

Natural Resources Canada

2019–20

Departmental Plan

The Honourable Amarjeet Sohi, P.C., M.P.
Minister of Natural Resources

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Minister's message

Our government is committed to ensuring our resource sector remains a source of good, middle class jobs, prosperity and opportunity for all Canadians. Our world is changing, increasingly valuing sustainable practices and today, we can no longer talk about economic development without jointly discussing environmental responsibility.



Canada's natural resource industries are at the forefront of the global shift to a clean-growth economy. Our 2019-20 Departmental Plan outlines how we are supporting that transition by creating a sustainable resource advantage.

That advantage is rooted not only in the abundant resources of our land, but the resourcefulness and ingenuity of our people – Canadians from across the country, who have the expertise and experience to develop our rich natural endowment. Sustainably and competitively.

We are supporting their efforts by making unprecedented investments in clean technologies in the mining, forestry and energy sectors. This is positioning Canada as the supplier of choice for customers seeking sustainably developed resources.

Together with our provincial, territorial, and Indigenous partners, we have launched the Canadian Minerals and Metals Plan, a milestone in Canada's storied mining history. Comprehensive in scope and ambitious in vision, it positions Canada to be the undisputed global mining leader and recognizes the central role mining will play as clean tech and clean energy expand around the world. For example, Canada is home to 14 of the 19 metals and minerals required for solar panels. This provides Canada with a unique, unparalleled advantage, and it is incumbent upon us to capitalize. The next step is to develop an Action Plan, which will be updated every three years to address the fast-changing nature of the industry.

It is a core responsibility of the federal government to help get our natural resources to market. The LNG Canada project is the single-largest private-sector investment in Canadian history and will create thousands of jobs and billions of dollars in direct government revenues and provide access to some of the world's fastest growing economies in Asia. Hundreds of kilometers of pipeline have been laid for the Line 3 replacement project, and we continue to advocate for the Keystone XL pipeline. We are also creating a new Canadian Energy Regulator to enhance certainty for investors and protections for the environment. These initiatives will grow our economy, create good, middle-class jobs, boost competitiveness and respect Indigenous rights.

Our government also stepped up by purchasing the proposed Trans Mountain Expansion Project and related assets. Since the decision of the Federal Court of Appeal last fall, our Government has been working hard to move the process forward in the right way, through meaningful consultations. Eight Crown consultation teams comprised of 60 people are engaging in meaningful, two-way dialogue with Indigenous communities. Every day, together with communities and Indigenous leaders, we make important, meaningful progress in those consultations.

We continue to look for ways to help Canadians get their goods, technologies and services to new markets or expand existing ones. We will build on trade agreements such as the Canada-European Union Comprehensive Economic and Trade Agreement, as well as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership. Equally important will be implementing the Canada-United States-Mexico Agreement and the Canada-United States Energy Side Agreement, which will save the Canadian energy sector upwards of \$60 million annually.

Keeping Canadians safe is a key part of our Department's mandate. That is why we are implementing the Canadian Wildland Fire Strategy and continuing to fight the spread of the spruce budworm.

To showcase Canadian innovation, Canada will host the Clean Energy Ministerial and Mission Innovation Meetings in Vancouver in May 2019. We will work together with our international partners to accelerate the pace of clean energy innovation to achieve performance breakthroughs. Canada is on track to meet its commitment, under Mission Innovation, to double investments in clean energy research and development from \$387 million in 2014-15 to \$775 million in 2019-20, as promised.

Canada's natural resource industries have been the historic backbone of our economy, and they will remain an integral part of our clean-growth future. I am pleased to present this report, which provides a compelling account of how Natural Resources Canada is working hard, every day, to create that future.

In closing, I would like to express my appreciation for the hard work and commitment of officials and support staff working at NRCan offices across Canada. It is because of their professionalism and efforts that Canadians can benefit from our strong natural resource industries.

The Honourable Amarjeet Sohi, P.C., M.P.
Minister of Natural Resources



Plans at a glance and operating context

Canada's wealth of natural resources, which include renewable and non-renewable energy, forests, minerals and metals, are an important source of jobs and prosperity. In 2017, Canada's natural resources accounted for approximately 17% of Canada's nominal gross domestic product and for 1.82 million jobs, while contributing to close to half of Canada's total merchandise exports (\$236 billion or 47% in 2017). At the same time, Canada has a growing clean technology sector, which is finding innovative ways to ensure the sustainable use of Canada's natural resource sectors and exporting these technologies and expertise to expanding global markets.

