

# Natural Resources Canada

## 2017-2020 Departmental Sustainable Development Strategy



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Canada

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## Executive summary

The Government of Canada is committed to a clean-growth future built on the dual cornerstones of economic prosperity and environmental protection. Central to this vision is sustainable development, which is defined as our ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The Government's plan for sustainable development begins with the Federal Sustainable Development Strategy (FSDS). It sets out the Government's priorities, establishes its goals and targets, identifies actions to achieve those objectives, and provides performance indicators to measure the results. For example, the 2016-19 FSDS outlined 13 long-term goals to promote clean growth, ensure healthy ecosystems and build safe, secure and sustainable communities.

Natural Resources Canada (NRCan) has a significant role to play in these federal efforts by promoting the sustainable development of Canada's energy, minerals, metals, and forests. This includes producing geographical, geological and other vital scientific information to support decision making about Canada's land-based and offshore resources, as well as the management of these lands.

This 2017-20 Departmental Sustainable Development Strategy (DSDS) outlines how NRCan contributes to the Government's long-term goals in the FSDS by promoting environmental stewardship at the same time that it helps ensure that Canada's natural resource sectors are globally competitive, that Canadians are making smart, environmentally sound consumer purchases and that our lands and resources are being wisely managed to ensure greater public safety.

The DSDS is also an opportunity for NRCan to demonstrate its contributions to important domestic initiatives and international commitments — including the Pan-Canadian Framework on Clean Growth and Climate Change, which is a blueprint to reduce Canada's greenhouse gas emissions, spur innovation, adapt to climate change and create good jobs across the country. It also illustrates how the Department supports the Minister of Natural Resources in addressing priorities set by the Prime Minister. As part of these efforts to advance sustainable development in concrete ways, the Department works closely with partners such as the provinces and territories, Indigenous peoples, communities, industry, academia and non-governmental organizations.

This three-year DSDS will be updated annually to reflect new and emerging priorities and initiatives that further improve the quality of life of Canadians and ensure Canada's place as one of the greenest countries in the world.

## Section 1: Context for the Departmental Sustainable Development Strategy

The [2016–19 Federal Sustainable Development Strategy \(FSDS\)](#) presents the Government of Canada's sustainable development goals and targets, as required by the [Federal Sustainable Development Act](#). In keeping with the objectives of the Act to integrate environmental, social

and economic considerations into decision-making, and make such decisions more transparent and accountable to Parliament, NRCan supports reaching the goals laid out in the FSDS through the activities described in this DSDS.

## Section 2: Sustainable Development at Natural Resources Canada

The sustainable development of Canada's natural resources — including energy reserves, minerals and metals, and forests — is a centrepiece of NRCan's mandate achieved through the promotion of clean growth for these sectors. The Department supports Canada's resource industries to ensure they remain a source of good jobs and enduring prosperity while also helping them to adopt innovative new ways to enhance their competitiveness, improve their environmental performance, strengthen their relationships with Indigenous peoples and build public confidence.

Of the 13 long-term goals outlined in the 2016-19 FSDS, the Minister of Natural Resources is responsible for leading on the Government's Clean Energy goal and serves as a co-leader for both Clean Growth and Sustainably Managed Lands and Forests. As well, the Minister shares responsibilities for Low Carbon Government and is an important contributor on five other goals: Effective Action on Climate Change, Modern and Resilient Infrastructure, Healthy Coasts and Oceans, Pristine Lakes and Rivers, and Safe and Healthy Communities.

While NRCan's departmental actions contribute to numerous FSDS goals at the same time, they are presented only once in this DSDS to avoid repetition.



### **FSDS GOAL: CLEAN ENERGY**

All Canadians have access to affordable, reliable and sustainable energy  
Minister of Natural Resources: lead

Canada already boasts one of the world's cleanest electricity markets and its development of clean technology is leading to other innovative energy solutions. Building on this success will be essential to Canada's transition to the low-carbon economy. A cleaner energy system will also lower our greenhouse gas (GHG) emissions while increasing Canada's climate resilience and reducing our impact on our land and wildlife species.

The Prime Minister's mandate letter to the Minister of Natural Resources makes clear that clean energy is a top priority. For example, by working with the provinces and territories, the Minister is developing a Canadian Energy Strategy to protect Canada's energy security, encourage energy conservation, and bring cleaner, renewable energy onto a smarter electricity grid.

The Prime Minister has also asked the Minister to work with the Minister of Environment and Climate Change and the Minister of Foreign Affairs to develop an ambitious North American clean energy and environmental agreement with the United States and Mexico.

In addition, the Minister leads or supports commitments under the Pan-Canadian Framework on Clean Growth and Climate Change to deliver the FSDS's Clean Energy goal. This includes implementing new building codes and introducing energy efficiency measures to help Canadians understand their energy use and save money on their utility bills. It also includes

establishing new electric vehicle charging stations as well as natural gas and hydrogen refuelling stations.



#### **FSDS GOAL: CLEAN GROWTH**

A growing clean technology industry in Canada contributes to clean growth and the transition to a low-carbon economy

Minister of Natural Resources: co-lead

A strong economy and a clean environment must go hand in hand in the low-carbon economy. Investing in clean technology and supporting innovation is a key part of that and will help Canadian companies grow and position themselves as world leaders in the clean technology market.

The Prime Minister's mandate letter to the Minister of Natural Resources confirms the Clean Growth goal as a top priority shared with the Minister of Innovation, Science and Economic Development and emphasizes the importance of supporting clean technology producers to tackle Canada's most pressing environmental challenges while creating more opportunities for Canadian workers. One of the ways NRCan is doing all of this is by investing in clean energy technology to support the goals of Mission Innovation, a multi-country initiative to accelerate global clean energy innovation and make clean energy more widely available and affordable.



#### **FSDS GOAL: SUSTAINABLY MANAGED LANDS AND FORESTS**

Lands and forests support biodiversity and provide a variety of ecosystem services for generations to come

Minister of Natural Resources: co-lead

Protecting and sustainably using lands and forests is necessary to ensure their long-term benefits for Canada. These benefits are diverse and include protecting habitat for wildlife populations and supporting the well-being of Canadians through ecosystem services, as well as contributing to the Canadian economy and preserving traditional uses of lands and forests by Indigenous peoples.

Under the Department of Natural Resources Act, the Minister is responsible for sustainable development and the responsible use of Canada's forest resources, as well as enhancing the competitiveness of Canada's forest products. In addition, the Forestry Act mandates the Department's Canadian Forest Service to conduct research and provide information and advice to promote the protection, sustainable management, and wise use of forest resources. In September 2016, the Canadian Council of Forest Ministers also committed the federal, provincial and territorial governments to work together to develop a National Forest Bioeconomy Framework by fall 2017 to support further economic growth in a clean and sustainable manner.



### **FSDS GOAL: LOW-CARBON GOVERNMENT**

The Government of Canada leads by example by making its operations low-carbon  
Minister of Natural Resources: support (lead for his portfolio)

The Government of Canada is committed to leading efforts to combat climate change while continuing to contribute to the broader economy. With its vast operations, its extensive use of goods and services and its procurement practices, the Government has an opportunity to support the transition to a low-carbon economy by stimulating the clean-tech sector, contributing to Canada's international climate change commitments and realizing substantial cost savings.

NRCan is supporting this FSDS goal through a range of measures to reduce its carbon footprint, such as improving the energy efficiency of its own buildings, reducing its fleet emissions and modernizing its infrastructure to support the use of electric vehicles. In addition, NRCan supports other federal departments and agencies by providing technical advice to assist them in developing and implementing their own projects to save energy and reduce GHG emissions.



### **FSDS GOAL: EFFECTIVE ACTION ON CLIMATE CHANGE**

A low-carbon economy contributes to limiting global average temperature rise to well below two degrees Celsius and supports efforts to limit the increase to 1.5 degrees Celsius  
Minister of Natural Resources: support

Climate change is a pressing global problem that, if left unchecked, could affect the ability of future generations to meet their basic needs. Effective action on climate change starts with the transition to a low-carbon economy that reduces our GHG emissions while continuing to increase our prosperity.

Under the Pan-Canadian Framework on Clean Growth and Climate Change, NRCan is leading on a wide range of initiatives that includes extending ENERGY STAR® certification to industrial buildings, improving the energy efficiency of vehicles and investing in green infrastructure such as a national network of electrical vehicle charging stations. The Department also provides knowledge and tools to Canadian communities to adapt to a changing climate and plans for sectors to succeed in the new economy.



