THE ROAD AHEAD

On the road ahead, the Defence Team is focused on evolving as a sustainable security organization. This means adapting to a changing climate while remaining focused on our environmental footprint. To this end we must enable a ready military force, capable of sustainably planning for and responding to climate and security challenges at home and abroad.



Photo: Corporal Braden Trudeau Canadian Armed Forces Imagery Technician



2. CLIMATE ACTION

2.1 CLIMATE AND SECURITY

Climate change is one of the greatest threats facing humanity. It is systemic and impacts all aspects of society. The Defence Team must look at climate change as both an environmental sustainability and security challenge.

As a result of climate change, Canadians are experiencing more extreme weather, such as heavy rain, hurricanes, heatwaves, tornadoes and droughts. These events are becoming more frequent and intense, which is a concern for all Canadians. It also has important implications for the Defence Team as the CAF is increasingly called on for humanitarian support. We must also adapt our military infrastructure and equipment for a changing climate.

Climate change influences social, economic and geopolitical tensions. It changes physical landscapes and puts critical infrastructure and supply chains at risk. Globally, we are seeing climate change contribute to resource scarcity, increased geopolitical competition, the loss of livelihoods and population displacement.

In Canada and around the world, climate change can increase existing challenges and threats, and contribute to instability.

Under this climate action theme, we will continue to explore the impacts of climate change on defence operations and the steps we can take to address these challenges. To build resilience and maintain an effective and ready military force, we are committed to understanding, adapting to, mitigating and engaging on the impacts of climate change and an evolving security environment.



Photo: Corporal Connor Bennett

NATIONAL SECURITY IMPLICATIONS OF **CLIMATE CHANGE**

CLIMATE CHANGE EFFECTS



Extreme Weather Events



Fires



Flooding



Desertification



Food & Water Insecurity



Vector-Borne Disease

IMPACTS



Population Movements



Governance Disruptions



Geopolitical Flashpoints



Violent Extremists



Hostile Activities by State Actors



Economic Dissociation

RESPONSES



Disaster Assistance



Emergency Management



Security & Intelligence



International Military & Peace Support Missions

VULNERABLE GROUPS



Habitants of small islands, low-lying regions, or other areas that may become uninhabitable due to extreme weather or rising sea levels



Equity-seeking groups including women and children as well as Indigenous communities



Developing and fragile nations especially in Africa and the Middle East



Outdoor Occupations

2.2 CLIMATE IMPLICATIONS ON SECURITY

Climate change has immediate and long-term implications for National Defence. These pressures are being felt both at home and abroad.

2.2.1 IMPLICATIONS AT HOME

Domestic disaster relief

The CAF is often relied on to respond to climate-related disasters in communities across Canada. Under Operation (Op) LENTUS, the CAF can be called on to assist provincial and territorial authorities when their own resources are insufficient to respond to a major disaster.

As the frequency and severity of such events increase, demands on the CAF are growing and risk reducing the CAF's readiness for other requirements.

Between 1990 and 2010, there were only six deployments under Op LENTUS, while from 2011 to 2020 there were 30, with a drastic increase of 11 in 2021-2022 alone. With climate-related disasters on the rise, this trend is only expected to continue.

Being resilient means the Defence Team must be able to respond to emergencies when needed. This means balancing domestic demands while preserving the CAF's ability to support operations abroad. To ensure readiness, we

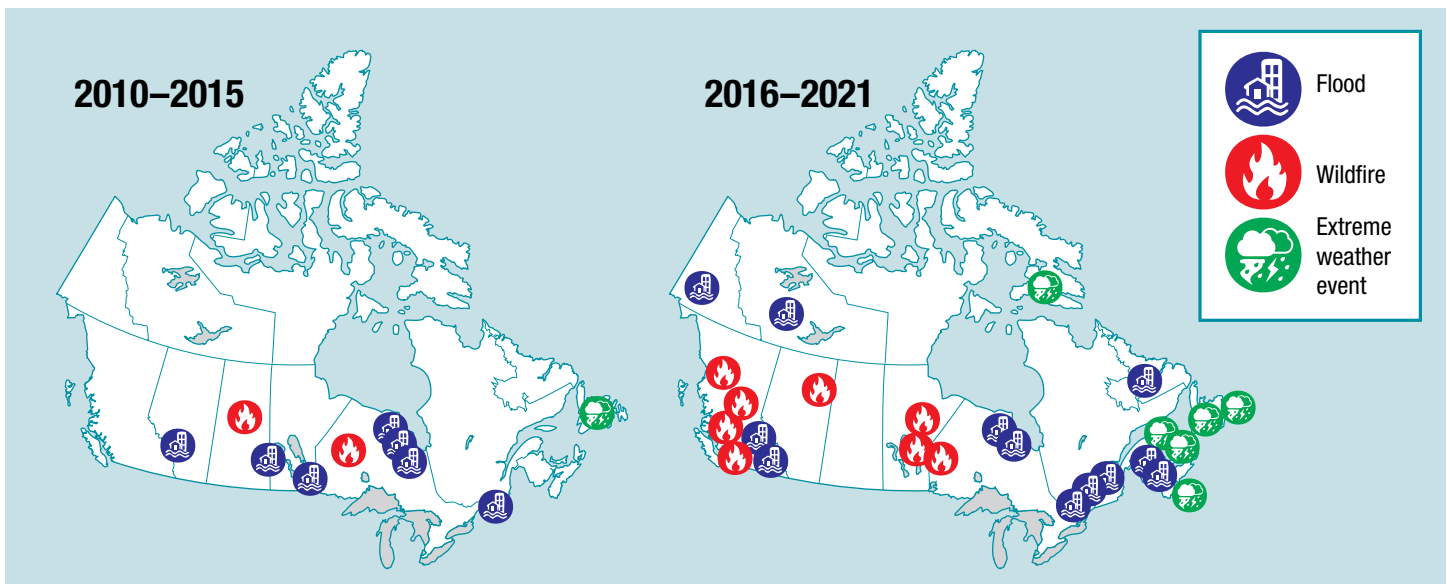
must be able to adapt to the impacts of climate change. As such, we are working with Public Safety Canada on the future of Canada's domestic emergency response capacity. This includes collaborating with federal, provincial, territorial and Indigenous governments, nonprofit organizations and private sector partners to strengthen Canada's resilience and enhance its disaster response capacity.

Impacts on CAF operations

Climate change affects all CAF operational environments and needs to be considered in planning and training. More acidic sea water can increase the corrosion of naval ships. Heat waves can decrease air density and reduce the lift force on an aircraft's wings, while changing jet streams can increase fuel consumption. Dry areas increase the risk of wildfires and can alter training plans. Changing conditions can also degrade the performance of military equipment, increasing maintenance and replacement timelines.

Climate change impacts defence infrastructure, particularly our coastal and Arctic properties, resulting in potential repercussions for Defence activities, readiness and operations. These impacts can include changes to land access and logistics, threats to personnel health, property damage, reduced value of assets, potential loss of equipment, disruptions to local utilities and critical infrastructure, and increased operating costs for real property.

