National Defence | Défense nationale

CANADIAN ARMED FORCES

Defence Energy and Environment Strategy

Harnessing energy efficiency and sustainability: Defence and the road to the future

Canada

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MESSAGE FROM THE MINISTER

I am proud to present the new *Defence Energy and Environment Strategy*. This forward-looking plan outlines the Department of National Defence's (DND's) commitment to transform its approach to energy and environmental management. As one of the largest landowners, and the largest energy consumer in the Government of Canada, DND must continue to innovate and invest in the latest proven environmental technology. Collective leadership and action is crucial if we are to achieve our sustainability commitments and leave a healthy environment for our children and grandchildren.

As I announced recently in *Strong, Secure, Engaged: Canada's Defence Policy*, DND is committed to greening Defence. The *Defence Energy and Environment Strategy* will guide these efforts, with a focus on four key goals: improving energy efficiency, conducting sustainable operations, greening DND's procurement processes, and building sustainable real property.

By 2020, DND is committed to investing $225 million in infrastructure projects that will help reduce the Department's carbon footprint and greenhouse gas emissions by 40 percent from 2005 levels by 2030. DND will implement energy performance contracts and species-at-risk work plans on all bases and wings across Canada. We will view all procurement options through a green lens, making the environment a priority at every step, and we will continue to dispose of or repurpose underutilized buildings. These, and other targets outlined within this strategy, will help DND meet its environmental and greenhouse gas reduction goals.

With this document, DND joins our allies in finding innovative ways to support operational success, while respecting Canadians' right to a safe and clean environment and the Canadian Armed Forces' commitment to responsible environmental stewardship at home and on deployed operations. The challenge is real, but so is our resolve.

The Honourable Harjit S. Sajjan, PC, OMM, MSM, CD, MP

1. Introduction

INTRODUCTION

1.1 The future of Canada's military

Strong, Secure, Engaged: Canada's Defence Policy sets out a new vision for the Canadian Armed Forces (CAF). This is a vision in which Canada is:

- ***Strong at home***, with a military ready and able to defend its sovereignty, and to assist in times of natural disaster, support search and rescue, or respond to other emergencies;
- ***Secure in North America***, active in a renewed defence partnership in NORAD and with the United States; and
- ***Engaged in the world***, with Defence doing its part in Canadian contributions to a more stable and peaceful world.

To deliver on this vision, the CAF are transforming to become more modern, agile, and better equipped to respond to the unique challenges of the 21st century, from the persistent and evolving threat posed by terrorism and the impacts of a changing climate, to vulnerabilities associated with the space and cyber domains. The historical recapitalization and modernization of the forces under way as a result of this policy presents a unique opportunity to build on a long history of environmental stewardship and make new strides in greening Defence.

1.2 A new role for Defence in energy and environmental management

For many years, the Government of Canada has made it a priority to manage its activities with environmental sustainability in mind. The previous Defence Environment Strategy, along with the Federal Sustainable Development Strategy, provided Defence with the direction necessary to evolve as an environmentally responsible and sustainable organization. An equivalent overarching direction for energy management did not exist. In recognition of the importance of responsible energy and environmental stewardship in today's strategic context, the Department of National Defence (DND) and the CAF have developed an integrated strategy for energy and environmental management, the Defence Energy and Environment Strategy (DEES). The DEES marks a new integrated policy perspective on energy, as a strategic capability, vital for DND's domestic and deployed operations, and environmental issues. The DEES provides a common vision and goals to help Defence better manage energy and the environment holistically, across the broad spectrum of Defence activities in the department, and in the Navy, Army and Air Force.

Defence is among the federal government's largest

employers and maintainers of equipment and real property in Canada. The Navy, Army and Air Force operate and train over large areas of land, sea and airspace at home and abroad. In Canada alone, Defence is entrusted with managing approximately 2.2 million hectares of land and 20,000 buildings, and therefore has a responsibility to show leadership in environmental and energy sustainability, as well as an obligation to manage assets efficiently on behalf of Canadians. An effective and efficient approach to collective energy and environmental management is paramount in order for Defence to execute its roles while maintaining and enhancing its capability.

1.3 Vision and goals

Vision

National Defence and the Canadian Armed Forces will become leaders in contributing to the sustainable development goals of Canada through the effective and innovative integration of energy and environmental considerations into activities supporting the Defence mandate.