### **FSDS GOAL: MODERN AND RESILIENT INFRASTRUCTURE**

Modern, sustainable, and resilient infrastructure supports clean economic growth and social inclusion  
Minister of Natural Resources: support

Green infrastructure, which includes everything from water and wastewater systems and clean energy to climate resilient infrastructure (such as flood mitigation systems) and infrastructure to protect against climate change, preserves the natural environment, supports healthy and resilient communities, drives economic growth and improves our quality of life.

One of NRCan's main priorities is to promote the transition towards low-carbon options in transportation, as well as improving international regulatory alignments by enhancing energy codes for buildings, to support this FSDS goal.



### **FSDS GOAL: HEALTHY COASTS AND OCEANS**

Coasts and oceans support healthy, resilient and productive ecosystems  
Minister of Natural Resources: support

Canada has unparalleled ocean resources and protecting our waters is critical to the lives and livelihoods of all Canadians. Increased development and marine shipping provide economic benefits, but they also pose risks such as the potential for oil spills that have an environmental impact on our fisheries and coastlines. In addition, preserving and expanding marine protected areas will help address environmental challenges.

Working with other departments and agencies, NRCan generates scientific knowledge and conducts economic analysis to support better protection of our coasts and oceans and assist with oil spill prevention in targeted vulnerable areas.



### **FSDS GOAL: PRISTINE LAKES AND RIVERS**

Clean and healthy lakes and rivers support economic prosperity and the well-being of Canadians  
Minister of Natural Resources: support

Healthy lakes and rivers sustain a rich variety of plants and animals. They also supply drinking water to millions of Canadians, provide opportunities for swimming, boating and recreational fishing, and support economic activities such as tourism, commercial fisheries, agriculture and shipping. All of these things can be threatened by pollution, climate change and invasive alien species of plants and animals that affect our lakes and rivers and the benefits they provide.

NRCan generates scientific knowledge to advance our understanding of lake and river ecosystems (including groundwater) and assists with protecting their health. The Department also works with partners to advance water quality and the health of these ecosystems through research and technology development that minimize the environmental effects of resource development.



### **FSDS GOAL: SAFE AND HEALTHY COMMUNITIES**

All Canadians live in clean, sustainable communities that contribute to their health and well-being  
Minister of Natural Resources: support

Ensuring that Canadians enjoy a clean, safe environment in which to live is important to their health and well-being. Among other things, this means reducing pollution to improve air quality, protecting them from harmful substances and preventing environmental emergencies (or reducing their impact if they do occur).

NRCan contributes to this FSDS goal by preventing and mitigating the impacts of natural and human-made hazards. For example, the Department develops early warning tools for these hazards and monitors environmental emergencies such as earthquakes, tsunamis, volcanoes and landslides. Through its science and tools, NRCan assists other organizations with disaster management and ecosystem monitoring. The Department also enhances the safety and security of energy transportation infrastructure, such as oil and gas pipelines.



## Section 3: Commitments for Natural Resources Canada

### Clean Energy: All Canadians have access to affordable, reliable and sustainable energy

Responsible Minister: Minister of Natural Resources

Clean Energy FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
By 2030, 90% and in the long term, 100% of Canada's electricity is generated from renewable and non-emitting sources	Invest in clean energy technologies	<ul style="list-style-type: none"> <li>Develop and demonstrate advanced materials technologies for clean energy production</li> </ul>	By improving the viability of technologies, contribute to increased deployment and use of renewable and non-emitting energy sources.	Number of innovative materials technologies developed, contributed to, or validated by NRCan for use in power generation systems. Target: 2 over 3 years	2.2.1 Materials for Energy
		<ul style="list-style-type: none"> <li>Work with Atomic Energy Canada Limited and other federal departments to deliver the Federal Nuclear Science &amp; Technology program</li> </ul>	By advancing nuclear research in support of core federal mandates, including clean energy, health and non-proliferation, contribute to energy generation from non-emitting sources.	The number of discrete federal, provincial and territorial activities and projects that are initiated. Target: 5 discrete projects / initiatives undertaken per year	1.1.3 Energy Market Access and Diversification
	Promote collaboration and work with partners on clean energy	<ul style="list-style-type: none"> <li>Identify, study and seek consensus on the most promising electricity infrastructure projects that can significantly reduce GHG emissions through the Regional Electricity Cooperation and Strategic Infrastructure initiative</li> </ul>	By supporting the transition to low-carbon economy, contribute to electricity infrastructure powered by clean energy.	Number of quality products made available to decision makers in a timely manner. Target: Two regional reports that identify the most promising electricity infrastructure projects that can significantly reduce GHG emissions in the Western and Eastern Canadian electricity systems by March 2018	2.1.2 Support for Clean Energy Decision-Making
		<ul style="list-style-type: none"> <li>Participate in the Generation IV International Forum, a multilateral endeavour and undertake research and development (R&amp;D) to develop the next generation of nuclear energy systems</li> </ul>	By articulating Canada's approach to the management of nuclear energy resources, contribute to future energy generation from non-emitting sources.	The number of discrete federal, provincial and territorial activities and projects that are initiated Target: 5 discrete projects/ initiatives undertaken per year	1.1.3 Energy Market Access and Diversification
Support voluntary action to reduce GHG	<ul style="list-style-type: none"> <li>Continue actions to support renewable energy deployment to:</li> </ul>	By supporting the transition towards non-emitting	Number of terawatt-hours (TWh) of renewable electricity produced	2.1.1 Renewable Energy Deployment	

Clean Energy FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
	and air pollutant emissions through clean energy generation and consumption	<ul style="list-style-type: none"> <li>– Support the generation of electricity from renewable sources by providing support through the ecoENERGY for Renewable Power program</li> </ul>	sources in clean electricity, contribute to industry capacity to produce renewable forms of energy.	Target: 12 TWh (equivalent to the annual power consumption of a typical Canadian city of about 750,000 people)	
		<ul style="list-style-type: none"> <li>– Develop recommendations for federal government consideration through the Marine Renewable Energy Enabling Measures program on a legislative approach for administering renewable energy projects in federal offshore areas</li> </ul>	By developing a legislative framework allowing to administer marine renewable energy projects in the federal offshore, contribute to future electricity generation from renewable sources.	Starting point: There is no existing legislative framework Target: A legislative framework is in place by 2019	2.1.1 Renewable Energy Deployment
	Support voluntary action to reduce GHG and air pollutant emissions through clean energy generation and consumption <sup>1</sup>	<ul style="list-style-type: none"> <li>• Provide a new suite of tools to support consumers' vehicle purchasing decisions and encourage fuel-efficient driving behaviours</li> </ul>	By supporting the transition to a cleaner transportation system and making low-carbon vehicles more attractive to Canadians, contribute to reductions in energy consumption.	% of vehicle purchases influenced by NRCan fuel efficiency information products and tools (qualitative analysis on usefulness of information provided)  Target: Under development in parallel with indicators for other departmental reporting requirements	2.1.3 Alternative Transportation Fuels
	Invest in clean energy technologies <sup>1</sup>	<ul style="list-style-type: none"> <li>• Support Finance Canada and Environment and Climate Change Canada in identifying and phasing out inefficient fossil fuel subsidies by 2025</li> </ul>	By identifying and phasing out inefficient fossil fuel subsidies that encourage wasteful consumption, contribute to increased deployment and use of renewable and non-emitting energy sources.	Year by which fossil fuel subsidies have been phased out.  Target: fossil fuel subsidies are phased out by 2025	1.1.3 Energy Market Access and Diversification