Whether purchasing new equipment, or building new infrastructure, we will consider the impact of climate change as we continue to strengthen our climate resilience.



Geographical distribution of domestic operations conducted by the CAF by type over the past 12 years. Periods 2010-2015 (left) and 2016-2021 (right) are shown.

Adapted from source: Scientific Letter, DRDC-RDDC-2022-L067, Banko K. & Nikolakakos G., 2022.

In the Arctic

Climate change is altering Canada's landscape, especially in the Arctic and the North, which is warming at four times the global rate. The Arctic accounts for 40% of Canada's total landmass and 75% of our coastlines. This presents unique challenges for climate resilience and security.

Thawing permafrost poses risks to military infrastructure and operations. As the Arctic warms, sea ice melts and the region becomes more accessible, we expect to see a rise in commercial activity, tourism and scientific research. We may also see an increased need for search and rescue activities.

As access to the region grows, strategic competitors are demonstrating increasingly assertive behaviour as they seek to advance their interests in the region. These states are increasingly employing all elements of national power to collect intelligence and position themselves to access or control sensitive sites, infrastructure, and strategic resources – sometimes under the guise of peaceful commercial or research activities. In response to these challenges, Canada must have the ability to detect, deter and defend against a broad range of threats.

Through our engagements with communities in the North and Arctic, territorial governments and Indigenous peoples have expressed concerns about the challenges posed by climate change and the shifting geopolitical context, illustrating the need to advance our shared priorities.



Photo: S2 Taylor Congdon, Canadian Armed Forces Photo

The Defence Team is taking a distinctions-based approach to engagements with northern, provincial, territorial and Indigenous governments and organizations. We recognize their unique interests and circumstances as we continue to build relationships and listen to their priorities. This sets the stage for ongoing discussions as Canada and the United States modernize the North American Aerospace Defence Command (NORAD). As NORAD modernization progresses, we are committed to delivering defence capabilities relevant to and inclusive of all Canadians and underpinned by meaningful dialogue with our Arctic and northern partners.

NORAD modernization

The Government of Canada is committed to strengthening and advancing the CAF's ability to defend against new and emerging aerospace threats through a \$38-billion investment to modernize NORAD over 20 years. This funding will support the CAF's ability to operate in the North and help Canada adapt to a shifting security environment.

Health and the CAF

Climate change has health implications that can affect how the CAF trains and deploys. For example, heatwaves or smoke from wildfires can place limitations on outdoor training. Precautions are also needed to address risks from invasive species, such as poisonous plants and ticks as their range expands.

In addition to physical threats, responding to more frequent climate-related disasters can lead to decreased morale and increased psychological stress, as CAF members are exposed to human suffering and the possibility of longer deployments and more time away from family and loved ones.

Climate change impacts everyone's health. With many knowns and unknowns, our Defence Team must have the ability to identify, adapt and reduce risks to ensure mission success. We will continue to study how it affects the health and wellbeing of our personnel.

2.2.2 IMPLICATIONS ABROAD

Human security

A significant component of the security landscape at home and around the world is linked to understanding how climate change affects the lives of people and influences social, political and economic systems. It is important to understand how climate change intersects with human security around the world and the implications for the Defence Team.

As the planet continues to warm, the effects of climate change will increase with severe and direct implications for international security. Fragile states are at a higher risk as they are more vulnerable and often lack the resources to adapt to the effects of climate change. Climate stressors, such as those driving food and water scarcity and loss of livelihoods, risk overwhelming already weak and fragile regions, which could contribute to human displacement within states or across borders. The impact of climate change on human security is an important consideration in the security landscape, one that influences and challenges our understanding of deterrence and our national response.

Public health abroad

Climate change has serious implications for the wellbeing of people around the world, which can impact global security and worsen health risks. During extreme heatwaves, rising temperatures can put people's health at risk. Climate change can also alter infectious disease patterns, cause more frequent outbreaks and shift where they occur, driving novel infections.

Climate-related health impacts can compound other human security issues to create a cascading crisis. For example, zoonotic (animal to human) infectious diseases could mix with climate-induced migration patterns and resource scarcity to destabilize local governments and their response capacity. For the CAF, this may mean being called on to assist with evolving security matters brought on, or exacerbated, by overlapping climate change and public health issues.

Vulnerable communities and climate change

In Canada and other countries, the effects of climate change disproportionately impact the poorest and most marginalized communities, which include Indigenous peoples, persons with disabilities, women and girls, and 2SLGBTQI+ people. Due to societal structures and systemic oppression, it is often difficult for marginalized groups to access the resources that can help protect them from climate change or allow them to adapt to its effects.

To help us better understand our increasingly complex world and respond to its challenges, we are committed to building a respectful and inclusive Defence Team that reflects the diversity of Canadians. To this end, we are committed to using GBA Plus to assess our policies, procurements, projects, plans, operations and related peace and security activities.

Women, Peace and Security

The United Nations Security Council formally added climate change to the Women, Peace and Security (WPS) agenda in 2015. In June 2022, NATO committed to integrating climate change, human security and the WPS agenda across all its operations.



Photo: Corporal Eric Greico, Canadian Armed Forces photo

Climate intelligence

The Defence Team is enhancing its climate intelligence assessments to focus on monitoring and early warnings in areas where CAF deployments are most likely to be impacted, such as the Middle East and Africa. Given the cross-cutting nature of climate change, the Canadian Forces Intelligence Command is working to integrate climate change considerations across all existing intelligence areas and products.

The Defence Team shares its climate intelligence with NATO and other federal government departments including the Privy Council Office, Global Affairs Canada and Environment and Climate Change Canada.

2.3. NATIONAL DEFENCE'S GUIDING PRINCIPLES ON CLIMATE ACTION

The Defence Team has developed a set of principles and lines of effort to guide our actions to address climate change. These principles align our efforts with those of our allies and reflect commitments in NATO's Climate Change and Security Action Plan.

PRINCIPLES

- Adapt operations to increase our resilience to the impacts of climate change and reduce the environmental impact of our activities¹ to support domestic and global sustainability goals.
- Build capacity to operate in areas impacted by climate change, while maintaining our military's operational capabilities and effectiveness, and remaining interoperable with our allies and partners around the world.

¹ when available, affordable, compatible, and operationally feasible

LINES OF EFFORT



1. BUILDING AWARENESS

- Enhance the Defence Team's understanding of climate change impacts in a defence and security environment through data collection, research and training. Leverage increased awareness as the foundation for successful adaptation, mitigation and for meaningful engagement on climate change.



2. ADAPTING TO CLIMATE CHANGE

- Complete climate adaptation risk assessments of Defence infrastructure, equipment and operations to inform our next steps towards climate resilience.
- Adapt Defence activities to the impacts of climate change including our policy, planning and procurement activities; infrastructure and equipment renewal and maintenance; research and development; and military force generation, structure and readiness.