[Natural Resources Canada \(NRCan\)](#)ⁱ is a science-based organization that works to advance the prosperity of Canada's natural resource sectors. The Department supports the sustainable development of Canada's natural resources through evidence-informed policy, programs and world-class innovative research, including through domestic and international engagement and in collaboration with Indigenous peoples.

NRCan is focused on implementing the commitments articulated in the [Prime Minister's Mandate Letter to the Minister of Natural Resources](#),ⁱⁱ and is delivering results for Canadians across three core areas of responsibility mandated to the Department:

- [Natural Resource Science and Risk Mitigation](#);
- [Innovative and Sustainable Natural Resources Development](#); and
- [Globally Competitive Natural Resource Sectors](#).

Our operating context

As NRCan delivers on these commitments, it is cognizant of the global and domestic trends that the Department, its partners and stakeholders face. Canada's natural resource sectors operate in an evolving competitive landscape marked by cyclical downturns in pricing, changing supply and demand patterns, trade uncertainties, regulatory changes and new policy approaches to environmental sustainability. To respond to these challenges, NRCan promotes investment in the natural resource sectors and undertakes and supports research while ensuring that the right structures are in place for a thriving industry through resource management systems, environmental and regulatory regimes and accessible public geoscience.

Other factors influencing Canada’s natural resource sectors include the increased emphasis around the world on sustainable development practices and environmental stewardship, the urgent need to reduce greenhouse gas emissions, adapt to the impacts of climate change and protect the environment. NRCan is responding by collaborating with provincial and territorial governments, Indigenous peoples and other partners to ensure that Canada has sustainable, clean and competitive natural resource sectors that advance the transition to a low-carbon future. The Department is also working with stakeholders to prepare for and manage the effects of natural and human-induced hazards on Canadians and their communities and we are working on providing open and accessible geospatial data that provides the underpinnings of science to ensure our decisions are evidence based, open and transparent to Canadians.

Our focus for 2019-20

In 2019-20, NRCan will focus on five priorities: Improving market access and competitiveness in the natural resource sectors; Accelerating the development of clean technology and supporting the transition to a low-carbon future; Protecting Canadians from the impacts of natural and human-induced hazards; Strengthening relationships and advancing reconciliation with Indigenous peoples; and, Ensuring our decisions and actions are grounded in transparent and robust science.

Improving market access and competitiveness in the natural resource sectors

Few countries in the world can boast of an abundance of wealth in so many different natural resources. It is Canada’s “natural advantage” and it is what makes it one of the world’s destinations of choice for investment in sustainable natural resources development. As the global landscape evolves, the Department is taking action to ensure that Canada’s natural resource sectors remain vibrant, that we continue to access new markets, and that these sectors remain a source of good jobs and opportunities for Canadians.

NRCan will support the diversification of markets and greater access to global markets for Canadian suppliers through robust support for major resource projects. The Department will also advance efforts to introduce better rules for the review of major projects. **Bill C-69**ⁱⁱⁱ proposes to replace the **National Energy Board**^{iv} with the **Canadian Energy Regulator**^v to ensure more inclusive engagement, greater Indigenous participation, stronger safety and environmental protection and timelier project decisions to enhance certainty for the natural resource sectors. The Bill also introduces the new **Impact Assessment Act**^{vi} to provide better rules so that Canadians, companies and investors can be confident that good projects will be built in a way that protects the environment and respects Indigenous rights, while creating jobs and growing our economy. In addition, support for clean technology innovation and adoption in the

natural resource sectors is helping to diversify our exports, secure new markets and build Canada's brand.

For Canada's natural resource sectors to have greater export and investment opportunities, NRCan, in collaboration with provinces and territories has released the **Canadian Minerals and Metals Plan (CMMP)**.^{vii} The year 2019-20 will see further collaboration with provinces and territories to develop the first of a series of Action Plans to support the CMMP. The CMMP will bolster Canada's competitiveness and re-affirm Canada's standing as a global mining leader, thereby helping Canadian companies become more internationally competitive. The Department will continue to implement the **Softwood Lumber Action Plan**,^{viii} diversify forest products and markets and facilitate access to financial services for our industry, increasing Canada's presence in national and international markets.