In support of a sustainable and modern military, the DEES marks a shift toward the collective management of energy and environmental requirements by effectively integrating life-cycle best practices into workplace activities and operations. Reinforcing energy-conscious behaviours and improving environmental awareness among Defence personnel will encourage a culture that considers energy and environment as integral to the routine activities of Defence and in the decision-making process.

Defence understands that mission success depends on sound energy management. In executing defence mandates, energy is the critical enabler and operational imperative that makes achieving the mission possible. DND's vision identifies energy and the environment as vital resources that go hand in hand to contribute to mission continuity and operational readiness while limiting the effects of vulnerabilities, where possible.

The DEES aims to deliver four objectives.

1) ***Less energy waste:*** Reduce the energy demand for Defence by increasing energy efficiency and conservation measures in all aspects of Defence business

2) ***Cleaner energy:*** Move to lower-emission and more sustainable energy sources such as hydropower, wind turbines and solar photovoltaic panels

Responding to climate change: The Disaster Assistance Response Team

The progression of climate change may significantly increase the intensity of typhoons, hurricanes and tropical storms in the future. Canada's military may be called upon more often to respond to humanitarian emergencies, as it did in 2013, providing humanitarian support after Typhoon Haiyan devastated the Philippines.

3) ***A reduced Defence environmental footprint:*** Reduce greenhouse gas emissions and other environmental impacts from the infrastructure portfolio, commercial and operational fleets, and equipment

4) ***Better-managed energy and environmental performance:*** Ensure systems and processes are in place to improve energy and environment management and to measure performance more efficiently

Goals

The DEES groups Defence activities into four goals:

1) ***Energy efficiency;***

2) ***Sustainable operations;***

3) ***Green procurement; and***

4) ***Sustainable real property.***

Within each goal, activities have been grouped into initiatives.

The initiatives complement existing energy and environmental programs and projects and will allow Defence to achieve improvements in energy and environmental performance.

Defence Energy and Environment Strategy

Goals	Initiatives
Energy efficiency	Facilities; Commercial fleet; Business travel; Military activities and operations
Sustainable operations	Contaminated sites; Training areas; Flora and fauna; Hazardous materials
Green procurement	Business operations; Military equipment
Sustainable real property	Infrastructure; Workplace operations; Water management

2. Energy efficiency

17 sustainable development goals to transform the world

DND's contribution to the Government of Canada's Federal Sustainable Development Strategy will include efforts towards achieving the United Nations' 2030 Agenda for Sustainable Development and the 17 sustainable development goals applicable to all nations.

ENERGY EFFICIENCY

2.1 Focus on energy

Defence capability is unquestionably dependent on energy. Energy fuels the fleets of the Navy, Army and Air Force. It provides soldier power and sustains military camps, some of which are located in difficult or extreme environments that typically draw heavily on energy resources. It operates and maintains an extensive range of Defence infrastructure consisting of approximately 20,000 buildings and facilities dispersed across the country, extending as far north as the high Arctic. Having access to adequate, reliable, affordable energy, when and where it is needed, strikes at the heart of Defence capability and underpins the operational readiness, sustainability and responsiveness of Canada's National Defence and its ability to deliver on its mandate.

United Nations policy

Energy policy is interconnected with climate change policy. The United Nations is a leader in international climate policy. At the 2015 United Nations Climate Change Conference (COP 21) in Paris, all participating countries reached a historic agreement to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low-carbon future. As part of the agreement, Canada also adopted the 2030 Agenda on Sustainable Development, including the 17 United Nations Sustainable Development Goals. The Paris Agreement provides a clear signal that the transition to a low-carbon government and clean-energy economy is under way.

Canadian government policy

In response to the Paris Agreement, the Canadian government has made a strong commitment to addressing climate change impacts by strengthening its Federal Sustainable Development Act and Federal Sustainable Development Strategy vision for a more sustainable Canada. The Federal Sustainable Development Strategy is the key driver of energy efficiency in federal operations.

The Federal Sustainable Development Strategy sets out a federal emissions target of a 40% reduction below 2005 levels by 2030. To further support commitments under the Paris Agreement, Canada has developed a pan-Canadian framework on clean growth and climate change, which will put Canada on the path to meeting its 2030 target and taking action on adaptation and clean technology.