3. MITIGATING CLIMATE CHANGE

- For real property and the conventional light-duty vehicle fleet, reduce GHG emissions by 40% from 2005 levels by 2025, and achieve net-zero emissions by 2050.
- Chart pathways to reduce GHG emissions from national safety and security (NSS)² fleets and their procurement. (NSS fleets are made up of ships, vehicles and aircraft.)
- Pursue more efficient and sustainable infrastructure, equipment, capabilities and fuel sources in ways that maintain or improve operational effectiveness while greening Defence.
- Conduct research to identify and evaluate opportunities to decarbonize and reduce GHG emissions from our military fleets.

² considering availability, affordability, compatibility, and operational feasibility



4. ENGAGING PARTNERS AND ALLIES

- Engage, establish and strengthen partnerships with other government departments and agencies, provinces and territories, Indigenous peoples, and academia to guide climate action, raise awareness of impacts to defence and security, and promote climate resilience.
- Collaborate with allies and partners around the world to promote the NATO Climate Change and Security Centre of Excellence as a platform to exchange climate change and security best practices.



2.4 BUILDING AWARENESS

Building a climate change aware organization requires developing our own knowledge and understanding.

Investments in Defence-focused science and technology research are needed to build awareness, create solutions and inform decision-making. This includes developing a better understanding of how climate change impacts global safety and security, defence operations and infrastructure, and other military activities.

To inform such investments, the National Defence and Canadian Armed Forces Climate Resilience and Environmental Sustainability Science and Technology Strategy was created to assess science and technology gaps and identify potential research activities. This strategy will drive Defence-focused climate change and sustainability research to support activities that reduce our environmental impact and help us meet the growing challenges of climate change.

Whether on training or deployed on operations, increasing our awareness of climate change helps mitigate the impact of defence activities on the environment and adapt to a changing climate. Climate change and sustainability training is being integrated across the Defence Team.

2.4.1 ENERGY MANAGEMENT TRAINING FOR DEPLOYED PERSONNEL

At home or abroad, energy management is an important issue. Whether for disaster relief operations or routine deployments, large amounts of fuel are needed. Reducing our dependence on fossil fuels during deployments, reduces our GHG emissions and operational costs and leads to tactical, operational and strategic benefits.

Through its Deployed Infrastructure Energy Management program, the Canadian Joint Operations Command (CJOC) is working to increase the energy efficiency of deployed infrastructure and mitigate operational impacts to the physical environment. CAF members are trained through this program before deploying abroad.

TARGET 1 – Provide energy efficiency training to deployed CAF members.

Training for a changing climate at Royal Military College Saint Jean

The “Geopolitics & Climate Science” program is enhancing the education of officer cadets, professionals and career officers by integrating earth system science, climate sciences, geopolitics and security education. The goal is to develop analytical and critical thinking abilities, as well as technical expertise in climate security, to build a bridge between climate sciences and security and defence research. The program seeks to train tomorrow’s security professionals in the scientific, technical, political, institutional, organizational and practical challenges and issues associated with climate change.

IDEaS supports climate change research

The Innovation in Defence Excellence and Security (IDEaS) program is providing \$1.6 billion in funding over 20 years to help Canadian innovators solve defence and security challenges. IDEaS supports innovators and researchers through concept, testing and capability development. The IDEaS program is funding numerous environmental projects to help achieve Defence Team climate change and sustainability objectives. Some focus areas include reducing energy consumption, GHGs, water use and waste at deployed camps; reducing reliance on diesel fuel in the Arctic; generating low-carbon energy to heat existing infrastructure; reliably measuring GHG emissions on naval ships; eco-safe transit options for personnel or cargo in the Arctic; and safeguarding the health of marine mammals from naval sonar operations.



Photo: Corporal Jay Naples, MARPAC Imaging Services, Canadian Armed Forces photo



2.5 ADAPTING TO CLIMATE CHANGE

Climate change adaptation is the process by which an organization or system becomes resilient to the impacts of climate change. This involves identifying potential climate impacts, assessing the vulnerability of a given system and taking steps to minimize their severity.

Climate change impacts how we train, equip, deploy and operate. Events such as rising temperatures and sea levels, and varied precipitation can affect the CAF's day-to-day operations. Adapting and training is essential for a ready defence force.



Photo: MCpl Nicolas Alonso, Canadian Forces Combat Camera, Canadian Armed Forces Photo

2.5.1 UNDERSTANDING CLIMATE RISKS TO INFRASTRUCTURE

Climate change poses significant risks to infrastructure. It is critical to adapt our real property planning and processes, while strengthening the resiliency of our portfolio. Identifying and implementing measures today will limit the impact of climate change on CAF operations and readiness as climate events increase in frequency and intensity.

To ensure Defence facilities are ready to withstand the impacts of climate change, we are taking a risk-based approach and conducting climate change vulnerability and risk assessments. Identifying these vulnerabilities and risks will allow us to identify measures to make our infrastructure portfolio more resilient.

TARGET 2 – Complete climate change risk assessments for 20% of critical real property assets by 2027.

2.5.2 RISKS TO MILITARY EQUIPMENT

Climate change affects all Defence operating environments. Extreme temperatures and shifting conditions can degrade aircraft, vehicle and ship performance, increasing the need for maintenance and reducing their service life. To acquire and sustain equipment effectively, the Defence Team must therefore adapt to the effects of climate change.

TARGET 3 – Develop a climate adaptation framework for military equipment and implement at least two other high-priority adaptation measures by 2027.



2.6 MITIGATING CLIMATE CHANGE

The Defence Team will reduce its GHG emissions to help lessen the impacts of climate change. This will also help safeguard our operations. Reducing our reliance on fossil fuels and seeking efficiencies can provide numerous benefits such as simplifying logistics and reducing risks to military operations. As the largest user of energy and the single largest emitter of GHGs in the federal government, we play a key role in helping the GC reach its net-zero targets. Our climate change mitigation measures encompass net-zero real property and fleets, NSS emissions and procurement.

TARGET 4 – Reduce greenhouse gas emissions by 40% below 2005 levels by 2025 from real property and the conventional light-duty fleet, and achieve net-zero emissions by 2050.

2.6.1 NET-ZERO REAL PROPERTY

The GC's net-zero real property target is to reduce GHG emissions by 90% by 2050, relative to 2005 levels, with the remaining 10% to be offset using permanent carbon removal technologies. As the custodian of nearly half of the federal government's real property portfolio, how Defence manages our buildings affects the GC's climate change objectives. While 2050 may seem a distant target, many existing and new buildings will still be in use in 2050, so what we do today is critical to minimizing the lifecycle emissions of these properties.

To reach this target, we are integrating GHG reduction measures in the design, construction, operation and maintenance of our buildings. Further, all new buildings and major renovations are net-zero or net-zero ready through policies, such as our Green Building Directive. This directive requires that new construction projects include a GHG lifecycle cost analysis and consider the embodied carbon of structural materials. However, substantial investments in energy efficiencies and decarbonizing heating supplies will be necessary to achieve future targets. External factors, such as a sufficient supply of clean electricity from provincial grids will also be important to achieving a net-zero portfolio.