In 2019-20, NRCan will continue to collaborate with key international partners and allies to improve market access and reinforce the mutual benefits of trade in natural resources through such agreements as the **Canada-European Union Comprehensive Economic and Trade Agreement**^{ix} and the **Comprehensive and Progressive Agreement for Trans-Pacific Partnership**,^x as well as facilitating greater collaboration with China, Japan and India. NRCan will maintain strong collaboration with the United States and Mexico to enhance the benefits of the deeply integrated North American energy market, as supported by the implementation of the new **Canada-United States-Mexico Agreement**.^{xi}

Accelerating the development of clean technology and supporting the transition to a low carbon future

As the world moves towards a low-carbon future, NRCan will support clean growth in the natural resource sectors to ensure that they are more competitive in this changing environment and continue to adopt sustainable development practices.

NRCan will continue to undertake ground-breaking research which supports the Mission Innovation goals and provides global leadership to support a clean energy future as Chair of the **Clean Energy Ministerial and Mission Innovation Ministerial Meeting (CEM/MI)**^{xii} in Vancouver in May 2019. Hosting CEM/MI is an opportunity to showcase Canadian leadership and strengthen international trade and investment opportunities through cooperation among governments, the private sector and international organizations to enhance access to affordable, secure and sustainable energy. Energy ministers, private-sector leaders and representatives from over 25 countries will gather to accelerate progress towards a clean energy future.

Building on **Generation Energy**,^{xiii} NRCan is working to maximize Canada's energy advantage to create jobs for Canadians and ensure Canada's overall prosperity. This will entail wasting less energy, switching to clean power, using more renewable fuels, producing cleaner oil and gas, and strengthening market access. In this same vein, NRCan will support a national discussion on developing a framework for a clean electric future for Canada - a commitment made by First Ministers in their December 2018 communique.

NRCan will continue to implement and support programs related to the **Pan- Canadian Framework (PCF) on Clean Growth and Climate Change**^{xiv} aimed at fighting climate change, building resilience to the changing climate and driving clean economic growth. Among specific actions under the PCF, the Department will invest in clean energy through the **Green**

Infrastructure Program,^{xv} funding research, development, demonstration and deployment projects in areas such as, **smart grids**,^{xvi} energy efficiency, **energy efficient buildings**,^{xvii} **emerging renewable power**,^{xviii} **alternative fuel infrastructure**^{xix} and **clean energy for rural and remote communities**.^{xx} NRCan is also supporting the government-wide priority of putting more **low-emission vehicles**, including **electric vehicles (EV)**, on the roads in Canada through programming for both passenger vehicles and the freight sector and through contributing to the **National Zero Emission Vehicle (ZEV) Strategy**^{xxi} and **Clean Fuel Standard Initiative**.^{xxii}



Wind turbines producing clean energy

Through the **Clean Growth Program**,^{xxiii} the Department will continue its co-funding of clean technology research, development and deployment projects with provinces and territories in Canada's energy, mining and forestry sectors to further enhance the competitiveness of natural resource sectors and to reduce their environmental impact. These projects and **Clean Technology Challenges** launched under the **Impact Canada Initiative**^{xxiv} will contribute to Canada's **Mission Innovation**^{xxv} **pledge** to double its investments in clean energy and clean technology research and development by 2019-20.

Through the **Mining Value from Waste Program**, NRCan is leading the pan-Canadian effort to reduce the environmental, social and economic footprint of mine wastes and driving collaborative innovation in science in the Canadian minerals and metals industry through the **Canadian Mining Science and Engineering Laboratory Network**.^{xxvi}

NRCan will also explore the application of transformative technologies such as **Artificial Intelligence** and **Big Data techniques** to solve challenges in the natural resource sectors.

Protecting Canadians from the impacts of natural and human-induced hazards

Natural and human-induced hazards can have devastating impacts on the lives of Canadians, as well as the security of Canada’s critical infrastructure and overall economy. NRCan works with **Public Safety Canada**^{xxvii} to safeguard Canadians from the effects of these hazards by carrying out research and developing programming that helps anticipate and model natural hazards.

Using satellite data and imagery, the Department can better understand, map and monitor landslides, flooding and wildland fires. In 2019-20, NRCan will contribute to timely emergency response with geoscience and geospatial products using shared open data, satellite data and imagery to derive near real-time, broad-view damage extent products and information to support decision-makers and emergency responders.