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

Clean Energy FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
		<ul style="list-style-type: none"> <li>Add a certification component for high-performing commercial and institutional buildings to the ENERGY STAR® Portfolio Manager benchmarking tools to allow building owners to compare their energy use and prompt them to make improvements</li> </ul>	By providing energy management tools, contribute to energy efficiency in Canada's commercial sector.	<p>Starting point: There is no existing certification program for buildings</p> <p>Target: Introduction of ENERGY STAR® certification for buildings by 2018</p>	2.1.4 Energy Efficiency
		<ul style="list-style-type: none"> <li>Launch the ENERGY STAR® for Industry program in Canada and offer plant certification to 2-3 industry sectors to recognize high performers</li> </ul>	By raising awareness of the benefits of energy management in industry operations, contribute to energy efficiency.	<p>Energy saved in petajoules from energy efficiency programs</p> <p>Target: 23.2 petajoules saved annually (equivalent to the annual energy used by more than 208,800 typical Canadian households, excluding transportation) in 2021-22</p>	2.1.4 Energy Efficiency
		<ul style="list-style-type: none"> <li>Accelerate the adoption of ISO 50001, an innovative energy management system in the industrial sector</li> </ul>	By helping to improve energy management in Canada's industrial sector, contribute to energy efficiency.	<p>Energy saved in petajoules from energy efficiency programs</p> <p>Target: 23.2 petajoules saved annually (equivalent to the annual energy used by more than 208,800 typical Canadian households, excluding transportation) in 2021-22</p>	2.1.4 Energy Efficiency
	Play a leading role in international agreements and initiatives involving clean energy <sup>1</sup>	<ul style="list-style-type: none"> <li>Advance Canada's clean energy and climate mitigation goals through bilateral partnerships and under the United Nations Framework Convention on Climate Change, the North American Clean Energy and Environment Agreement, Mission Innovation, the International Energy Agency, and the Clean Energy Ministerial process, as well as the G7 &amp; G20, among others</li> </ul>	By working alongside international partners, contribute to further advancing clean growth, clean energy and climate change mitigation goals and the long-term decarbonisation of the economy.	<p>Number of international bilateral and multilateral engagements with countries and organizations undertaken to advance clean energy with key partners (signed at the Assistant Deputy Minister level or above).</p> <p>The number of discrete federal, provincial and territorial activities and projects that are initiated</p> <p>Target: 5 discrete projects / initiatives undertaken per year</p>	<p>1.1.3 Energy Market Access and Diversification</p> <p>2.1.2 Support for Clean Energy Decision-making.</p> <p>2.2.3 Clean Energy Science and Technology</p>

Clean Energy FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
				Number of assessments and/or updates to energy regulations or legislation and/or Canada's energy regulatory or legislative frameworks Target: 2 per year	

**Clean Growth: A growing clean technology industry in Canada contributes to clean growth and the transition to a low-carbon economy**

Responsible Minister: Minister of Innovation, Science and Economic Development and Minister of Natural Resources

Clean Growth FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
Implement our Mission Innovation commitment to double federal government investments in clean energy research, development and demonstration, by 2020, from 2015 levels	Work with partners on developing and adopting new technologies to reduce GHG and air pollutant emissions	<ul style="list-style-type: none"> <li>Advance international collaboration on clean energy RD&amp;D through Mission Innovation by implementing domestic initiatives.</li> </ul>	By funding clean energy development and demonstration projects that reduce cost and address technical hurdles, contribute to the deployment of next-generation of clean energy technologies.	Ratio of NRCan program investments in clean energy S&T to leveraged funding from partners Target: 1:1 ratio  Starting point: Federal investments of \$387 million in clean energy RD&D in 2014-2015 Doubling Government of Canada's federal investments for clean energy RD&D Target: Federal investments of \$775 million in clean energy RD&D by 2019-20.	2.2.3 Clean Energy Science and Technology

Clean Growth FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
	Invest in technologies to reduce GHG and air pollutant emissions <sup>1</sup>	<ul style="list-style-type: none"> <li>Support the development of technologies to reduce energy consumption in mining and milling and eliminate diesel replacing it with alternative energy sources in underground mines under the Green Mining Initiative</li> </ul>	By expanding RD&D cooperation and investment, contribute to a reduction in reliance on diesel and in energy consumption.	Number of demonstration projects implemented supporting the development of one or more technologies.  Target: 3 demonstration projects implemented by 2023, i.e.: <ul style="list-style-type: none"> <li>“Tackling comminution, the largest energy consumer in mining”;</li> <li>“Benchmarking and automation for energy efficiency underground”; and</li> <li>“Replacing diesel in underground mines”</li> </ul>	2.2.2 Green Mining
		<ul style="list-style-type: none"> <li>Implement the Government of Canada’s actions to develop clean technologies to reduce GHG emission, air pollutants and water uses in the energy sector through initiatives such as:               <ul style="list-style-type: none"> <li>Energy Innovation Program</li> <li>Clean Growth Innovation Program (with Agriculture and Agri-Food Canada and Fisheries and Oceans Canada),</li> <li>Oil and Gas Clean Technology Program,</li> <li>Impact Canada Fund, Clean Technology Stream</li> </ul> </li> </ul>	By funding clean technology development and demonstration projects that reduce cost and address technical hurdles, contribute to the deployment of next-generation of clean technologies.	Ratio of NRCan program investments in clean technology to leveraged funding from partners  Target: 1:1 ratio  Starting point: emission levels of 2016-17  Through NRCan supported RD&D, reduce GHG emissions from past and ongoing clean technology projects  Target: A decrease in emissions of 1 million tonnes a year (equivalent to 250,000 passenger cars removed from our roads) starting in 2017-18	2.2.3 Clean Energy Science and Technology
		<ul style="list-style-type: none"> <li>Develop and demonstrate advanced materials technologies for the safe transportation of hydrocarbons and to reduce emissions in the transportation and industrial sectors</li> </ul>	By improving the viability of technologies, contribute to increased deployment and use of safer, and more energy efficient materials.	Number of innovative materials technologies or standards developed, contributed to, or validated by NRCan for use in the safe transportation of hydrocarbons and to reduce emissions in the transportation and industrial sectors  Target: 3 over 5 years	2.2.1 Materials for Energy
		<ul style="list-style-type: none"> <li>Provide financial contributions to FPIInnovations, other forest sector</li> </ul>	By providing stakeholders with resources, contribute to	Number of new products and processes resulting	1.2.2 Forest Sector Innovation

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

Clean Growth FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	and air pollutant emissions <sup>1</sup>	research partners and eligible forest product companies for RD&D of new products, processes and technologies focused on clean energy such as biofuels	increased energy efficiency, improved productivity and associated environmental benefits related to the forest industry.	from NRCan information.  Target: 2 per year  Number of new economic development projects facilitated, brokered, and/or developed in/by Indigenous communities with NRCan knowledge and funding.  Target: 8 per year  Annual research plan endorsed by the FPInnovations National Research Advisory Committee.  Target: 1 endorsed research plan per year	
	Invest in technologies to reduce water pollution <sup>1</sup>	<ul style="list-style-type: none"> <li>Develop new technology or processes to reduce the environmental footprint of mining operations, such as minimal liquid discharge mill using advanced separation and water treatment technologies</li> </ul>	By developing technologies to help ecosystem restoration, and the treatment and the reuse of water, contribute to cleaner mining operations.	Number of pilot-scale demonstration for water management in mining and mineral processing completed.  Target: at least one by 2020	2.2.2 Green Mining

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

**Sustainably Managed Lands and Forests: Lands and forests support biodiversity and provide variety of ecosystem services for generations to come**

Responsible Minister: Minister of Environment and Climate Change; Minister of Natural Resources

Sustainably Managed Lands and Forests FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
Between now and 2020, maintain Canada's annual timber harvest at or below sustainable wood supply levels	Better understand lands and forests	<ul style="list-style-type: none"> <li>• Increase the scientific knowledge of forest ecosystems, including by:                             <ul style="list-style-type: none"> <li>– Refining the Carbon Budget Model and using it to produce annual estimates of forest-related GHG emissions and removals in Canada</li> <li>– Providing forest managers with indicators and ready-to-use science-based adaptation toolkits</li> <li>– Supporting early intervention strategies for forest pest management</li> </ul> </li> </ul>	By providing scientific knowledge on forest ecosystems to Canadian industry and non-government organizations, contribute to a reduction in tree loss due to a changing climate and thereby helping to maintain sustainable wood supply levels and supporting an annual sustainable timber harvest. This includes information on preparedness against natural hazards and risk mitigation of natural disasters, maximizing opportunities and minimizing risks associated with climate change.	<p>Number of public and private sector new or updated policies, regulations, or other decision-making tools completed annually</p> <p>Target: Provide input for 2 per year</p> <p>Starting point: 100 advisory boards and committees</p> <p>Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest ecosystems to governments, industry and nongovernmental organizations</p> <p>Participation on advisory boards and committees stays within 10% of starting point</p> <p>Number of active collaborations with public and private sector that manage risk or opportunities to human population, natural resources and infrastructure health</p> <p>Target: 3 collaboration agreements per year</p> <p>Number of "adaptation toolkits" distributed directly and viewed online annually</p> <p>Target: Under development in parallel with indicators for other departmental reporting requirements.</p>	<p>2.3.1 Forest Ecosystems Science and Application</p> <p>3.1.3 Forest Disturbances Science and Application</p>