Photo: Sergeant Vincent Carbonneau, Canadian Forces Combat Camera

Our new Defence Real Property Portfolio Strategy will integrate net-zero objectives. Asset management is key to mitigating and adapting to climate change as it allows us to identify and prioritize our infrastructure investments. Energy-efficient buildings reduce operating costs and emissions.

Base level net-zero emissions plans

Modern infrastructure and extensive data collection are needed to achieve a net-zero portfolio. As our infrastructure needs are unique to each military installation, we will work with industry to develop net-zero emissions plans tailored to each base. These plans will highlight opportunities to decarbonize and will support infrastructure planning and investment decisions.

TARGET 5 – 50% of bases and wings will have a net-zero emissions plan by 2027 to support infrastructure planning and investment decisions.



Green power purchase agreements

National Defence purchases clean electricity for our facilities in Alberta and Saskatchewan. We are working with Public Services and Procurement Canada to ensure Nova Scotia's Green Choice Program includes enough clean electricity to support Base Halifax and the future navy fleet.

We are also working on projects to generate clean electricity at our bases. For example, a solar power project at Base Gagetown is expected to cut the base's electricity needs by 20% and reduce its GHG emissions by about 3,200 tonnes a year. We will continue to assess potential on-site green power generation at bases across the country to reduce emissions and enhance the resiliency of Defence operations.

TARGET 6 – Use 100% clean electricity, where available, by producing or purchasing renewable electricity by 2025.

Energy performance contracts

Reaching net-zero emissions requires us to invest in GHG emissions reductions. Implementing energy performance contracts (EPCs) at our bases and wings will play a key role in reducing emissions from our real property. EPCs minimize up-front costs to the taxpayer and guarantee that the upgrades produce real savings.

Through an EPC, a company is hired to pay for and carry out an energy retrofit project at a base. The money saved in energy costs is then used to pay the company back over a 5- to 15-year period. As of March 2023, we had implemented 18 EPCs at bases across Canada, reducing our GHG emissions by over 20,000 tonnes of carbon dioxide equivalent (CO₂e) compared to 2005 levels. We will continue to assess our portfolio to determine where EPCs would help reduce fossil fuel emissions generated by heating Defence facilities.

TARGET 7– Assess 100% of eligible bases and wings for an EPC and move 75% to the implementation phase by 2027.



Photo: Avr Bond, 403 Sqn

Energy efficiency in the North

An energy performance contract (EPC) at Canadian Forces Station (CFS) Alert is expected to reduce GHG emissions and fuel use by almost 50% by 2028. The EPC includes upgrading building exteriors (roofs, walls, windows and doors), improving the efficiency of electrical and heating systems, and installing a 350 kW solar photovoltaic system to generate renewable energy. As CFS Alert is in the Arctic, fuel is flown in annually. After the EPC is complete, fewer refuelling flights will be required, which will reduce our emissions and allow us to focus resources on other missions.



Photo: Cpl Jean-Roch Chabot, 3 Wing Bagotville BN02-2017-0036-119

Embodied carbon

Embodied carbon is the carbon associated with manufacturing construction materials, and it makes up a large part of lifecycle carbon emissions from construction projects. National Defence will work with the Treasury Board Secretariat to implement the [Standard on Embodied Carbon in Construction](#). Starting with concrete, and focused on structural building materials, we will disclose embodied carbon in new major capital construction projects, and in select minor capital projects by 2024. Defence will continue to test using low-carbon concrete in projects where feasible.

Net-zero residential buildings

Providing safe, comfortable and sustainable housing for CAF members and their families is a priority. Defence has developed a net-zero emissions design for multi-unit residential buildings. Going forward, all new residential construction will be built to net-zero or net-zero ready standards. These buildings will be energy efficient and powered by clean energy sources. With this initiative, Defence will be leading the way on sustainable residential construction projects.

TARGET 8 – All new residential construction will be net-zero emissions, or net-zero-emissions-ready, and at least 40% less energy intensive than buildings constructed to current code requirements.

2.6.2 A NET-ZERO NATIONAL SAFETY AND SECURITY FLEET

Our NSS fleets are made up of marine vessels, tactical land vehicles and military aircraft, all of which will depend on fossil fuels for the near future. Emissions from these military fleets are an inevitable part of the CAF's operations.

Our military fleets are responsible for approximately 70% of the federal government's NSS fleet emissions. In fiscal year 2022-2023, 80% of the CAF's NSS fleet emissions came from aircraft, 19% from marine vessels, and 1% from land vehicles.

Maintaining our military's operational capability is imperative. While doing so, we will chart a course to reduce military fleet emissions and support the GC's commitment of net-zero emissions by 2050. Net-zero NSS emissions by 2050 means reducing GHG emissions from our NSS fleet as low as possible through cleaner fuels and operational efficiencies. The balance of emissions would be addressed through carbon removal. To achieve a GC goal of 20% Low-Carbon Fuel (LCF) by 2030, we will introduce LCF into some of our fleets in the coming years. Any solutions for military application must consider availability, affordability, operational feasibility and compatibility to maintain military force readiness, interoperability with our allies, inform future force design and ensure best value for Canadians. Decarbonization plans for our military marine and air fleets will be finalized by 2024, with land fleets to follow by 2027.

TARGET 9 - Support the GC commitment to achieve net-zero emissions by 2050 from the NSS fleet considering availability, affordability, compatibility and operational feasibility.



Photo: Sailor 1st Class Valerie LeClair, MARPAC Imaging Services

Reducing fleet emissions on the water

Measuring energy use across our marine fleet is a key step to reducing fuel consumption and overall fleet emissions. We will measure energy use, assess ship hull innovations, and conduct research on energy model simulation and data frameworks.

TARGET 10 – Complete energy use evaluations for 3 types of vessels in the legacy and new RCN fleet to assess the impact of innovative hull coatings and in-water cleaning techniques by 2027.

Reducing fleet emissions on land

A decarbonization plan for our military land fleet will include evaluating options to reduce emissions such as fleet upgrades, alternative technologies and improvements to training activities, all while maintaining operational effectiveness and commitments.

TARGET 11 – Draft the Land Operational Fleet Decarbonization Plan by 2025 and finalize it by 2027.



Photo: Sergeant Vincent Carboneau, Canadian Forces Combat Camera



Photo: OS Erica Seymour, 4 Wing Imaging

Reducing fleet emissions in the sky

Most of the CAF's fossil fuel consumption and GHG emissions are from aircraft, many of which will still be in service in 2050 and beyond. To reduce emissions and increase energy efficiency as much as possible we will review policy, doctrine and operational procedures.

TARGET 12 – While maintaining operational effectiveness, review operational procedures to identify efficiencies that would reduce GHG emissions for a select number of aircraft in the RCAF national safety and security fleet by 2027.

Low-carbon fuels

The Defence Team is committed to introducing LCFs in our marine and air fleets. Using renewable diesel fuel in our marine fleet and sustainable aviation fuel in our aircraft will help us meet net-zero targets. As a member of NATO, Canada is committed to remaining interoperable with allied fleets, and this includes meeting standardized fuel requirements. The Defence Team has shared fuel performance and interoperability standards with industry professionals to ensure our fleets have access to LCFs as they become available in Canada.