13 aspirational goals under Federal Sustainable Development Strategy 2016-2019

Through innovative remediation techniques and sustainable military training practices, DND's efforts to reduce the long-term environmental impact of live-fire training significantly contribute to the Federal Sustainable Development Strategy goals by fostering safe and healthy communities and healthy wildlife populations.

National Defence policy

As the largest user of energy in the Canadian government, National Defence has a key role to play in supporting the government's commitment. The DEES establishes a sound and responsible energy policy for Defence and provides the strategic direction required to support the Defence team in managing energy and environmental considerations on a regular and emerging basis. The DEES also includes activities that support the advancement of the Government of Canada's energy and environmental agenda such as Defence's contribution to the Federal Sustainable Development Strategy.

Defence is the single largest emitter of greenhouse gases in the federal government. In support of the Federal Sustainable Development Strategy, Defence will play a leadership role in reducing its greenhouse gas emissions from both its infrastructure and operational portfolios, where feasible. Under the Federal Sustainable Development Strategy target, DND is committed to a 40% reduction below 2005 levels of greenhouse gas emissions from its buildings and commercial vehicle fleet (except military equipment), by 2030.

TARGET 1: *By 2030, reduce GHG emissions in DND buildings and commercial vehicle fleet by 40%*

Strong, Secure, Engaged: Canada's Defence Policy recognizes climate change as a key factor contributing to the growing complexity of the global security environment. In addition to supporting the government's commitment to reduce greenhouse gas emissions, Defence will strengthen its capacity for adaptation to climate change by integrating adaptation measures to climate change impacts into its policies and practices. Effective adaptation measures will mitigate the risks associated with climate change impacts on operations.

Defence is undertaking many significant and positive actions to reduce greenhouse gas production tied to infrastructure and its commercial vehicle fleet. Reduction opportunities also exist within the operational portfolio. However, given the unpredictable changes in operational tempo, the federal reduction target will not include emissions from military activities and operations. Nevertheless, Defence will support innovative approaches to reduce energy consumption and greenhouse gas emissions from military activities and operations.

TARGET 2: *Invest $225 million by 2020 in a wide range of infrastructure projects across Canada to reduce DND's carbon footprint*

2.2 Improving the energy efficiency of facilities

2.2.1 Designating energy managers

Defence will be using dedicated energy managers at Defence installations to identify, implement and maintain efficiency measures at all bases and wings. Energy managers will become the local energy champions, and, through ongoing training and awareness, they will ensure optimal energy performance from DND systems and pursue behavioural change in end-users. Strengthening energy-conscious behaviours and energy awareness among all Defence personnel will foster the right culture change to achieve DND's energy vision.

Energy managers will find opportunities to reduce greenhouse gas emissions, identify efficiencies, prepare and deliver training and awareness for building occupants and operators, and negotiate with utility companies to find grants and resources to further reduce emissions and save taxpayer dollars. Modern buildings and equipment are highly automated and require constant monitoring and maintenance to achieve full potential.

TARGET 3: *Designate energy managers at all bases and wings by 31 March 2019*

2.2.2 Leveraging renewable energy

Green energy from the grid

Buying green power from the regional grid is very cost-effective, and DND is committed to pursuing such opportunities to reduce greenhouse gas emissions whenever the opportunity arises. The purchase of electricity from renewable sources will enable the government to support its commitment to create clean jobs by investing in green infrastructure and clean technology, promoting innovation in natural resource sectors and leading by example. To achieve this goal, DND intends to leverage contracts that allow federal departments to participate in a bulk renewable electricity purchase.

For example, in the province of Alberta, where coal has traditionally been the main source of electricity, DND will buy 90% of its electricity requirements from green sources for installations at Wainwright, Calgary, Cold Lake, Edmonton and Suffield.

Solar and wind farms

Renewable power generation on DND installations could be an innovative approach, achieved by repurposing underused DND land for solar and wind farms to help reduce greenhouse gas emissions. DND is examining this possibility for a number of its installations and will explore opportunities to leverage private capital for these types of projects.

DND building awarded for excellence in energy efficiency

The 3rd Canadian Division Headquarters building at CFB Edmonton uses high-efficiency in-floor radiant heating, lighting, mechanical and water heating systems, making it 56% more efficient. Achieving the Gold standard in Leadership in Energy and Environmental Design, the facility won the Real Property Institute of Canada's prestigious award for Best Practices in Environmental Sustainability in 2014.