Sustainably Managed Lands and Forests FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	Use legislation and regulations to manage the spread of invasive alien species	<ul style="list-style-type: none"> <li>Develop science-based solutions and tools to better detect, slow the spread and reduce impact of invasive alien species, including working in partnership with the Canadian Food Inspection Agency to create wood packaging standards and control measures to manage known and unknown alien species</li> </ul>	By enabling better decision-making on how to protect and manage Canadian forests under uncertainty, contribute to maintaining sustainable wood supply levels.	<p>Starting point: 100 advisory boards and committees</p> <p>Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest disturbances to governments, industry, and non-governmental organizations</p> <p>Target: Participation on advisory boards and committees stays within 10% of starting point</p>	3.1.3 Forest Disturbances Science and Application
	Build capacity and provide support	<ul style="list-style-type: none"> <li>Through engagement with provinces and territories, industry and international partners, develop and deliver science-based solutions to help reduce wildland fires for forest-based communities. Sharing international wildland fire management resources will advance fire response by fire management agencies and first responders. Opportunities for knowledge sharing include: <ul style="list-style-type: none"> <li>Canadian Interagency Forest Fire Centre</li> <li>Canadian Council of Forest Minister's Canadian Wildland Fire Strategy</li> </ul> </li> </ul>	By strengthening collaboration and providing governments, agencies and industry with scientific knowledge and technologies on wildland fire, contribute to a reduction in tree loss due to wildland fire and thereby helping to maintain sustainable wood supply levels. This knowledge helps all parties understand the impacts of climate change on wildland fire activity to better deliver solutions and emergency preparedness.	<p>Starting point: 100 advisory boards and committees</p> <p>Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest disturbances to governments, industry, and non-governmental organizations</p> <p>Target: Participation on advisory boards and committees stays within 10% of starting point</p>	3.1.3 Forest Disturbances Science and Application
		<ul style="list-style-type: none"> <li>Develop a forest bioeconomy framework with the provinces and territories that identifies the type of concerted actions required for creating favourable research and investment conditions to enhance the growth and competitiveness of emerging bioeconomy activities in Canada</li> </ul>	By looking into opportunities of collaboration, contribute to adaptation to a changing climate and the creation of jobs in the forest sector, and helping to maintain sustainable wood supply levels.	<p>Developing a forest bioeconomy framework</p> <p>Target: 1 framework endorsed with annual reporting, as agreed by the members of the Canadian Council of Forest Ministers</p>	1.2.2 Forest Sector Innovation
	Work with domestic and international	<ul style="list-style-type: none"> <li>Work collaboratively with provinces and territories, federal</li> </ul>	By providing scientific and technical knowledge,	Starting point:100 advisory boards and committees	3.1.3 Forest Disturbances Science and Application



Sustainably Managed Lands and Forests FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	partners	agencies (e.g., Canadian Food Inspection Agency and Public Safety Canada) and Indigenous communities to implement and advance wildland fire and forest pest strategies	contribute to the production of a wildland fire research strategy and national forest pest strategy, addressing current priorities and helping to maintain sustainable wood supply levels.	Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest disturbances to governments, industry, and non-governmental organizations  Target: Participation on advisory boards and committees stays within 10% of starting point	
	Build capacity and provide support <sup>1</sup>	<ul style="list-style-type: none"> <li>Provide Indigenous communities and organizations with financial and technical support to increase their participation in Canada's forest sector</li> </ul>	By supporting sustainable development and climate change adaptation efforts in Indigenous communities, contribute to a sustainable forest sector.	Number of new economic development projects facilitated, brokered, and/or developed in/by Indigenous communities with NRCan knowledge and funding  Target: 8 new projects annually, facilitated, brokered, and/or developed with NRCan knowledge and funding  Annual research plan endorsed by the FPInnovations National Research Advisory Committee that includes linkages with forecasted needs and priorities for Indigenous communities  Target: 1 endorsed research plan per year.	1.2.2 Forest Sector Innovation
	Better understand lands and forests <sup>1</sup>	<ul style="list-style-type: none"> <li>Evaluate reclamation strategies and decommissioning scenarios to determine the environmental performance of rehabilitated mine waste management sites in Canada</li> </ul>	By providing governments, agencies and industry with scientific knowledge on best mine waste management strategies, contribute to improved ecosystem restoration.	Under development in parallel with indicators for other departmental reporting requirements.	2.2.2 Green Mining

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

**Low-Carbon Government: The Government of Canada leads by example by making its operations low-carbon**

Responsible Minister: All ministers

Low-Carbon Government FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
Reduce GHG emissions from federal government buildings and fleets by 40% below 2005 levels by 2030, with an aspiration to achieve this reduction by 2025	Improve the energy efficiency of our buildings/operations	<ul style="list-style-type: none"> <li>Support the Treasury Board Secretariat and Environment and Climate Change Canada in the development and the implementation of an action plan (under the departmental Low Carbon umbrella) for buildings and fleets in order to achieve the departmental GHG reduction goal of 40% by 2030</li> </ul>	By reducing energy use through efficiency measures, contribute to reduced GHG emissions by the Department.	Starting point: GHG emissions from NRCan facilities in fiscal year 2005–06 (base year): = 32.04 ktCO <sub>2eq</sub> Current result: GHG emissions from NRCan facilities in fiscal year 2016-17 = 20.34 ktCO <sub>2eq</sub> Percentage (%) change in GHG emissions from facilities from fiscal year 2005-06 to fiscal year 2016–17 = 37 % <sup>2</sup> Target: 40% by 2030	2.1.4 Energy Efficiency 2.2.3 Clean Energy Science and Technology 4.1 Internal Services
		<ul style="list-style-type: none"> <li>Support the Treasury Board Secretariat and Environment and Climate Change Canada in the development and the implementation of an action plan (under the departmental Low Carbon umbrella) for buildings and fleets in order to achieve the departmental GHG reduction goal of 40% by 2030</li> </ul>	By reducing energy use through efficiency measures, contribute to reduced GHG emissions by the Department.	Percentage (%) change in GHG emissions from facilities from fiscal year 2005-06 to 2030 Target: 40% reduction (or 12.8 kilotons) in NRCan facility emissions by 2030 from 2005 levels	2.1.4 Energy Efficiency 2.2.3 Clean Energy Science and Technology 4.1 Internal Services
		<ul style="list-style-type: none"> <li>Continue to modernize the departmental workplace to achieve more efficient and productive use of space through Workplace 2.0 standards</li> </ul>	By aligning with Workplace 2.0 standards, contribute to improved energy efficiency of the Department's buildings.	5% of office space is currently meeting Workplace 2.0 standards on NRCan's primary office location in the National Capital Region, the Booth Street Complex (555, 601, 615, 580 and 588 Booth St. and 560 Rochester St.). Target: 25 % of office workspace at the Booth	4.1 Internal Services

<sup>2</sup> To demonstrate federal leadership in greening government operations, between 2010 and 2016 Natural Resources Canada made it a departmental priority to improve energy performance of its operations. As a result, in 2016-17, NRCan had reduced its facility emissions by 37% below the 2005 levels. With more challenging projects underway, NRCan is well positioned to meet the target of 40% reduction in GHG by 2030.