The Department will also provide federal scientific and geospatial coordination with provinces, territories, the academic sector and the private sector to renew pan-Canadian efforts in the area of flood mapping and flood risk management. These activities will support Public Safety Canada’s^{xxviii} **National Disaster Mitigation Program**^{xxviii} and overall federal efforts for enhanced emergency management capabilities.

To enable improved management of natural hazards, the Department will provide federal leadership for the collaborative implementation of the **Canadian Wildland Fire Strategy (CWFS)**^{xxix} and continue to protect Canada’s forests from pests, including fighting the spread of the **spruce budworm**.^{xxx} With provincial governments, the forest industry and academia in Atlantic Canada, NRCan will advance the **Spruce Budworm Early Intervention Strategy- Phase II** to prevent considerable socio-economic and ecological losses associated with an outbreak.

To **reduce the risk posed by explosives and explosives precursor chemicals**, actions will be taken to increase the frequency of federal inspection activities. The Department will also place a strong focus on enhancing the cybersecurity of critical energy infrastructure. In that regard, NRCan will continue to collaborate with the United States and Mexico as well as support the new **National Cybersecurity Strategy**^{xxxi}, launched in 2018.

Strengthening relationships and advancing reconciliation with Indigenous peoples

NRCan values and wishes to pursue a renewed relationship with Indigenous peoples, based on recognition of rights, respect, co-operation and partnership. The Department is engaging regularly, at the national level, with First Nations, Métis, and Inuit leaders to identify joint priorities. At the community level, NRCan is supporting the development of

capacity for participation in natural resource sector economic development opportunities and the review and monitoring of related social and environmental issues. This includes Indigenous Partnerships Office - West's support of **Indigenous Advisory and Monitoring Committees**^{xxxii} for major energy projects and the Canadian Forestry Service's support of forest management capacity building and the development of Indigenous owned and operated businesses, via the **Indigenous Forestry Initiative**.^{xxxiii} Similarly, the Surveyor General Branch's **First Nation Land Management Program**^{xxxiv} supports the development of First Nation capacity in land surveying - an important component of land management. The Department will also continue to collaborate with other federal departments in its active contribution to the broader Government of Canada work on strengthening relationships and advancing reconciliation with Indigenous peoples. Internally, the Department will maintain its effort to build departmental capacity for collaboration with Indigenous partners in the development and implementation of policies and programs, notably by developing tools and advice.

The Department will also collaborate with Indigenous communities so that Indigenous knowledge, values and participation inform key research activities, such as in the rehabilitation and protection of threatened **woodland caribou**^{xxxv} habitats.

Ensuring our decisions and actions are grounded in transparent and robust science

Federal science is critical to maintaining Canada's competitive advantage, building a more sustainable resource future and meeting the highest standards of stewardship. NRCan will continue to develop and use experimental approaches to leverage innovative scientific knowledge and data for informed decision-making. Experimentation allows the Department to make sound decisions related to the allocation of resources, magnify the impact of policy and more positively impact the lives of Canadians.

NRCan will implement its **scientific integrity policy**,^{xxxvi} which will continue to ensure the rigour, relevance and reputation of NRCan expertise, while encouraging researchers and scientists to speak freely about their scientific work. Effective science policy integration will ensure that departmental decisions and actions are informed by scientific insights and evidence and that policy priorities are guided by scientific activities.

As part of ensuring transparency and sharing information on resource development projects, including on their cumulative effects, NRCan will co-lead, with **Environment and Climate Change Canada**^{xxxvii} the development of an online **Open Science and Data**



Geospatial image of Great Slave Lake, Northwest Territories

Platform, providing public access to the science and data that supports decision-making on major projects.

NRCan will support science in the North through the Arctic and Northern Policy Framework by enabling pan-Arctic science through the Polar Continental Shelf Program. NRCan will continue to increase engagement with Indigenous communities and further geoscience and related mining opportunities for Canada. The Department will also develop a new vision for geospatial information and will also work with Statistics Canada to better leverage geo-spatial and energy data to increase availability and access to accurate, user-friendly energy information to inform decision-making.

For more information on NRCan’s plans, priorities and planned results, see the “[Planned results](#)” section of this report.