TARGET 13 – Introduce low-carbon fuels in the RCN and RCAF NSS fleets where available, affordable, compatible, and operationally feasible by 2027.

Tracking fuel consumption of the NSS fleet

Reducing emissions from the NSS fleet requires effectively tracking and reporting our fuel consumption and emissions. Similar to systems used by our allies, we will implement an enterprise fuel management system to monitor fuel use at our bases. We will integrate smart fuel dispensers as a first phase in installing this new system.

TARGET 14 – Implement smart fuel dispensers as the first phase of an enterprise fuel management system to automatically capture and record fuel consumption from bulk fuel installations on bases by 2027.

Improving fuel management

We have modernized the Royal Canadian Air Force’s fuel tracking system. Launched in April 2023, this system tracks fuel use across the air fleet to provide more in-depth and real-time analytical tools for fuel management.



Photo: MCpl HJL MacRae, 4 Wing Imaging



2.7 ENGAGING ALLIES AND PARTNERS

Climate change contributes to regional tensions, human displacement and societal inequalities, as well as competition for resources, such as food and water. Combined with other challenges (governance, geopolitical tensions, etc.), climate change can also contribute to conflict and instability, increasing demands for the CAF's emergency support and contributions to peace and stability operations around the world.

The scale and complexity of climate change requires international collaboration to identify and address its impact on peace and security. We are committed to engaging internationally to better understand how climate change causes instability and prepare for and address challenges. That is why the Defence Team, in collaboration with Global Affairs Canada, has established the NATO Climate Change and Security Centre of Excellence in Montréal, Que.

NATO Climate Change and Security Centre of Excellence

This Centre of Excellence will support NATO's work on climate and security, provide Allies with a central location to exchange knowledge, develop effective responses to the security impacts of climate change and provide a platform for outreach with diverse global actors. Recognizing the human security elements of climate change, Canada has encouraged NATO to take a multi-sectoral, feminist and intersectional approach to its work on climate change and security.

NATO Centres of Excellence

NATO Centres of Excellence are international military organizations that are established, run and funded by NATO Allies or groups. Each one focuses on a topic of relevance and conducts analysis and research, develops military doctrine, and trains and educates personnel.



Signing ceremony of NATO Climate Change and Security Centre of Excellence - 2023 NATO Vilnius Summit.

Photo: © 2020 DND-MDN Canada



Photo: Sgt JF Lauzé Garrison Imaging Petawawa



3. ENVIRONMENTAL SUSTAINABILITY

3.1 ENVIRONMENTAL SUSTAINABILITY IN DEFENCE

Defence accounts for about half of the federal government's environmental footprint, having some of the largest and most complex infrastructure and equipment holdings in Canada. This presents the department with a great opportunity to positively impact the environment.



3.1.1 CONTAMINATED SITES

National Defence manages its contaminated sites according to [Treasury Board policy](#). In 2022-2023, we reduced our contaminated sites liability by 10.6%. To restore lands and clean up contaminated sites in communities across Canada, we will continue to leverage the Federal Contaminated Sites Action Plan (FCSAP). As climate change may impact conceptual site models, Defence will follow FCSAP guidance to ensure that possible impacts to contaminated sites are considered.

TARGET 15 – Reduce National Defence's contaminated sites liability by 10% per year to 2027.

Base Comox firefighter training area soil remediation

Military training can have an impact on the environment and we are committed to managing the effects of our operations responsibly. At Base Comox, the past use of firefighting foams containing PFAS for firefighter training have impacted land and surface water in the area. In 2022, we completed a remediation project to remove and treat affected soil, filter stormwater for habitat conservation, and manage water used for firefighter training. This work has significantly reduced PFAS levels in the environment on and near the base.



3.1.2 WASTE MANAGEMENT

Wherever possible, we reduce, reuse, recycle and recover waste to minimize the environmental impact of Defence operations. We work to reduce and divert recyclable materials from landfills, recycle plastics in support of the Ocean Plastics Charter and reduce food waste under the UN 2030 Agenda.

The GC has a goal to divert 75% of solid non-hazardous waste and 90% of construction, renovation and demolition waste from landfills by 2030. We support this goal and are developing tools and policies to divert more waste resulting from our activities.

TARGET 16 – Develop policies and procedures to increase construction, renovation and demolition waste diversion by 2027.

Diverting waste

The Defence Team diverts organic food waste from landfills by using biodigesters at dining facilities across our bases. As of 2021-2022, the CAF diverted over 186,000 tonnes of food waste from landfills and avoided approximately 800 tonnes of carbon dioxide equivalent.



Photo: Food Services, Connaught Range Primary Training Centre



3.1.3 NET-ZERO AND GREEN PROCUREMENT

Defence is committed to purchasing goods and services produced with environmental and energy impacts in mind. Where feasible, we leverage established green procurement practices to ensure our vehicle and military fleet acquisitions and upgrades consider energy and fuel efficiency, compatibility with low-carbon fuel and clean energy options, and green technology.

We continue to update our internal directives to align with new GC green procurement standards. We are also working with other federal government departments and industry partners to encourage major suppliers to disclose their GHG emissions and adopt a science-based target in line with the Paris Agreement on climate change. These activities support the [Standard on the Disclosure of Greenhouse Gas Emissions](#) and the [Setting of Reduction Targets](#).

TARGET 17 – Strengthen National Defence green procurement criteria and processes for military fleet procurement by 2027 to improve fleet energy, emissions and environmental performance.

Enhancing procurement processes

The procurement process for the Logistic Vehicle Modernization (LVM) project included a mandatory requirement for industry to deliver lower emissions trucks than those in our existing fleet, and incentivized even lower emissions solutions. The GC Value Proposition policy was used to encourage industry to invest in clean technology. The supplier that is awarded the contract will need to demonstrate how it plans to incorporate clean technology into the LVM fleets for the duration of the acquisition and in-service support contracts.

The Remotely Piloted Aircraft System (RPAS) project requires bidders to demonstrate how they have incorporated sustainable aviation fuels, GBA Plus principles, and Indigenous participation in their solutions.



Photo By: Sailor 3rd Class Megan Sterritt, 17 OSS Imaging.

Materiel acquisition and support

We will work toward the GC's net-zero target by developing a strategy for materiel acquisition and support activities. This net-zero strategy will serve as a roadmap to reduce fleet emission intensity. Our lifecycle approach to materiel management will account for GHG emissions and encourage emissions reductions across the defence supply chain.

TARGET 18 – Develop a net-zero 2050 strategy for materiel acquisition and support and implement high priority measures by 2027.



Zero emissions light-duty fleet

We have adopted an aggressive approach to reducing GHG emissions from our conventional light-duty vehicle fleet. All new conventional light-duty vehicle purchases will be green, when options are available and operationally feasible. In 2022-2023, 86% of our conventional light-duty vehicle purchases were hybrid, plug-in hybrid, or zero-emission vehicles (ZEVs); though only 29% of those were ZEVs due to manufacturer supply chain issues. To support this new fleet of vehicles, we have also committed to installing electric vehicle charging stations at our bases.