Low-Carbon Government FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
				Street Complex that is to Workplace 2.0 standards by 2025	
		<ul style="list-style-type: none"> <li>Support the Treasury Board Secretariat Center for Greening Government by providing “a one-stop shop” for advice and technical support to other federal departments. This support will help federal organizations design and implement energy saving and GHG reduction projects in their facilities and deploy low-emission vehicles and charging stations. This work will also support the Center for Greening Government develop a centralized GHG inventory tool for reporting, monitoring and public disclosure of federal GHG emissions</li> </ul>	By providing tools and technical support to federal organizations for greening their buildings and fleet, contribute to reduced GHG emissions by the Government of Canada.	<p>Energy saved in terajoules per year for all federal organization projects that received support from NRCan.</p> <p>Targets:</p> <ul style="list-style-type: none"> <li>80 kilotons of GHG emissions (CO<sub>2eq</sub>) saved annually (equivalent to the emissions generated annually by approximately 20,000 passenger vehicles) from projects supported by NRCan by 2030;</li> <li>750 terajoules saved annually (equivalent to the annual energy used by approximately 6,750 typical Canadian households, excluding transportation) by 2030 for other federal organization projects that received NRCan support</li> </ul> <p>Number of federal organizations (departments, agencies and Crown corporations) provided with information, tools and services to improve energy performance of federal buildings.</p> <p>Target: Total increase from 64 to 70 by 2022</p>	<p>2.1.4 Energy efficiency</p> <p>2.2.3 Clean Energy Science and Technology</p>
		<ul style="list-style-type: none"> <li>Modernize the Building Management Plan (BMP) process and update the Building Condition Reports (BCR) with a focus on energy efficiency and through an environmental lens</li> </ul>	By updating and modernizing BMP and BCR processes, contribute to energy efficiency and improved environmental performance of the Department’s buildings.	<p>NRCan began a new multi-year round of BCRs in the 2016-17 fiscal year.</p> <p>Target: 50% of major sites will have BCR completed by 2020-21 that would provide current “health” status of the building portfolio, a prerequisite to the planning of any improvement</p>	4.1 Internal Services
	Modernize our fleet	<ul style="list-style-type: none"> <li>Support the Treasury Board Secretariat and Environment and Climate Change Canada in the</li> </ul>	By reducing energy use through efficiency measures,	Starting point: GHG emissions from NRCan fleet in fiscal year 2005–06 (base year): = 1.78 ktCO <sub>2e</sub>	<p>2.1.4 Energy Efficiency</p> <p>2.2.3 Clean Energy</p>

Low-Carbon Government FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
		development and the implementation of an action plan (under the departmental Low Carbon umbrella) for buildings and fleets in order to achieve the departmental GHG reduction goal of 40% by 2030	contribute to reduced GHG emissions from the Department's fleet.	Current results: GHG emissions from NRCan fleet in fiscal year 2016-17 = 0.76 ktCO <sub>2</sub> e  Percentage (%) change in GHG emissions from fleet from fiscal year 2005-06 to fiscal year 2016-17 = 57% <sup>3</sup>  Target: 40% by 2030	Science and Technology  4.1 Internal Services
		<ul style="list-style-type: none"> <li>Deploy lower emitting transportation options into the Department's fleet by working with Public Services and Procurement Canada and Treasury Board Secretariat Centre for Greening Government, identify infrastructure needs and coordinate installation of several charging stations for electric vehicles in the National Capital Region</li> </ul>	By performing vehicle usage analysis to determine the lowest emitting option, including supporting greater zero emission vehicle deployment, fleet right-sizing, fuel switching, and driver training, contribute to reduced GHG emissions by the Department's fleet.	NRCan had two electric vehicle charging stations in the National Capital region at the end of 2016.  Target: 2 new electric charging stations to be installed by the end of the 2017-18	2.1.3 Alternative Transportation Fuels  4.1 Internal Services
	Support the transition to a low-carbon economy through green procurement	<ul style="list-style-type: none"> <li>Ensure that all performance agreements of Procurement Managers include contribution to, and are in support of, the Policy on Green Procurement</li> </ul>	By embedding environmental considerations related to purchasing decisions into the corporate culture, contribute to greener procurement.	Number and percentage of managers and functional heads of materiel and of procurement whose performance evaluation includes support and contribution toward green procurement is 8 (88%).  Target: 100% (or nine employees) by March 31, 2019 and ongoing	4.1 Internal Services
		<ul style="list-style-type: none"> <li>Raise departmental awareness of green procurement options related to Public Services and Procurement Canada standing offers</li> </ul>	By embedding environmental considerations related to purchasing decisions into the corporate culture, contribute to greener procurement.	Number and percentage of procurement and/or materiel management specialists who completed the Canada School of Public Service Green Procurement course (C215) or equivalent, in	4.1 Internal Services

<sup>3</sup> To demonstrate federal leadership in greening government operations, between 2010 and 2016 Natural Resources Canada made it a departmental priority to improve energy performance of its operations. As a result, in 2016-17, NRCan had reduced its fleet emissions by 57% below the 2005 levels. The Department continues its efforts to further reduce its emissions.

Low-Carbon Government FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
				current fiscal year is 31. Target: 100% (or 34 specialists) by March 31, 2018	
	Promote sustainable travel practises	<ul style="list-style-type: none"> <li>Maintain GHG emission levels from business-related travel below the 2008-09 baseline level</li> </ul>	By promoting sustainable travel practises and informing employees of alternative meeting arrangements (such as teleconferencing or videoconferencing), contribute to reduced GHG emissions.	Emission associated with business-related travel in tons of carbon dioxide equivalent in the year as provided by Public Services and Procurement Canada (5729 tons in 2008-09). Target: Greenhouse gas emissions associated with business travel will be reduced by 30% (to 4,010 tons) by March 31, 2021	4.1 Internal Services

**Effective Action on Climate Change: A low-carbon economy contributes to limiting global average temperature rise to well below two degrees Celsius and supports efforts to limit the increase to 1.5 degrees Celsius**

Responsible Minister: Minister of Environment and Climate Change; supported by a whole-of-government approach to implementation

Effective Action on Climate Change FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
By 2030, reduce Canada's total GHG emissions by 30%, relative to 2005 emission levels	Use regulations to limit GHG emissions	<ul style="list-style-type: none"> <li>Set more than 35 minimum energy performance standards for appliances and equipment by 2020 under the Energy Efficiency Regulations</li> </ul>	By setting minimum energy performance standards to improve the energy performance of appliances and equipment sold for homes and buildings across Canada, contribute to reduced GHG emissions.	Energy savings (petajoules) generated by regulated standards Starting point: 2.35 petajoules saved in 2015-16 Target: 6.65 petajoules saved annually (equivalent to the annual energy used by approximately 59,850 typical Canadian households, excluding transportation) by 2021	2.1.4 Energy Efficiency
	Work with partners on climate change	<ul style="list-style-type: none"> <li>Collaborate with the United States of America and Mexico on a common benchmarking platform for the freight sector (the SmartWay Freight Partnership)</li> </ul>	By helping industry to maximize efficiency and to reduce energy use in its freight operations, contribute to reduced GHG emissions.	Starting point: 0% Percentage of Canadian SmartWay freight transport companies that implement lower carbon transportation options as a result of the program. Target 60% annually	2.1.4 Energy Efficiency

Effective Action on Climate Change FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
		<ul style="list-style-type: none"> <li>Undertake RD&amp;D that informs policies, standards and codes</li> </ul>	By focusing on environmental and competitiveness objectives in the areas of end use, clean energy and renewables, and fossil fuels, contribute to reduced GHG emissions.	<p>Starting point: emission levels of 2016-17</p> <p>Through NRCan supported RD&amp;D, reduce GHG emissions (from past and ongoing clean energy technology projects).</p> <p>Target: A decrease in emissions of 1 million tonnes per year (equivalent to 250,000 passenger cars removed from our roads) starting in 2017-18</p>	2.2.3 Clean Energy Science and Technology
	Support voluntary action to reduce GHG emissions and adapt to climate change	<ul style="list-style-type: none"> <li>Improve the energy efficiency of : <ul style="list-style-type: none"> <li>Canadian homes through the EnerGuide, ENERGY STAR® and R-2000 home labelling initiatives;</li> <li>The industrial sector using energy management systems such as ISO 50001, the Superior Energy Performance program, and the ENERGY STAR® or other industry programs to help businesses track, analyze, and improve their energy efficiency</li> </ul> </li> </ul>	By collaborating with provinces and territories on housing and industrial sector programs, contribute to improved energy efficiency and reduced GHG emissions.	<p>Energy saved in petajoules from the energy efficiency regulations and programs</p> <p>Target: 74.5 petajoules saved (equivalent to the annual energy used by approximately 670,500 typical Canadian households, excluding transportation) in 2021 from energy efficiency programs funded in Budget 2016</p> <p>Energy saved by industry in petajoules from energy efficiency programs</p> <p>Target: 23.2 petajoules saved annually (equivalent to the annual energy used by more than 208,800 typical Canadian households, excluding transportation) in 2021</p>	2.1.4 Energy Efficiency
		<ul style="list-style-type: none"> <li>Undertake RD&amp;D to reduce methane emissions from the oil and gas sector</li> </ul>	By supporting RD&D in the oil and gas sector, contribute to the transition towards a low-carbon economy and reduced GHG emissions.	<p>Through NRCan supported RD&amp;D contribute to reducing methane emissions in the oil and gas sector.</p> <p>Target: Contribute to the national target of reducing methane emissions by 40% to 45% by 2025.</p>	2.2.3 Clean Energy Science and Technology
		<ul style="list-style-type: none"> <li>Maintain and increase carbon stored in forested lands, wetlands and agricultural land by providing tools and information to decision</li> </ul>	By supporting efficient economic and ecological use of forest resources, contribute to adaptation to a	Number of public and private sectors new or updated policies, regulations, or other decision-making tools completed annually.	2.3.1 Forest Ecosystem Science and Application