Other greening initiatives

Renewable energy sources such as wind, solar, geothermal, synthetic fuels and other energy alternatives will continue to evolve, delivering more energy options and diversifying energy supply, provided they are compatible and do not interfere with operations.

Defence is exploring the use of renewable energy to reduce greenhouse gas emissions. As part of this effort, DND continually undertakes energy studies for many sites, including northern sites. For example, DND has implemented projects to provide:

- green power from its on-site solar photovoltaic system at 5 Wing Goose Bay
- green power from its on-site solar photovoltaic and wind systems at CFB Petawawa
- a hybrid solar-battery powered system for the High Arctic Data Communications System
- solar air heating systems at numerous bases and wings
- partnerships with local utility companies to better manage energy consumption and improve base-wide energy efficiency

TARGET 4: *Pursue opportunities to use clean power at all bases and wings by 2025*

2.2.3 Increasing investments and partnerships

Green buildings

DND is committed to modern green building design standards that consider life-cycle impacts from design to disposal. DND engineers and architects continually aim to stimulate improved energy performance and ensure environmentally sustainable buildings through the DND green buildings directive. To this end, DND is replacing and updating its older, outdated buildings to meet new operational requirements as well as to reduce maintenance needs.

For a number of years, DND has been designing its new building and recapitalization projects around industry standards for sustainability in building construction and operations. These include the Leadership in Energy and Environmental Design (LEED) and Green Globes Design programs, which target excellence in the design, construction and maintenance of green buildings. Green buildings can reduce energy and water consumption by as much as 40%. Between 2012 and 2016, the department designed and implemented over 40 projects totalling $2 billion using the LEED and Green Globes tools.

Energy performance contracts deliver millions in savings

DND has implemented 25 energy-efficiency projects, reducing greenhouse gas emissions and energy consumption and resulting in over $20 million in estimated annual energy savings.

TARGET 5: *Require new construction and major recapitalization projects to meet or exceed the Silver Leadership in Energy and Environmental Design (LEED) standard or equivalent for high-performing buildings*

DND's residential housing portfolio, managed by the Canadian Forces Housing Agency, includes nearly 12,000 owned and leased housing units at DND sites across the country. DND is committed to providing comfortable and energy-efficient housing for military families. For example, housing-related Green Globes and LEED principles are integrated into maintenance, renovation and new construction projects.

TARGET 6: *Achieve an EnerGuide energy performance standard for all new or recapitalized residential housing units by 31 March 2020*

Innovative partnerships

With the rapidly developing energy sector, new and emerging technologies and innovations are paving the way for opportunities and capabilities that were previously unthinkable. Engaging partners in energy initiatives over the short, medium and long terms is key to delivering energy-efficient operations. DND is exploring opportunities to harness private sector innovation and expertise to meet its energy and environmental objectives. This includes consideration of alternative delivery models, such as public-private partnerships, where there is a strong business case and demonstrated value for Canadians.

Energy performance contracts

Under energy performance contracts, DND partners with a private firm responsible for assessing a facility's energy systems and equipment to identify potential energy savings, make and implement recommendations, oversee results, and ensure a guaranteed level of energy savings. Approximately 30 energy performance contracts are under way or planned for all major Defence installations in the near future, allowing private sector investment to deliver guaranteed energy savings.

TARGET 7: *Implement new energy performance contracts at all bases and wings by 31 March 2025*

2.3 Modernizing the commercial vehicle fleet

To reduce greenhouse gas emissions, DND is considering a number of possibilities including purchasing fuel-efficient vehicles for its commercial vehicle fleet. DND is examining the possibility of adding plug-in hybrid and electric vehicles to its commercial fleet, as well as adding the required electric vehicle charging stations.

Defence is also exploring other opportunities to reduce the life-cycle impacts of the commercial vehicle fleet from a materials and waste perspective. Possible measures include incorporating best practices in design and land use planning to reduce dependency on vehicles at bases and wings. Defence continues to encourage carpooling, bike sharing, transit and multiple-use opportunities.

TARGET 8: *Ensure 30% of DND light-duty vehicle fleet runs on hybrid, plug-in hybrid and/or electric technology, where suitable for operational needs and where vehicles with this technology are available in the Government Motor Vehicle Ordering Guide, by 31 March 2020*

2.4 Adopting sustainable practices for business travel

Travel and transportation are top emissions generators. Air travel is especially carbon-intensive. To reduce the environmental impact of travel, Defence will use sustainable workplace practices, such as teleconferencing, telecommuting, carpooling, and the use of electric vehicles and public transportation.