TARGET 19 – 100% of National Defence's conventional light-duty vehicle fleet purchases will be zero-emission vehicles (ZEVs) or hybrid when available, with a ZEV procurement target of 50% by 2027.



Photo: Samuel Côté, Real Property Operations Detachment Valcartier

TARGET 20 – 500 electric vehicle chargers will be installed to support National Defence's conventional light-duty fleet by 2027.



3.1.4 ENVIRONMENTAL COMPLIANCE

Environmental compliance means meeting the requirements of environmental policy and legislation, such as the *Canadian Environmental Protection Act, 1999*, *Species at Risk Act*, *Fisheries Act*, and *Impact Assessment Act*. These requirements reflect minimum standards for protecting the environment. National Defence is committed to managing its assets with environmental compliance in mind. This includes planning, maintaining, monitoring and overseeing improvements to infrastructure, such as wastewater treatment systems, building heating and cooling systems and storage tank systems to meet the latest environmental standards.

We consider climate change when making design and location decisions for buildings and their systems. Results from the department's environmental impact assessment, climate change vulnerability, and risk assessment processes will lead to better understanding impacts and risks, and ensure environmental compliance for a more sustainable and resilient real property portfolio.



Demonstrating due diligence

The Rocky Point lagoon at Canadian Forces Ammunition Depot Rocky Point in Victoria, B.C., was constructed around 1984. A recent assessment of the facility showed the wastewater treatment system could operate more effectively. The system was redesigned to enhance efficiency and maintain compliance with federal effluent quality standards. The upgraded system now has a four-part treatment process and energy-efficient components to treat wastewater before it discharges into the marine environment. Sampling results indicate the upgraded lagoon is operating effectively and meeting federal effluent quality standards.

3.1.5 SUSTAINABLE RANGES AND TRAINING AREAS

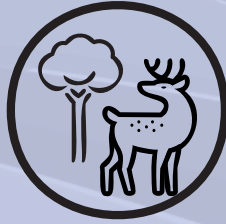
Maritime, Arctic and land-based ranges and training areas are critical to military training and the success of our mission. While we know military training has an impact, we are working to minimize it through our environmental sustainability programs.

Training responsibly

The Range and Training Area Sustainment System is a process used by the Canadian Army to assess the environmental risks associated with land force generation activities and monitor the environmental sustainability of its ranges and training areas.



Photo: U.S. Navy Photo by Mass Communication Specialist 1st Class Ryan Seelbach



3.1.6 BIODIVERSITY

Protecting biodiversity is vital to safeguarding a clean, safe and sustainable environment. At National Defence we manage large parcels of land rich in biodiversity.

Canada has set ambitious targets to support FSDS Goal 15 and the goal to conserve 25% of terrestrial, coastal and marine areas by 2025, and 30% by 2030. To help meet these targets, the Defence Team assessed and recognized part of Base Shilo as an Other Effective Conservation Measure (OECM) area. An OECM is a geographically defined area, other than a protected area, that is governed and managed to

achieve positive, long-term outcomes to conserve biodiversity. We will continue to assess the compatibility of our other Defence properties for OECM recognition.

Target 21 - National Defence will assess 70% of its custodial lands (representing approximately 450,000 hectares) to determine their suitability for OECM recognition by 2027.



Photo: OP CARIBBE Imagery Technician, HMCS EDMONTON



Photo: Corporal Gary Calvé



4. MOVING FORWARD

The DCSS outlines our sustainability priorities for the next four years. It also demonstrates our commitment to continuously improve our environmental footprint and operations in a way that recognizes the urgency and impact of climate change. We will report annually to Canadians and Parliamentarians on our progress in meeting these environmental targets.


Looking to the future, climate and security considerations will be central to our decision-making. Understanding how these issues intersect will allow us to better mitigate and adapt to climate change impacts. At the same time, we recognize the importance of our military role in sound environmental management and socio-economic sustainability. Moving forward, we remain ready to protect Canadians at home and abroad.



Photo: MCpl Matthew Tower, Canadian Forces Combat Camera, Canadian Armed Forces Photo

APPENDIX:

DEFENCE COMMITMENTS

 BUILDING AWARENESS			
IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>Aligned with NATO Climate and Security Action Plan</p> <p>FSDS Goal 13: Implement the Greening Government Strategy through measures that reduce greenhouse gas emissions, improve climate resilience, and green the government's overall operations</p>	<p>Train deployed Canadian Armed Forces (CAF) members on energy efficiency</p> <p>Initiative lead: CJOC</p>	<p>Performance indicator: % Military Engineering Officers and Non-Commissioned Officers that received the CJOC Joint Engineer Environmental Brief</p> <p>Starting point: 0%, will be applied to CAF members to be employed in future rotations.</p> <p>Target: Provide energy efficiency training to deployed CAF members</p>	<p>Relevant targets or ambitions:</p> <p>UN SDG Target: 13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning</p>



ADAPTING TO CLIMATE CHANGE

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Reduce risks posed by climate change impacts to federal assets, services and operations</p>	<p>Assess critical assets for resilience to climate change Initiative lead: ADM(IE)</p>	<p>Performance indicator: Percentage of critical real property assets assessed for climate change risks Starting point: 0% of critical real property assets have been assessed in detail for climate change risks Target: Complete climate change risk assessments for 20% of critical real property assets by 2027</p>	<p>Assessing the climate change risk to critical assets will chart a path for increasing resilience of Defence infrastructure which contributes to: FSDS Target 13: The Government of Canada will transition to climate resilient operations by 2050 FSDS Milestone: Identify and incorporate awareness of climate-change-related risks into federal planning; and develop a zero-carbon, climate-resilient office leasing federal portfolio plan UN SDG Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>
	<p>Study the likely effects of the changing global climate on the readiness of equipment, including vehicles, ships, and aircraft Initiative lead: ADM(Mat)</p>	<p>Performance indicator: Number of measures complete per year Starting point: 0%, New initiative Target: Develop a climate adaptation framework for military equipment and implement at least two other high-priority adaptation measures by 2027</p>	<p>Assessing the climate change risk to military equipment will chart a path for increasing resilience and readiness, which contributes to: FSDS Target 13: The Government of Canada will transition to climate resilient operations by 2050 FSDS Milestone: Identify and incorporate awareness of climate-change-related risks into federal planning UN SDG Target 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries</p>