Effective Action on Climate Change FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
		makers through research, national assessments and monitoring to develop scientific information on Canada's forest ecosystems, to support knowledge-based sustainable forest management policies and practices, such as with Carbon Budget Model and Ecosystem Management Emulating Natural Disturbance tools, which are validated annually	changing climate.	<p>Target: 3 per year</p> <p>Starting point: 100 advisory boards and committees</p> <p>Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest ecosystems to governments, industry and non-governmental organizations.</p> <p>Target: Participation on advisory boards and committees stays within 10% of the starting point</p> <p>Annual report on carbon emissions and removals in Canada's managed forests within "The State of Canada's Forests".</p> <p>Target: 1 report per year.</p>	
	Take a leading role in international agreements and initiatives on climate change <sup>1</sup>	<ul style="list-style-type: none"> <li>Promote international collaboration, including through the United Nations Framework Convention on Climate Change, and under the North American Climate, Clean Energy and Environment Partnership, to advance clean energy and integration of energy resources (including renewables), improve energy efficiency, and strengthen the reliability, resilience and security of the North American electricity grid</li> </ul>	By promoting and working towards Canada's commitments in international agreements and initiatives on climate change, contribute to reduced GHG emissions.	<p>Percentage of Canada's objectives for meetings of international climate and clean energy fora that are advanced through negotiations and consensus.</p> <p>Target: 70%</p>	<p>2.1.2 Support for Clean Energy Decision-making</p> <p>2.2.3 Clean Energy Science and Technology</p>

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

Effective Action on Climate Change FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	Work with partners on climate change <sup>1</sup>	<ul style="list-style-type: none"> <li>Maintain leadership of Canada's Climate Change Adaptation Platform</li> <li>Develop and share knowledge and tools, providing science information, and building capacity to enhance the resilience of communities and infrastructure to the impacts of climate change, particularly on Canada's North and coasts</li> </ul>	By helping Canadians identify and prioritize activities, contribute to adaptation to a changing climate.	Number of new knowledge products released by the Climate Change Adaptation Platform and the Climate Change Geoscience Program.  Target: 20 new knowledge products per year	3.1.4 Climate Change Adaptation
	Conduct climate policy research and analysis <sup>1</sup>	<ul style="list-style-type: none"> <li>Create and disseminate information products and tools in support of decisions on climate change and clean energy issues</li> </ul>	By providing tools and information to support decision making on climate change and clean energy issues, contribute to reduced GHG emissions.	Percentage of tools and information made available to decision makers in a timely manner.  Target: 100%	2.1.2 Support for Clean Energy Decision-making
	Provide in-kind support and funding for climate resilience <sup>1</sup>	<ul style="list-style-type: none"> <li>Provide support for evaluation, advice, and participation in workshops.</li> <li>Deliver a contribution program that funds cost-shared, collaborative projects aimed at developing, transferring and integrating adaptation information and tools</li> </ul>	By enabling key stakeholders across Canada to have access to new knowledge on risks and opportunities to support decision-making and action, contribute to adaptation to a changing climate.	Under development in parallel with indicators for other departmental reporting requirements.	3.1.4 Climate Change Adaptation
	Develop a solid base of scientific research and analysis on climate change <sup>1</sup>	<ul style="list-style-type: none"> <li>Conduct enhanced research and analysis to develop scientific knowledge of forest disturbances (e.g., wildland fire, pests and climate change), which are used in collaboration with the public and private sectors to forecast impacts</li> </ul>	By providing governments, agencies and industry with scientific knowledge on forest disturbances, including wildland fire, contribute to the mitigation of effects from and adaptation to a changing	Starting point: 100 advisory boards and committees  Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest disturbances to governments, industry, and non-governmental organizations	3.1.3 Forest Disturbances Science and Application

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.



Effective Action on Climate Change FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
		and develop mitigation and adaptation strategies	climate.	Target: Participation on advisory boards and committees stays within 10% of starting point  Number of active collaborations with public and private sectors that manage risk or opportunities to human population, natural resources and infrastructure health  Target: Collecting data on 3 collaboration agreements per year	
		<ul style="list-style-type: none"> <li>Provide new 'big data' tools and infrastructure for analyzing earth observation and other geospatial data to detect changes in land, water, natural resources and infrastructure, and facilitate discoverability and access to geospatial information for prevention and implementation of mitigation programs for natural disasters such as flooding</li> </ul>	By providing stakeholder access to comprehensive, reliable and accurate geospatial information consistent with international standards, contribute to the mitigation of effects from a changing climate.	Starting point: to be determined in 2018-2019  Number of times geospatial information tools and services are accessed  Average time elapsed from image receipt to the staging of emergency flood response products  Target: 4 hours or less	3.2.1 Essential Geographic Information

**Modern and Resilient Infrastructure: Modern, sustainable, and resilient infrastructure supports clean economic growth and social inclusion**

Responsible Minister: Minister of Infrastructure and Communities

Modern and Resilient Infrastructure FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
By the end of 2025-2026, invest \$20 billion in funding for green infrastructure initiatives that reduce GHG	Work with partners on green infrastructure	<ul style="list-style-type: none"> <li>Enhance the Energy Code for Buildings by 2020 and move towards net zero-energy-ready buildings</li> </ul>	By improving the energy efficiency of codes in target sectors, such as buildings, through international regulatory alignments,	The starting point for commercial/institutional buildings is the 2011 model National Energy Code for Buildings (NECB). The starting point for housing is the 2015 model National Building Code (NBC), Part 9.36.	2.1.4 Energy Efficiency

Modern and Resilient Infrastructure FSDS target(s)	FSDS Contributing Action(s)	Corresponding departmental action(s)	Contribution by each departmental action to the FSDS goal and target	Starting point(s) where available, and performance indicators for departmental actions	Program(s) in which the departmental actions will occur
emissions and improve climate resilience and environmental quality			contribute to greener infrastructure.	Performance assessed by increased average efficiency of model energy code requirements between each update.  Targets: 30% improvement in NECB efficiency by 2020; Develop a tiered net-zero energy ready model National Building Code by 2020	
		<ul style="list-style-type: none"> <li>• Demonstrate key emerging Smart Grid technologies essential to integrate a higher proportion of renewables onto the grid</li> <li>• Support RD&amp;D to drive down the cost and create market confidence in net zero building construction</li> <li>• Demonstrate innovative clean energy solutions for northern communities and reduce their reliance on diesel power</li> <li>• Facilitate the development and deployment of next generation electric vehicle charging infrastructure</li> </ul>	By funding technology demonstration projects that reduce cost and address technical hurdles, contribute to the deployment of next-generation clean energy technologies pertaining to infrastructure.	Ratio of NRCan program investments in clean energy S&T to leveraged funding from partners Target: 1:1 ratio  Reductions in GHG emissions from NRCan funded projects of green innovation Target: 11.44 megatons annually (equivalent to 2.86 million passenger cars removed from our roads) by 2030  Advancing Clean Energy Technologies Target: 50% of RD&D projects advance the technology readiness level of emerging technologies, by one level, by 2023.	2.2.3 Clean Energy Science and Technology
		<ul style="list-style-type: none"> <li>• Support the shift from higher to lower-emitting types of transportation, including through investing in infrastructure</li> </ul>	By providing funds to increase the number of recharging and refuelling stations in Canada, contribute to the transition to low-carbon options in the transportation sector through	Number of recharging and refuelling stations completed by funded project proponents (potential owners/operators of recharging/refuelling stations) along key coast-to-coast transportation corridors (by fuel type).  Target: Phase 1 deployment, ending in March 2018	2.1.3 Alternative Transportation Fuels