Planned results: what we want to achieve this year and beyond

Core Responsibilities

Natural Resource Science and Risk Mitigation

Description

Lead foundational science and share expertise for managing Canada's natural resources, reducing the impacts of climate change and mitigating risks from natural disasters and explosives.

This Core Responsibility supports the advancement of the following **Strategic Priorities**:

- [Protecting Canadians from the impacts of natural and human-induced hazards](#);
- [Strengthening relationships and advancing reconciliation with Indigenous peoples](#); and
- [Ensuring our decisions and actions are grounded in transparent and robust science](#).

Planning highlights

NRCan is a science-based department with nearly half of our budget devoted to science and approximately 45% of our employees employed as scientists or technicians. The Department collaborates with other federal departments, provincial, territorial and local governments, Indigenous peoples, academic institutions and industry to conduct first-class science and research. This research helps to improve the economic well-being of Canadians, support regulatory functions, promote innovation and pre-commercial technology advancements and develop standards, codes and guidance to support industry practices, as well as provide expert advice and guidance to decision-makers.

NRCan's science and technologies will ensure that Canadians have access to cutting-edge research to inform decisions on the management of natural resources

Canada is a vast country with 10 million km² of onshore land and an additional 7 million km² of offshore lands. This vast geography has required long-standing efforts in mapping both the surface and sub-surface of our country. To help in these efforts the Department provides geospatial data through its GeoBase program. This data provides a foundation

that informs the science and mapping work for the Department, other federal departments and the provinces and territories. NRCan also uses a variety of assets such as satellite ground stations to collect valuable data on the status and trends of our changing lands, water and infrastructure. With the launch of the new federal RadarSat Constellation Mission satellite, the Department will receive data for more rapid and complete coverage of Canada’s landmass and off-shore territories to use for science-based decision making. Other federal departments will be able to utilize the same data for agriculture related use, census surveys and arctic and off-shore surveillance and monitoring.



Geospatial image of the city of Ottawa, Ontario

A core mission of NRCan’s **Geological Survey of Canada**^{xxxviii} is to provide geoscientific knowledge that is fundamental to managing Canada’s onshore and offshore lands. NRCan will continue to develop projects that contribute to the safety, environmental stewardship and Canadians’ understanding of groundwater. In 2019-20, the Department will complete the **Geo-mapping for Energy and Minerals (GEM) Program**^{xxxix} which will continue to advance our knowledge of the North. This will contribute to better exploration investment decisions in the Arctic and more informed land use decisions within northern communities.

NRCan will finalize Canada’s Arctic Ocean submission to the **Commission on the Limits of the Continental Shelf**^{xl} in 2019 meeting our legal obligation under the **United Nations Convention on the Law of the Sea**^{xli} to define our continental shelf beyond 200 nautical miles. Canada’s Arctic Ocean submission will propose outer limits covering an area of over one million km², including the North Pole. The outer limits will eventually become Canada’s last international boundary, giving Canada sovereignty over the natural resources on the seafloor and in the subsoil.

Working in close partnership with **Environment and Climate Change Canada (ECCC)**,^{xxxvii} **Parks Canada**,^{xlii} provincial and territorial governments, industry and academia, NRCan scientists are developing **forest carbon analyses** for all of Canada’s managed forest. This work includes research to model and understand how human activities and other factors influence the amount of carbon contained in forests and improve estimates of greenhouse gas emissions and removals, as well as monitoring changes in response to actions aimed at mitigating climate change. These models will better reflect local and regional carbon dynamics, natural disturbances such as **mountain pine beetle**^{xliii} infestation in western Canada, land-use change and other human activity to better address policy questions.

In 2019-20, NRCan will continue to undertake research in support of protecting Canadian forests from pests. The Department will conduct experiments and implement early intervention strategies to maintain **spruce budworm**^{xxx} populations below outbreak levels. Research will be conducted to evaluate the risks associated with the treatment of wood products related to the survivorship and reproductive capacity of **emerald ash borer**^{xliv} after lumber milling and better understand **mountain pine beetle**^{xliii} behavior in its new range in western Canada's boreal forest, in particular in Alberta. The Department's leadership and scientific knowledge will help forest-sector stakeholders and Indigenous communities to assess and respond to forest disturbance risks and, in turn, mitigate socio-economic and environmental impact on forests and communities.