MITIGATING CLIMATE CHANGE

Real Property

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Implement the Greening Government Strategy through measures that reduce greenhouse gas emissions, improve climate resilience and green the governments overall operations</p>	<p>Departmental actions are the DCSS targets which support greenhouse gas (GHG) reductions related to real property and conventional light-duty vehicle fleets</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: % greenhouse gas emissions reduction in Defence real property and conventional light-duty vehicle fleet relative to a 2005/2006 baseline</p> <p>Starting Point: 787,121 tCO₂eq (2005/06 baseline)</p> <p>Target: Reduce greenhouse gas emissions by 40% below 2005 levels by 2025 from real property and the conventional light-duty fleet, and achieve net-zero emissions by 2050</p>	<p>GHG reductions from the Defence real property and conventional light-duty vehicle portfolio are critical to achieving the GOC's FSDS goal which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon operations for facilities and conventional fleets by 2050</p> <p>FSDS Milestone: Reduce greenhouse gas emissions in federal real property and conventional fleet</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>
	<p>Develop net-zero emissions plans for bases and wings</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: % of eligible bases and wings with net-zero emissions plans</p> <p>Starting point: 0%, New initiative</p> <p>Target: 50% of bases and wings will have a net-zero emissions plan by 2027 to support infrastructure planning and investment decisions</p>	<p>Developing detailed and tactical net-zero emissions plans at the base/wing level will provide a path forward to reduce GHG emissions from building operations, which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon operations for facilities and conventional fleets by 2050</p> <p>FSDS Milestone: Reduce greenhouse gas emissions in federal real property and conventional fleet</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE

Real Property

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Implement the Greening Government Strategy through measures that reduce greenhouse gas emissions, improve climate resilience and green the governments overall operations</p>	<p>Continue to work with PSPC and TBS to secure sources of clean electricity</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: % of clean electricity consumption</p> <p>Starting point: 81% of electricity consumed</p> <p>Target: Use 100% clean electricity, where available, by producing or purchasing renewable electricity by 2025</p>	<p>Using clean electricity eliminates GHG emissions from the grid in jurisdictions with emitting generation sources, which contributes to:</p> <p>FSDS Target 12: The Government of Canada's procurement of goods and services will be net-zero emissions by 2050, to aid the transition to a net-zero, circular economy</p> <p>FSDS Milestone: Achieve total clean electricity use in federal real property</p> <p>UN SDG Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>
	<p>Continue implementing energy performance contracts at our bases and wings</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: % of eligible bases and wings assessed; % of energy performance contracts moved to the implementation phase</p> <p>Starting point: 75% of eligible bases and wings assessed; 50% in the implementation stage</p> <p>Target: Assess 100% of eligible bases and wings for an EPC and move 75% to the implementation phase by 2027</p>	<p>Implementation of energy performance contracts will reduce energy consumption leading to reduced GHG emissions from building operations, which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon operations for facilities and conventional fleets by 2050</p> <p>FSDS Milestone: Reduce greenhouse gas emissions in federal real property and conventional fleet</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE

Real Property

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Modernize through net-zero carbon buildings</p>	<p>Build energy efficient residential buildings</p> <p>Initiative lead: ADM(E)</p>	<p>Performance indicator: % of completed new construction buildings meeting Tier 4 of the National Building Code 2020</p> <p>Starting point: New initiative, 0%</p> <p>Target: All new residential construction will be net-zero emissions, or net-zero-emissions-ready and at least 40% less energy intensive than buildings constructed to current code requirements</p>	<p>Building net-zero or net-zero carbon ready residential buildings will reduce energy consumption, leading to reduced GHG emissions from building operations which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon operations for facilities and conventional fleets by 2050;</p> <p>FSDS Milestone: Reduce greenhouse gas emissions in federal real property and conventional fleet;</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE

NSS Fleet

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Improve environmental performance of national safety and security fleets</p>	<p>Departmental actions are the DCSS targets related to GHG reductions from the national safety and security fleets</p> <p>Initiative lead: SJS, RCAF, RCN, CA, ADM(Mat)</p>	<p>Performance Indicator: % GHG emissions reduction from the national safety and security fleet relative to a 2005/2006 baseline</p> <p>Starting Point: 644,032 tCO₂eq (2005/06 baseline)</p> <p>Target: Support the GC commitment to achieve net-zero emissions by 2050 from the national safety and security fleet considering availability, affordability, compatibility and operational feasibility</p>	<p>Implementing NSS fleet decarbonization plans will reduce fossil fuel consumption leading to reduced GHG emissions from the NSS fleet which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>
	<p>Implement NSS fleet decarbonization plans</p> <p>Initiative lead: RCN, ADM(Mat)</p>	<p>Performance indicator: Number of vessels assessed for optimum propulsion efficiency through trial of biofouling reducing hull coatings or in water cleaning</p> <p>Starting point: New initiative, 0</p> <p>Target: Complete energy use evaluations for 3 types of vessels in the legacy and new RCN fleet to assess the impact of innovative hull coatings and in-water cleaning techniques by 2027</p>	<p>Implementing NSS fleet decarbonization plans will reduce fossil fuel consumption leading to reduced GHG emissions from the NSS fleet which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE NSS Fleet

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Improve environmental performance of national safety and security fleets</p>	<p>Develop a land operational fleet decarbonization plan Initiative lead: CA, ADM(Mat)</p>	<p>Performance indicator: Percent complete (tracking against milestones) Starting point: 0%, New Initiative Target: Draft the Land Operational Fleet Decarbonization Plan by 2025 and finalize it by 2027</p>	<p>Developing a NSS fleet decarbonization plan will chart the course to reduce fossil fuel consumption and GHG emissions from the NSS land fleet which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE

NSS Fleet

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Improve environmental performance of national safety and security fleets</p>	<p>Implement NSS fleet decarbonization plans Initiative Lead: RCAF, ADM(Mat)</p>	<p>Performance Indicators:</p> <p>Percentage of RCAF fleets that have completed an operational efficiency review</p> <p>Percentage of RCAF fleets that have completed a simulator and virtual training device utilization study</p> <p>Percentage reduction in annual RCAF GHG emissions resulting from additional investment in simulators and training devices</p> <p>Starting points: 0%, New initiative 0%, New initiative 0%, New initiative</p> <p>Target: While maintaining operational effectiveness, review operational procedures to identify efficiencies that would reduce GHG emissions, for a select number of aircraft in the RCAF NSS fleets by 2027</p>	<p>Implementing NSS fleet decarbonization plans will reduce fossil fuel consumption leading to reduced GHG emissions from the NSS fleet which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



MITIGATING CLIMATE CHANGE NSS Fleet

IMPLEMENTATION STRATEGY	DEPARTMENTAL ACTION	PERFORMANCE INDICATOR, STARTING POINT, TARGET	HOW THE DEPARTMENTAL ACTION CONTRIBUTES TO THE FSDS GOAL AND TARGET AND, WHERE APPLICABLE, TO CANADA'S 2030 AGENDA, NATIONAL STRATEGY AND UN SDGs
<p>FSDS Goal 13: Improve environmental performance of national safety and security fleets</p>	<p>Implement NSS fleet decarbonization plans</p> <p>Initiative lead: RCAF, RCN ADM(Mat)</p>	<p>Performance Indicators: Annual percentage of low-carbon fuels, purchased for Defence through the Low -Carbon Fuel Procurement Program, that replace total fuel volume</p> <p>Starting point: 0%, New initiative</p> <p>Target: Introduce low carbon fuels in the RCN and RCAF NSS fleets where available, affordable, compatible, and operationally feasible by 2027</p>	<p>Implementing NSS fleet decarbonization plans will reduce fossil fuel consumption leading to reduced GHG emissions from the NSS fleet which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>
	<p>Implement NSS fleet decarbonization plans</p> <p>Initiative Lead: SJS</p>	<p>Performance indicator: Percent completion of the first phase</p> <p>Starting point: 0%, New initiative</p> <p>Target: Implement smart fuel dispensers as the first phase of an enterprise fuel management system to automatically capture and record fuel consumption from bulk fuel installations on bases by 2027</p>	<p>An Enterprise Fuel Management System (EFMS) supports accurate monitoring of fuel consumption and emissions. Its implementation will occur in two phases. The first phase includes updating strategic direction and policy and installing smart pumps.</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