<b>Modern and Resilient Infrastructure</b> <b>FSDS target(s)</b>	<b>FSDS Contributing Action(s)</b>	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
			greener infrastructure.	has targets of 70 electric vehicle recharging stations, 6 natural gas and 2 hydrogen refuelling stations by 2018	

### Healthy Coasts and Oceans: Coasts and oceans support healthy, resilient and productive ecosystems

Responsible Minister: Minister of Fisheries, Oceans and the Canadian Coast Guard

<b>Healthy Coasts and Oceans</b> <b>FSDS target(s)</b>	<b>FSDS Contributing Action(s)</b>	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
By 2020, 10% of coastal and marine areas are conserved through networks of protected areas and other effective area-based conservation measures	Protect and manage marine and coastal areas	<ul style="list-style-type: none"> <li>Complete resource and economic assessments to support the establishment of marine protected areas under the Marine Conservation Target initiative</li> </ul>	By producing resource and economic assessments to establish a protected area, contribute to marine and coastal environment conservation.	Starting point: No assessments have been completed. New assessments are required to inform decisions on marine protected areas  Complete resource assessments for areas proposed by Fisheries and Oceans Canada and Parks Canada to help Canada achieve its goal of protecting 5% of marine and coastal areas by 2017 and 10% by 2020.  Target: 10 qualitative or quantitative resource and economic assessments over 3 years	1.1.3 Energy Market Access and Diversification  2.3.3: Environmental Studies and Assessments
		<ul style="list-style-type: none"> <li>Generate maps of the seafloor to provide increased knowledge of natural hazards that could affect port facilities, tanker safety and oil spill prevention on the B.C. coast</li> </ul>	By conducting scientific studies to support marine safety as part of the Oceans Protection Plan, contribute to the protection of our marine and coastal environment.	Starting point is 4 publications per year  Number of publications (including maps) released relating to natural hazards in existing or proposed areas of marine infrastructure.  Target: 5 publications per year	3.1.5 Geohazards and Public Safety
		<ul style="list-style-type: none"> <li>Encourage industrial RD&amp;D to improve recovery technologies, as well as inform integrated response plans</li> </ul>	By informing emergency response plans and decisions for spill pollution, contribute to the protection of	Number of scientific publications and products related to measurable advances in spill recovery in the marine environment	2.2.3 Clean Energy Science and Technology

Healthy Coasts and Oceans FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
			our marine and coastal environment.	Target: Beginning in 2019, at least one scientific publication or product per year	

**Pristine Lakes and Rivers: Clean and healthy lakes and rivers support economic prosperity and the well-being of Canadians**

Responsible Minister: Minister of Environment and Climate Change

Pristine Lakes and Rivers FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	Work with partners on water quality and ecosystem health <sup>1</sup>	<ul style="list-style-type: none"> <li>Using landscape-level considerations, assess influences of forest management and other disturbances on forest and aquatic biodiversity and ecosystem services with academic, provincial and industry partners. This will be supported by: <ul style="list-style-type: none"> <li>Developing and testing effective and cost-efficient biophysical sustainability indicators</li> <li>Refining remote sensing and enhanced forest inventory tools to assess critical terrestrial and aquatic habitats</li> </ul> </li> </ul>	By supporting governments, industry and non-governmental organizations for multiple purposes, including developing forest management practices and policies, that consider impacts on aquatic biodiversity and ecosystem services, contribute to maintain the health of lakes and rivers.	<p>Starting point: 100 advisory boards and committees</p> <p>Participation of the Canadian Forest Service on advisory boards or committees involving the sharing of knowledge on forest ecosystems to governments, industry and nongovernmental organizations</p> <p>Target: Participation on advisory boards and committees stays within 10% of starting point</p>	2.3.1 Forest Ecosystems Science and Application
		<ul style="list-style-type: none"> <li>Conduct research to better understand the risk potential (i.e. remobilization) of metals in lake and river ecosystems in a changing climate</li> </ul>	By developing scientific evidence to understand the threat of climate change on environmental effects of metals and mines, contribute	<p>Scientific evidence (e.g. publications, reports) used for environmental policy/guidance development.</p> <p>Target: 3 by 2023</p>	2.2.2 Green Mining

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

Pristine Lakes and Rivers FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
			to maintain the health of lakes and rivers.		
		<ul style="list-style-type: none"> <li>Develop space-based technologies (e.g. remote sensing) and modelling forecasting methods that will allow a quantitative evaluation of groundwater resources</li> <li>Complete the National Hydro Network by creating and maintaining seamless transboundary watersheds and sub-watershed data that can be jointly used by agencies on both sides of the Canada/US border</li> </ul>	By collaboratively developing and providing space-based technologies and modelling forecasting methods, contribute to a better understanding of groundwater resources.	Starting point: to be set in 2018-2019 Development of space-based technologies. Completion of the National Hydro Network Target: Under development in parallel with indicators for other departmental reporting requirements.	3.2.1 Essential Geographic Information
	Better understand lake and river ecosystems <sup>1</sup>	<ul style="list-style-type: none"> <li>Map the regional aquifer system of Southern-Ontario to assess the contribution of groundwater resources to the Great Lakes system and thus support water resources management</li> </ul>	By providing information and tool, contribute to improved sustainable land-use decision-making and groundwater management essential for rural drinking water and ecosystem health.	Number of citations from public and/or private sector organizations incorporating NRCan's groundwater geoscience information and tools into their products (e.g. aquifer maps and data, methods and approaches, plans and reports) Target: 5 per year	2.3.2 Groundwater Geoscience
	Better understand lake and river ecosystems <sup>1</sup>	<ul style="list-style-type: none"> <li>Develop international groundwater resource data management standards to improve datasets interoperability</li> </ul>	By providing information and tool, contribute to improved sustainable land-use decision-making and groundwater management essential for rural drinking water and ecosystem health.	Number of citations from public and/or private sector organizations incorporating NRCan's groundwater geoscience information and tools into their products (e.g., aquifer maps and data, methods and approaches, plans and reports) Target: 5 per year	2.3.2 Groundwater Geoscience
Better understand lake and river ecosystems <sup>1</sup>	<ul style="list-style-type: none"> <li>Conduct research projects to evaluate the role of modifying factors on fate and effect of metals</li> </ul>	By providing scientific evidence, contribute to improved regulations and	Scientific evidence (e.g. publications, reports) used for policy/guidance development	2.2.2 Green Mining	

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

<b>Pristine Lakes and Rivers</b> <b>FSDS target(s)</b>	<b>FSDS Contributing Action(s)</b>	<b>Corresponding departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, and <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
		associated with regulated mining discharge into lake and river ecosystems in Canada	decreased environmental effects of metals and mines on lakes and rivers.	Target: 3 by 2023	
	Use legislation and regulations to protect lake and river ecosystems <sup>1</sup>	<ul style="list-style-type: none"> <li>Provide scientific evidence to improve the environmental relevance of Metal and Mining Effluent Regulations (MMERs)</li> </ul>	By providing scientific evidence, contribute to improved regulations and decreased impacts of metal and mining effluent on the environment, particularly lakes and rivers.	<p>Scientific evidence (e.g. publications, reports) used for policy/regulation development.</p> <p>CanmetMINING will also provide scientific advice to regulators (Environment and Climate Change Canada) in the development of MMERs</p> <p>Target: 3 by 2023</p>	2.2.2 Green Mining
		<ul style="list-style-type: none"> <li>Develop method to assess the aquatic hazard classification of metals and metal compounds</li> </ul>	By developing innovative methods to understand metal fate, contribute to better regulation of environmental impacts, particularly for lakes and rivers.	<p>Scientific evidence (e.g. publications, reports) used for both domestic and international regulation development</p> <p>Target: 3 by 2023</p>	2.2.2 Green Mining

**Safe and Healthy Communities: All Canadians live in clean, sustainable communities that contribute to their health and well-being**

Responsible Minister: Minister of Environment and Climate Change; Minister of Health

<b>Safe and Healthy Communities</b> <b>FSDS target(s)</b>	<b>FSDS Contributing Action(s)</b>	<b>Corresponding departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
	Prevent environmental emergencies or mitigate their impacts <sup>1</sup>	<ul style="list-style-type: none"> <li>Release of scientific publications, reports and maps to inform the safe location, design and operation of the built environment; support the environmentally and socially responsible development of natural resources; and support the</li> </ul>	By providing access to new knowledge on geological hazards to organizations, contribute to the prevention of environmental emergencies or the	<p>Number of new knowledge products released to open and accessible databases.</p> <p>Target: 25 annually</p>	3.1.5 Geohazards and Public Safety

<sup>1</sup> NRCan contributes to the FSDS goal through additional departmental sustainable development actions.