Species at risk, particularly the threatened **woodland caribou**^{xxxv} continue to be a challenge for the natural resource sectors. In 2019-20, NRCan will continue to support ECCC in protecting this species. NRCan will also collaborate with Indigenous communities so that Indigenous knowledge, values and participation inform research activities that support the rehabilitation and protection of the **woodland caribou**^{xxxiv} habitat.

The Department will continue to provide science and technology expertise and advice to support impact assessments and regional assessments that inform decision-making for major natural resource development projects as well as providing scientific expertise to support the development of Canada's approach to address the **cumulative effects**. Although the percentage of environmental assessment processes for which NRCan provided scientific and technical advice decreased from the 2015-18 period¹, NRCan received funding through Budget 2018 to increase its capacity to provide more scientific and technical expertise moving forward. NRCan will co-lead with ECCC, the delivery of an online **Open Science and Data Platform** that will provide public access to the science and data that support decision-making. NRCan will also continue to innovate by developing authoritative geospatial data, products and leveraging the **Federal Geospatial Platform**^{xlv} which brings together federal geospatial data that enhances Canada's capacity to monitor, visualize and report on how our lands, water and infrastructures are changing.

NRCan contributes to safeguarding Canadians from natural hazards and explosives through research and the development of tools

NRCan is recognized internationally as a key source of science-based information on natural hazards and risk and continues to conduct fundamental research into the causative mechanisms of earthquakes, tsunamis and landslides, both terrestrial and submarine. The Department continues to apply its expertise to quantifying where and how frequently

¹ See **Indicator 2** of the Planned Results table at the end of this section.

natural hazards will occur, with an increased emphasis on quantifying the risk to Canadians, taking into account the exposure, vulnerability and resilience of regions and communities. In 2019-20, NRCan will also develop techniques using satellite data to better understand, map and monitor natural hazards such as landslides, flooding and wildland fires. NRCan will continue to lead on space weather monitoring, ensuring that key infrastructure operators (aviation, GPS, energy grids and systems) are informed of risks and can mitigate and protect more vulnerable areas and reduce financial losses.

NRCan, with financial support from the [Insurance Bureau of Canada](#),^{xlvi} [Defence Research and Development Canada](#)^{xlvii} and Public Safety Canada, will continue to represent Canada as a public sponsor of the [Global Earthquake Model Foundation](#).^{xlviii} This consortium of international partners develops open-source earthquake hazard and risk modelling tools that will be used to build the seismic hazard model for the 2025 National Building Code and for detailed risk assessment studies across Canada. This advanced scientific work helps Canada to meet its obligations under the [Sendai Framework on Disaster Risk Reduction](#)^{xlix} to understand the risk to people of natural disasters and to increase community resilience.

Canada’s 348 million hectares of forest make up 9% of the world’s forest and 24% of the world’s boreal forests lie within Canada’s borders. In 2019-20, the Department will continue to use science to minimize the risks to Canadians’ lives and properties due to wildfires. NRCan will provide federal leadership for the collaborative implementation of the [Canadian Wildland Fire Strategy](#)^{xxix} enabling research related to national wildfire risk assessment and analysis to provide information, grounded in science, which enables strengthened decision-making. This research, accessible to Canadians, will lead to a national approach to fire risk assessment and analysis. Potential mitigation and adaptation strategies can be derived from this knowledge to help guide community threat-reduction programs and ensure that at-risk and vulnerable populations are able to access the necessary information to reduce their vulnerability, inform decisions and support their capacity to respond to natural hazards and risks.

The Department will develop a risk analysis framework to evaluate the wildland fire risk to communities. As an outcome, citizens, communities, industries and governments will be better able to plan, prioritize and take actions to mitigate the risks related to wildland fires.

Protecting Canadians from hazards related to explosives

As Canada’s regulator for explosives, NRCan authorizes and licenses activities with explosives and oversees a compliance inspection and restoration program, partially funded via user fees and regulatory charges. In addition, the Department regulates precursor chemicals that are used as “ingredients” in manufacturing homemade explosives or improvised explosive devices.

Through the work of its world-class Canadian Explosives Research Laboratory and the Explosives Safety and Security Branch, NRCan ensures that manufacturers, importers, exporters, and vendors of explosives, as well as those who store explosives, comply with Canada’s *Explosives Act and Regulations* and that precursors are kept out of the hands of criminals.