2.5 Implementing innovative energy solutions in military activities and operations

2.5.1 Promoting energy conservation through awareness and training

The CAF will reduce overall energy use during military activities and operations through awareness, training, simulation and education to further integrate energy conservation into the Navy, Army and Air Force practices. Savings opportunities and best practices related to energy use will be incorporated into internal processes and decision making at all leadership levels. Leaders are responsible for communicating and engaging with soldiers and employees to value energy as a resource that enables enhanced capabilities and lowers operational risks.

Making renewable energies work for CAF operations

As part of Exercise Guerrier Nordique, members of 35 Brigade sought to reduce fuel dependence. In consultation with field experts, they designed and built easy-to-transport mini electric power stations that leveraged wind and solar energy in harsh weather environments.

2.5.2 Using cleaner fuels for military fleet

Defence is working toward certification processes for synthetic fuels and exploring the technical feasibility of using alternative fuel blends for military fleet. The objective is operationally driven to maintain interoperability with allies, provide more options for the fuel supply chain, and increase fuel supply chain security and CAF resilience. DND is considering options such as using blends of synthetic fuels for the military fleet, where possible, subject to the military technical requirements, North Atlantic Treaty Organization (NATO) standards, and the availability and affordability of these fuels.

2.5.3 Designing more efficient soldier equipment and kits

Defence is studying options to improve the energy efficiency of soldier equipment and kits without hindering soldiers' ability to operate. Studies are under way with a view to managing the power of dismounted soldiers, enabling them to operate longer while carrying less volume and weight of batteries and fewer types.

2.5.4 Providing more efficient power solutions for operations

Defence is continuing to explore and acquire modern and fuel-efficient power solutions for tactical equipment such as field heaters and generators. The objective is to support the high-performance power platforms required in harsh environments while lowering the energy footprints of domestic and deployed operations.

DND collaborated with NATO on camp initiatives to help lower fuel and electricity consumption in multinational energy projects and improve interoperability. This includes assessing technologies to improve the energy efficiency of camp design and operation such as coverings for tents to decrease cooling loads and monitoring the energy consumption of deployed camps.

TARGET 9: *Reduce petroleum-generated electrical energy consumption by 50% at deployed camps by 2030*

3. Sustainable operations

SUSTAINABLE OPERATIONS

3.1 Managing contaminated sites

Defence manages its contaminated sites in a manner that is consistent with Treasury Board policy, prioritizing its sites based on human health and environmental risks using approved criteria, developing and implementing management strategies for proposed projects, executing projects and reporting on results. Defence will continue to leverage the Federal Contaminated Sites Action Plan to clean up contaminated sites in order to reduce its environmental liability related to real property.

TARGET 10: *Reduce DND's contaminated sites liability by an average of 7% per year by 2020*

3.2 Managing training areas

Ranges and training areas are paramount to Defence's ability to generate combat-effective forces. In order to support force generation in the long term while also minimizing undue impacts on the natural environment from military training, Defence will continue to develop practical and affordable measures to ensure that range and training area assets remain sustainable. To this end, DND will look for opportunities to improve how it identifies and monitors environmental sustainability risks at its ranges and training areas. DND will also seek to improve how it mitigates such risks through improved environmental stewardship by those who use ranges and training areas and through modernization of the design, construction and maintenance of ranges and training areas.

Key initiatives to be undertaken by Defence to support sustainable ranges and training areas include implementing a systematic process to identify, monitor and report on site-specific indicators of sustainability; investing in science and technology to better understand the environmental impacts of munitions constituents; developing innovative range designs and range-management practices to mitigate such risks; and establishing modernized decision-support tools to improve land management within ranges and training areas.

TARGET 11: *Assess the environmental risk of all small arms ranges by 31 March 2019 to recommend modern range design options and the sustainable use of range and training areas*

DND awarded for turtle conservation efforts

For several species at risk, living on a DND base is safer than almost any other location, since DND owns approximately 2.2 million hectares of land that in many cases is relatively undisturbed. Implementing DND's environmental strategy of respecting species-at-risk habitat during training exercises, the 5th Canadian Division Support Base Gagetown received the Silver Salamander Award for conservation efforts involving the wood turtle.