Safe and Healthy Communities FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
		plans and operation of emergency management organizations	mitigation of their impacts.		
		<ul style="list-style-type: none"> <li>Conduct and provide real-time seismic and geomagnetic monitoring information to the governments, emergency management agencies, critical infrastructure operators, media outlets and the public</li> </ul>	By providing credible information on impacts and consequences of natural emergency events contribute to their prevention or the mitigation of their impacts.	<p>Starting point: to be set from 2016-2017 results.</p> <p>Percentage of earthquakes of magnitude 4.0 or higher within Canada for which a notification was issued in four minutes or less from the time of sufficient data availability.</p> <p>Target: 75% (within the accuracy of four minutes or less), and 99% within 10 minutes</p>	3.1.5 Geohazards and Public Safety
		<ul style="list-style-type: none"> <li>Develop new science and technology to ensure readiness for 2018 launch of the RADARSAT Constellation Mission. Data from the Mission would support efforts in maritime surveillance, disaster management and ecosystem monitoring</li> </ul>	By providing up-to-date and comprehensive landmass and water information to support socio-economic and environmental decisions, contribute to the prevention of environmental emergencies or the mitigation of their impacts.	<p>Number of times geospatial information tools and services are accessed</p> <p>Average time elapsed from image receipt to the staging of emergency flood response products</p> <p>Target: 4 hours or less</p>	3.2.1 Essential Geographic Information
	Provide information to inform action and decision making <sup>1</sup>	<ul style="list-style-type: none"> <li>Implement Interim Measures to guide federal decisions on proposed major energy transmission projects (such as oil and gas pipelines), including the use of science, evidence, and traditional Indigenous knowledge; enhanced public engagement and Indigenous consultation; and direct and upstream GHG assessments</li> </ul>	By informing decision makers, and ensuring the public and Indigenous groups are engaged on proposed resource projects, contribute to informed action and decision-making for the reviews of proposed major energy transmission projects.	<p>Percentage of proposed major energy transmission project reviews that fulfill the Interim Measures during the interim period.</p> <p>Target: 100%</p>	1.3.5: Major Projects Management Office Initiative
		<ul style="list-style-type: none"> <li>Co-develop and support the operations of Indigenous Advisory and Monitoring Committees for the Trans Mountain Pipeline Expansion Project (TMEP) and Line 3 Pipeline Replacement Program as a meaningful,</li> </ul>	By supporting meaningful Indigenous participation in the full lifecycle of energy infrastructure development, including environmental oversight, provision of	<p>Starting point: No current active involvement of Indigenous groups in monitoring of major pipeline projects.</p> <p>Proposed indicator: Percentage of participating Indigenous groups who are satisfied with the</p>	1.1.3. Energy Market Access and Diversification

Safe and Healthy Communities FSDS target(s)	FSDS Contributing Action(s)	Corresponding <b>departmental action(s)</b>	<b>Contribution</b> by each departmental action to the FSDS goal and target	<b>Starting point(s)</b> where available, <b>performance indicators</b> for departmental actions	Program(s) in which the departmental actions will occur
		transparent and accountable forum through which Indigenous communities can engage with and provide input to federal regulators and the proponent as well as participate in monitoring the project over its full lifecycle	advice, and monitoring, contribute to informed action and decision-making pertaining to the monitoring of major pipeline projects.	Committees' role in monitoring of the projects. Target: To be confirmed in collaboration with Indigenous partners.	
		<ul style="list-style-type: none"> <li>Provide innovative scientific information to distinguish between the effects of human activity and resource development and those effects produced by natural processes on the environment</li> </ul>	By providing scientific expertise, contribute to informed action and decision-making for resource development.	Number of citations from public and/or private sector organizations incorporating NRCan's environmental geoscience information into their products. Target: 5 per year	2.3.3 Environmental Studies and Assessments
		<ul style="list-style-type: none"> <li>Cooperate with the Canadian Environmental Assessment Agency, review boards of the North and other federal stakeholders by providing science-based evidence and information to support environmental assessments</li> </ul>	By providing scientific expertise during environmental assessment processes, contribute to informed action and decision-making pertaining to proposed projects.	Percentage of projects where NRCan has provided advice that is ultimately incorporated into an environmental assessment process. Target: 100%	2.3.3 Environmental Studies and Assessments
		<ul style="list-style-type: none"> <li>Provide oversight of federal funding for the Province of Saskatchewan's Gunnar Mine Remediation Project</li> </ul>	By proving oversight on the use of federal funds, contribute to informed action and decision-making for the remediation of the legacy uranium mining and milling facilities at Gunnar in northern Saskatchewan.	Payment of \$1.13 million was made to Saskatchewan in 2007 for the federal share of Phase 1 of the Project.  Percentage of payments made to Saskatchewan in the year they are required for eligible Phase 2 and Phase 3 expenses, as defined in the 2006 Memorandum of Agreement.	1.1.3 Energy Market Access and Diversification
		<ul style="list-style-type: none"> <li>Continue efforts to enhance the safety and security of federally regulated infrastructure (i.e. energy transportation), including through legislative and regulatory measures and the modernization of the National Energy Board</li> </ul>	By supporting the establishment of a sound liability, legislative and regulatory regime, contribute to informed action and decision-making for oil and gas development.	Number of assessments and/or updates to energy regulations or legislation and/or Canada's energy regulatory or legislative frameworks are tracked  Target: 2 per year	1.1.3 Energy Market Access and Diversification



## Section 4. Integrating sustainable development

Sustainable development is central to the mandate of NRCan and essential to the future of the natural resources sector. NRCan is responsible for ensuring the sustainable development of Canada's energy resources, minerals and metals, and forests, and for providing the geographical and geological information that supports decisions about Canada's land-based and offshore resources and the management of these lands.

NRCan's decision-making process considers FSDS goals and targets through the Strategic Environmental Assessment (SEA) process. A SEA for policy, plan or program proposals assesses whether the proposal will result in environmental effects, both positive and negative, and how elements of the proposal contribute to achieving FSDS goals and targets. [NRCan's SEA process](#) includes three levels:

1. Preliminary SEA - determines the need for further analysis
2. SEA Scan - identifies the importance of the environmental effects likely to arise from a proposal
3. Detailed SEA - comprehensive analysis of important environmental effects

A summary of the results of NRCan's detailed SEAs is made public when an initiative is announced (see NRCan [webpage](#)). The purpose of the public statement is to demonstrate that the environmental effects, including the impacts on achieving the FSDS goals and targets, of the approved policy, plan or program have been considered during proposal development and decision-making.

NRCan continues to measure SEA performance through the rate of compliance with the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals and its guidelines. This includes determining how many approved proposals contributed to the FSDS.

## **Conclusion**

With more than 80 departmental actions, NRCan plays a key role in supporting the FSDS. The DSDS illustrate how the Department contributes to domestic and international initiatives that are important for Canadians, including the Pan-Canadian Framework on Clean Growth and Climate Change, the Canadian Energy Strategy, the North American Energy Strategy, Mission Innovation, the Oceans Protection Plan, the implementation of interim measures to guide decisions on pipelines and the review of the environmental assessment process. To implement concrete actions in support of sustainable development, the Department works closely with partners such as provinces and territories, Indigenous peoples, communities, industry, academia and non-governmental organizations.

NRCan will update its 2017-20 DSDS on an annual basis to reflect new priorities of the Minister and of the Government, as well as new initiatives approved, making this an evergreen Strategy. New performance indicators will also be included as part of the update, reflecting NRCan's commitment to bringing concrete results for Canadians.