In the realm of human-induced hazards, NRCan will take action to reduce the risk posed by **explosives and explosives precursor chemicals**. The Department will increase the frequency of inspection activities conducted by federal explosives inspectors beyond the current capacity. NRCan will update the list of explosives precursor chemicals subject to regulation or outreach, register purchasers of regulated chemicals and conduct targeted research into the chemical security of explosives precursors.

NRCan leads activities to help ensure that communities and industry are adapting to climate change

To address the complex and cross-cutting issue of climate change adaptation, NRCan will take action in a number of areas. The Department will continue to lead **Canada's Climate Change Adaptation Platform**, a national forum that brings together key groups to collaborate on climate change priorities and **Canada in a Changing Climate**, a national assessment of how Canada's climate is changing, the impacts of these changes and how Canadians are adapting to reduce risk. In addition, NRCan's **Climate Change Geoscience Program** will conduct science and research to help understand the impacts of climate change and climate change adaptation on aspects such as permafrost, coastal erosion, sea level rise, extreme weather events and monitoring of Canada's glaciers.

Investments in training and knowledge exchange activities through the **Building Regional Adaptation Capacity and Expertise Program**¹ aim to increase the capacity of organizations, professionals, communities and small-to-medium sized enterprises to undertake climate change adaptation action. NRCan will also support the delivery of Canada's national climate change adaptation conference, **Adaptation Canada 2020**,^{li} in Vancouver, British Columbia. This conference will bring together experts and leaders from diverse sectors, regions and jurisdictions to discuss how to build climate change resilience in communities, ecosystems and the economy.

Departmental Risk

NRCan has identified a number of risks under this Core Responsibility, including the increasing impact of climate change on the natural resource sectors and on Canadian communities; keeping abreast of the rapid pace of science and technological innovation; and, the increasing occurrence of natural and human-induced hazards and emergencies. The Department will continue to manage these risks through the development, implementation and monitoring of various mitigation strategies, including:

- Developing strategic partnerships to support innovation in natural resource sectors;
- Investing in research, development, demonstration and deployment projects that advance solutions to pressing environmental challenges;

- Collaborating with other government departments to support federal green initiatives; and
- Addressing needs of communities and critical infrastructure through pre-emptive and preventative, or responsive measures, where possible, using innovative science and technology.

Planned results

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015-16 Actual results	2016-17 Actual results	2017-18 Actual results
Canadians have access to cutting-edge research to inform decisions on the management of natural resources	Number of times scientific products related to natural resources are accessed by Canadians	At least 500,000 quarterly average	March 2020	329,008	349,171	484,904 ²
	Percentage of environmental assessment processes for which NRCan provided scientific and technical expertise	100%	March 2020	99%	95%	93% ³
	Number of times stakeholders acknowledge using NRCan's scientific and technical products in making their decisions	At least 30,250	March 2020	Not available ⁴	Not available ⁴	30,250

² Since the 2018-19 Departmental Plan, NRCan has revised the methodology to more accurately count access to NRCan's scientific products rather than to the landing pages for these products. The 2017-18 results reflect the change in methodology.

³ NRCan received funding through Budget 2018 to increase its capacity to provide scientific and technical expertise for environmental assessments.

⁴ NRCan established a new Departmental Results Framework to report its results starting in 2018-19. Several indicators were new as of April 2018 and historical information is not available for all previous years.

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015-16 Actual results	2016-17 Actual results	2017-18 Actual results
	Number of training and development initiatives that enable NRCan to incorporate Indigenous traditional knowledge in conjunction with NRCan science	At least 35	March 2020	Not available ⁴	Not available ⁴	Not available ⁴
	Quality index of geographic and locational data on Canada's land resources, water and infrastructure	At least 70%	March 2020	Not available ⁴	Not available ⁴	Not available ⁴
Communities and officials have the tools to safeguard Canadians from natural hazards and explosives	Percentage of hazardous natural events within Canada for which a notification was issued in a timely manner	At least 75% (100% by March 2023)	March 2020	Not available ⁵	Not available ⁵	70%
	Number of enhanced wild fire monitoring tools using remotely sensed information	At least 1	March 2020	Not available ⁴	2	2
	Percentage of inspections of explosives rated safe⁶	At least 70% (90% by March 2025)	March 2020	Not available ⁷	Not available ⁷	Not available ⁷

⁵ Due to recent enhancements of the earthquake monitoring network and change in the methodology, the results for prior years for this indicator are not comparable.