3.3 Protecting flora and fauna

In recognition of the potential impact of activities on biodiversity and habitat within training and operating areas, Defence adheres to federal regulations on flora and fauna protection while taking into account the need for military training. This involves developing measures and implementing best practices in land use planning to protect wildlife and plants, in particular species at risk. Through numerous studies, surveys and ongoing monitoring, Defence has gained a solid understanding of the flora and fauna present on Defence establishments and considers this information when planning military training and maintaining training areas to minimize impacts. When new training infrastructure is being considered, an environmental assessment is conducted to identify potential impacts on species at risk or other sensitive environmental components. This includes plans for avoiding or minimizing impacts.

Defence is also committed to protecting the wildlife species on DND lands by working with federal institutions such as Environment and Climate Change Canada, Parks Canada, and Fisheries and Oceans Canada to prepare recovery documents as well as develop and endorse species-at-risk work plans for each Defence establishment.

TARGET 12: *Endorse species-at-risk work plans for all bases and wings by 31 March 2019*

3.4 Managing hazardous materials

Defence uses a high volume of hazardous materials in support of operations. It has a responsibility to manage substances and products with a view to protecting the safety of personnel and the environment. DND is committed to managing hazardous materials with care from purchase to disposal, reducing their use and removing them where possible. DND continues to seek out materials that are less hazardous while still meeting Defence needs. In addition, DND is committed to respecting domestic and international laws and regulations to prevent the use of hazardous materials not permitted in other countries during deployment operations.

TARGET 13: *Implement modernized spill tracking and halocarbon management systems by 31 March 2018*

4. Green procurement

GREEN PROCUREMENT

4.1 Integrating environmental considerations into business operations

DND understands the importance of green procurement and endeavours to consider the environmental and energy implications of its purchasing decisions, while satisfying its operational requirements. The military makes hundreds of procurement decisions every year, buying a wide range of products and obtaining services. DND will strive to integrate sustainability considerations in capability development.

DND will follow the Government of Canada Policy on Green Procurement, which covers green procurement training, the incorporation of procurement performance clauses for executives and managers, and the integration of environmental considerations in key procurement and materiel management policy instruments. This includes a commitment to procure the least hazardous products that meet operational requirements. Furthermore, DND will communicate its environmental requirements to contractors by making purchases through green standing offer agreements and by building these criteria into statements of requirements and statements of work.

DND adapts and continually improves internal services and business operations to minimize their environmental footprint. Defence will ensure that the procurement instrument incorporates environmental performance considerations from planning and acquisition to disposal of goods and closure activities for acquired services.

TARGET 14: *Align departmental policy on green procurement with the government's Policy on Green Procurement within 12 months of its issuance by Treasury Board*

TARGET 15: *Integrate green procurement considerations in 90% of real property procurement instruments by 31 March 2019, where applicable*

Strategic environmental assessment

Strategic environmental assessments are conducted early in the planning process before any irrevocable decisions are made in order to avoid, minimize or mitigate adverse effects and to promote actions that will have a positive effect on the environment. DND

is committed to continuing to apply the strategic environmental assessment process to internal practices to support decision making. DND will use the strategic environmental assessment process to identify potential environmental impacts associated with implementing policies, plans and programs.

TARGET 16: *Achieve 100% compliance with the Cabinet directive on strategic environmental assessments for all relevant departmental proposals*

4.2 Applying a life-cycle approach to military equipment procurement

By considering procurement decisions through a life-cycle lens, DND is committed to managing military equipment in the most sustainable way possible and in line with operational requirements. Defence will procure and use military equipment that is as energy efficient as is practical, thus reducing overall operating costs and environmental impacts. Defence will focus on the early integration of design specifications with an emphasis on energy performance and environmental considerations that examine military equipment acquisition, maintenance, operations, use and disposal at end-of-life.

5. Sustainable real property

SUSTAINABLE REAL PROPERTY

5.1 Reducing the environmental footprint of the infrastructure portfolio

As the custodian of a huge volume of real property and infrastructure assets, including vast tracts of land and built assets such as buildings, waterworks, roads, military bases and residential housing, DND has the goal of enabling Canadian military operations by managing real property assets with care and attention. To this end, DND will ensure that its natural and built assets remain available to personnel for training and operations and that they are sustainable into the future. These efforts will also contribute to improved quality of life and workplace wellness for CAF members.