ENVIRONMENTAL SUSTAINABILITY

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<p>FSDS Goal 12: Remediate high-priority contaminated sites</p>	<p>Continue to reduce liability related to contaminated sites Initiative Lead: ADM(IE)</p>	<p>Performance indicator: % of reduction in contaminated sites liability based on the closing liability of the previous year Starting point: No baseline, annual calculation Target: Reduce National Defence's contaminated sites liability by 10% per year to 2027</p>	<p>By managing contaminated sites in a manner that is consistent with TB Policy, Defence is reducing risks to human health and the environment which contributes to:</p> <p>FSDS Target 12: Reduce waste and transition to zero-emissions vehicles</p> <p>FSDS Milestone: By March 31, 2025, 60% of Federal Contaminated Sites Action Plan eligible sites are closed or in long-term monitoring</p> <p>UN SDG 12.4: Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle</p>
<p>FSDS Goal 12: Maximize diversion of waste from landfills</p>	<p>Develop waste management policies Initiative Lead: ADM(IE)</p>	<p>Performance indicator: Percentage completion against milestones Starting point: 0%, New initiative Target: Develop policies and procedures to increase construction, renovation and demolition waste diversion by 2027</p>	<p>Developing departmental policies and procedures for waste management will reduce waste and increase waste diversion which contributes to:</p> <p>FSDS Target 12: By 2030, the Government of Canada will divert from landfill at least 75% by weight of non-hazardous operational waste</p> <p>By 2030, the Government of Canada will divert from landfill at least 90% by weight of all construction, renovation, and demolition waste</p> <p>FSDS Milestone: Characterize the waste stream</p> <p>UN SDG 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse</p>



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<p>FSDS Goal 12: Strengthen green procurement criteria</p>	<p>Strengthen Defence green procurement criteria and processes in military fleet procurements</p> <p>Initiative Lead: ADM(Mat)</p>	<p>Performance indicator: Percent complete (tracking against milestones)</p> <p>Starting point: Existing Defence green procurement policies, including the Defence Administrative Order and Directive 3015-series (last updated Feb 2020), internal processes and practices</p> <p>Target: Strengthen National Defence green procurement criteria and processes for military fleet procurement by 2027 to improve fleet energy, emissions and environmental performance</p>	<p>Strengthening green procurement criteria will reduce environmental impact and ensure best value in government procurement decision-making which contributes to:</p> <p>FSDS Target 12: The Government of Canada's procurement of goods and services will be net-zero emissions by 2050, to aid the transition to a net-zero, circular economy</p> <p>UN SDG Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>
<p>FSDS Goal 13: Improve environmental performance of national safety and security fleets</p>	<p>Study climate policies, understand constraints and opportunities, and engage stakeholders, including the defence industry, to develop a net-zero strategy for materiel acquisition and support</p> <p>Initiative Lead: ADM(Mat)</p>	<p>Performance indicator: Number of measures completed per year</p> <p>Starting point: New initiative, 0</p> <p>Target: Develop a net-zero 2050 strategy for materiel acquisition and support and implement at least two other high priority measures by 2027</p>	<p>This action contributes to the achievement of net-zero GHG emissions by the year 2050 which contributes to:</p> <p>FSDS Target 13: The Government of Canada will transition to net-zero carbon national safety and security fleet operations by 2050</p> <p>FSDS Milestone: Develop national safety and security operational fleet decarbonization plans</p> <p>UN SDG Target 13.2: Integrate climate change measures into national policies, strategies and planning</p>



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<p>FSDS Goal 12: Transform the federal light duty fleet</p>	<p>Procure ZEV and hybrid vehicles for the conventional light-duty fleet</p> <p>Initiative Lead: SJS</p>	<p>Performance indicator: Percent available vehicles that meet operational requirements purchased that are ZEVs or hybrid</p> <p>Starting point: ZEV procurement: 29% ZEV and hybrid procurement 86%</p> <p>Target: 100% of National Defence's conventional light-duty vehicle fleet purchases will be zero-emission vehicles (ZEVs) or hybrid when available, with a ZEV procurement target of 50% by 2027.</p>	<p>Procuring ZEV and hybrid vehicles will reduce fossil fuel consumption leading to reduced GHG emissions from the conventional light-duty fleet which contributes to:</p> <p>FSDS Target 12: The Government of Canada's procurement of goods and services will be net-zero emissions by 2050, to aid the transition to a net-zero, circular economy</p> <p>FSDS Milestone: Purchase zero-emission vehicles</p> <p>UN SDG Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>
<p>FSDS Goal 13: Implement the Greening Government Strategy through measures that reduce greenhouse gas emissions, improve climate resilience, and green the government's overall operations.</p>	<p>Install electric vehicle supply equipment.</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: EVSE's installed xx/500</p> <p>Starting point: 120 Electric Vehicle Supply Equipment units</p> <p>Target: 500 electric vehicle chargers will be installed to support National Defence's conventional light-duty fleet by 2027</p>	<p>Installing electric vehicle supply equipment will reduce fossil fuel consumption leading to reduced GHG emissions from the conventional light-duty fleet which contributes to:</p> <p>FSDS Target 12: The Government of Canada's procurement of goods and services will be net-zero emissions by 2050, to aid the transition to a net-zero, circular economy</p> <p>FSDS Milestone: Purchase zero-emission vehicles</p> <p>UN SDG Target 12.7: Promote public procurement practices that are sustainable, in accordance with national policies and priorities</p>



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<p>FSDS Goal 15: Conserve natural spaces</p>	<p>Assess lands for suitability as other effective conservation measure recognition (OECM)</p> <p>Initiative lead: ADM(IE)</p>	<p>Performance indicator: % of lands assessed for OECM suitability</p> <p>Starting point: 0%, New initiative</p> <p>Target: National Defence will assess 70% of its custodial lands (representing approximately 450,000 hectares) to determine their suitability for OECM recognition by 2027.</p>	<p>Assessing lands for suitability as OECMs contributes to:</p> <p>FSDS Target 15: Conserve 25% of Canada's land and inland waters by 2025, working toward 30% by 2030, from 12.5% recognized as conserved as of the end of 2020, in support of the commitment to work to halt and reverse nature loss by 2030 in Canada, and achieve a full recovery for nature by 2050</p> <p>FSDS Milestone: Make progress on Canada's commitment to area-based conservation</p> <p>UN SDG Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services</p>