DND will continue to plan, construct, maintain and repair, retrofit and dispose of facilities in a manner that supports military readiness and reduces the environmental footprint. It is imperative that environmental impacts are factored into land use and infrastructure decisions throughout the infrastructure lifecycle (i.e. planning, acquisition, use and disposal). Any development that reduces environmental impacts leads to a leaner, more fiscally sustainable real property portfolio and decreases long-term costs.

Sustainable land use development planning principles

DND will ensure that sustainable land use development planning principles are successfully applied by continuing the development of regional and site-level land use plans, moving the DND real property portfolio toward improved efficiency, affordability, and environmental sustainability. By consolidating and optimizing the use of land and built infrastructure (buildings or works) and by demolishing or disposing of infrastructure that is no longer required or able to effectively deliver a capability, DND will reduce its environmental footprint. DND will promote joint-use and multi-function facilities, as well as encourage employees to use active transportation such as walking and cycling, whenever possible.

In addition, DND will require demolition contractors to develop comprehensive waste-management plans that reuse building materials as much as possible and dispose safely of non-reusable materials. Before securing additional property, or renting or selling existing property, DND will consider the environmental condition of the property and take appropriate steps.

TARGET 17: *Integrate sustainability principles in all real property development plans by 31 March 2020*

5.2 Implementing sustainable workplace practices

DND will strive to reduce solid waste. Defence generates a great deal of waste and realizes the importance of improving the life-cycle of its assets, furniture, electronic equipment and waste generated from its facilities by applying the three Rs (reduce, reuse and recycle) to its operations. Reusing and recycling materiel and assets diverts waste from landfill and reduces the demand for manufacturing of new products as well as the energy and materials used for manufacturing. Recycling reduces the need to extract and process virgin raw materials, which is also very energy- and resource-intensive.

DND will also work to support the Government of Canada initiative to create a modern workplace aimed at attracting and retaining public servants and encouraging them to work smarter, greener and healthier to better serve the department and Canadians. To this end, through the integration of Workplace 2.0, DND will endeavour to provide offices that are sustainable and promote collaboration through technology and engagement between employees. Further, sustainable accommodations for alternative work arrangements such as telework are to be encouraged where and when possible. This initiative also serves to raise awareness of greening government operations practices among personnel.

5.3 Managing water and wastewater sustainably

Defence understands the need to build a culture of change towards the consumption of water, in an effort to ensure access to a continuous and safe supply and reduced use. Defence will meter, where feasible, analyze and optimize its potable water consumption and wastewater production, and manage its storm-water runoff as per best environmental practices. It will meet or exceed the regulatory requirements at the federal, and where applicable, provincial and municipal levels of government.

Several DND establishments rely on well water, surface water or both to supply all or some of the potable water to employees and residents on site and, in some instances, neighbouring towns. To ensure the sustainability of its water supply over time, DND will undertake water vulnerability assessments, and develop vulnerability-based monitoring and management programs on sites where DND sources its own drinking water.

In addition, DND will strive to manage and treat all wastewater from Defence establishments before it is discharged into the environment. Some bases and wings have their own wastewater treatment plants, while others are connected to municipal wastewater services. In both cases, DND has a responsibility to ensure

Canada's climate will inevitably change

Climate change is already affecting DND's real property portfolio across Canada, but more so in the North. DND is planning and adapting its operations for the current and future impacts of climate change such as permafrost thawing and increased occurrences of forest fires, floods and ice storms.

the discharge of wastewater complies with applicable legislation. DND will examine options to maximize the reuse of wastewater and minimize wastewater.

TARGET 18: *Complete source water vulnerability assessments on all sites where DND supplies its own drinking water by 31 March 2020*

6. Conclusion

CONCLUSION

6.1 Sustainability going forward

Defence is committed to achieving its roles and missions by improving the operational readiness and resilience of CAF through the consideration of energy and environmental issues holistically. To that end, Defence will seek to:

- improve energy efficiency and reduce greenhouse gas emissions
- promote sustainable military operations
- use green procurement practices
- implement sustainable real property and land use management practices

DND will continue to build detailed implementation plans to further integrate energy and environmental considerations into Canada's military operations. These efforts will include refining results-oriented and measurable performance-based criteria for ongoing efficiency and sustainability improvements.

Defence will report annually on its implementation of the DEES, including progress toward meeting its energy and environmental objectives. Through the Federal Sustainable Development Strategy and departmental results reporting, the DEES will help to ensure that parliamentarians and Canadians can track the actions Defence is taking and the results being achieved to reduce its energy and environmental footprint.

Both this strategy and implementation plans will be reviewed periodically to ensure current policies, operations, practices and technologies are reflected.

6.2. Implementation

Implementation of the DEES will be guided by specific initiatives associated with each goal. The targets and associated Offices of Primary Interest (OPIs) are summarized in Annex 1.

Annex 1: DEES goals, targets and OPIs

ANNEX 1 - DEES GOALS, TARGETS AND OPIs

Goals	Targets	Performance measures	OPIs
Energy efficiency	**1. By 2030, reduce GHG emissions in DND buildings and commercial vehicle fleet by 40%**	**% of GHG emissions reduction relative to a 2005 baseline**	**DND**
	2. Invest $225 million by 2020 in a wide range of infrastructure projects across Canada to reduce DND's carbon footprint	• % of $225 million expended	ADM(IE)
	3. Designate energy managers at all bases and wings by 31 March 2019	• % of bases and wings with designated energy managers	ADM(IE)
	4. Pursue opportunities to use clean power at all bases and wings by 2025	• % of clean power used at bases and wings	ADM(IE)
	5. Require new construction and major recapitalization projects to meet or exceed the Silver Leadership in Energy and Environmental Design (LEED) standard or equivalent for high-performing buildings	• % of new construction and major recapitalization projects meeting or exceeding the Silver LEED standard or equivalent	ADM(IE)
	6. Achieve an EnerGuide energy performance standard for all new or recapitalized residential housing units by 31 March 2020	• % of new residential housing units that achieved an EnerGuide rating of 80 • % of recapitalized residential housing units that achieved an EnerGuide rating of 70	ADM(IE)
	7. Implement new energy performance contracts at all bases and wings by 31 March 2025	• % of bases and wings with energy performance contracts implemented	ADM(IE)
	8. Ensure 30% of DND light-duty vehicle fleet runs on hybrid, plug-in hybrid and/or electric technology, where suitable for operational needs and where vehicles with this technology are available in the Government Motor Vehicle Ordering Guide, by 31 March 2020	• % of light-duty vehicle fleet that is hybrid, plug-in hybrid and/or electric	SJS
	9. Reduce petroleum-generated electrical energy consumption by 50% at deployed camps by 2030	• % of reduction of petroleum-generated electrical energy consumption at deployed camps from the baseline of 3 kilowatts per person	CJOC

Goals	Targets	Performance measures	OPIs
Sustainable operations	10. Reduce DND's contaminated sites liability by an average of 7% per year by 2020	• % of reduction in contaminated sites liability based on the closing liability of the previous year	ADM(IE)
	11. Assess the environmental risk of all small arms ranges by 31 March 2019 to recommend modern range design options and the sustainable use of range and training areas	• % of small arms ranges that are assessed and ranked based on environmental risk	ADM(IE)
	12. Endorse species-at-risk work plans for all bases and wings by 31 March 2019	• % of species-at-risk work plans that are endorsed	ADM(IE)
	13. Implement modernized spill tracking and halocarbon management systems by 31 March 2018	• Spill tracking system and halocarbon management system implemented	ADM(IE)
Green procurement	14. Align departmental policy on green procurement with the government's Policy on Green Procurement within 12 months of its issuance by Treasury Board	• Applicable departmental policy on green procurement reflects Government of Canada direction	ADM(Mat)
	15. Integrate green procurement considerations in 90% of real property procurement instruments by 31 March 2019, where applicable	• % of real property procurement instruments with green procurement considerations	ADM(IE)
	16. Achieve 100% compliance with the Cabinet directive on strategic environmental assessments for all relevant departmental proposals	• % of relevant proposals for which the strategic environmental assessment process is completed	ADM(IE)
Sustainable real property	17. Integrate sustainability principles in all real property development plans by 31 March 2020	• % of real property development plans with sustainability principles	ADM(IE)
	18. Complete source water vulnerability assessments on all sites where DND supplies its own drinking water by 31 March 2020	• % of sites with source water vulnerability assessments completed	ADM(IE)

Note: ADM(IE): Assistant Deputy Minister (Infrastructure and Environment), ADM(Mat): Assistant Deputy Minister (Materiel), CJOC: Canadian Joint Operations Command, DND: Department of National Defence, OPI: Office of Primary Interest, SJS: Strategic Joint Staff.