⁶ A 'safe' rating indicates an inspection rated "satisfactory or better". NRCan conducts rigorous and timely follow up on any facility that does not achieve a satisfactory rating.

⁷ NRCan has revised the methodology to more accurately calculate the percentage of inspections rated safe. This has resulted in a more rigorous inspection ratings regime but means that historical data prior to 2018-19 are not directly comparable to more recent results.

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015-16 Actual results	2016-17 Actual results	2017-18 Actual results
Communities and industries are adapting to climate change	Percentage of Canadian communities and industries that have taken steps to adapt to climate change	At least 60% for communities At least 40% for businesses	March 2023	Not available ⁸	Not available ⁸	57% for communities 32% for businesses
	Number of times NRCan products and expertise on adaptation are accessed by communities and industry	At least 19,000 quarterly	March 2020	Not available ⁴	Not available ⁴	18,602

Budgetary financial resources (dollars)

2019-20 Main Estimates	2019-20 Planned spending	2020-21 Planned spending	2021-22 Planned spending
\$205,570,026	\$205,570,026	\$193,598,174	\$192,584,248

Human resources (full-time equivalents)

2019-20 Planned full-time equivalents	2020-21 Planned full-time equivalents	2021-22 Planned full-time equivalents
1,240	1,185	1,169

⁸ This indicator tracks progress on long-term outcomes and is measured through a survey conducted every five years. The next set of results will be available in 2023. NRCan will report interim progress in future Departmental Results Reports.

Innovative and Sustainable Natural Resources Development

Description

Lead the transformation to a low-carbon economy by improving the environmental performance of Canada's natural resource sectors through innovation and sustainable development and use.

This Core Responsibility supports the advancement of the following **Strategic Priorities:**

- Improve market access and competitiveness in the natural resource sectors;
- Accelerate the development of clean technology and support the transition to a low-carbon future;
- Strengthening relationships and advancing reconciliation with Indigenous peoples; and,
- Ensuring our decisions and actions are grounded in transparent and robust science.

This Core Responsibility also contributes to the achievement of the following Minister of Natural Resources **Mandate Letter Commitments:**ⁱⁱ

- Build on the work of Generation Energy and work with provinces and territories to accelerate clean growth strategies;
- Put more low-emission vehicles, including electric vehicles, on the roads in Canada;
- Support continued innovation, job creation, and the use of clean technologies in our natural resource sectors; and,
- Enhance Canada's tax measures to generate and attract more clean technology investments.

Planning highlights

Canada's natural resource endowment creates billions of dollars in economic activity across the country. Competitive, low-carbon and environmentally sound development of our natural resources holds the potential for substantial economic growth and job creation in the coming years while reducing contributions to climate change. Development of these resources will be undertaken in partnership with Indigenous peoples.

NRCan works to ensure that the natural resource sectors are innovative

NRCan will continue to put in place plans and initiatives that will position Canada to reach its **Mission Innovation pledge**^{xxv} of doubling its investments for clean energy research and development (from \$387 million in 2014-15 to \$775 million in 2019-20). These investments, such as those presented below, will accelerate global clean energy innovation and ensure that clean energy technologies are widely affordable and driving economic growth.

As part of the **Impact Canada Initiative**^{xxiv} which was launched in 2018, NRCan will support five **Clean Technology Challenges**^{lii} designed to introduce innovative program approaches to unlock breakthrough solutions to complex and persistent problems. These challenges are intended to drive new solutions in areas such as climate change and green growth and apply new technologies to reduce negative environmental impacts. Five challenges were launched in 2019, including the **Women in Cleantech Challenge**,^{liii} the **Sky's the Limit Challenge**^{liv} (biojet fuel), the **Power Forward Challenge**^{lv} (smart grids and energy storage), the **Crush-It Challenge**^{lvi} (mining) and the **Generating New Opportunities: Indigenous Off-Diesel Initiative Challenge**^{lvii}.

*Unlocking innovative solutions to cleaner air Transportation:
The Sky's the Limit*

The Sky's the Limit challenge is designed to accelerate innovation, bring down the cost of sustainable aviation fuel, reduce greenhouse gas (GHG) emissions from air transportation, and stimulate the development of sustainable aviation fuel supply chains in Canada. This year, four semi-finalists will win up to \$2 million dollars of support to demonstrate their idea and earn a chance to compete for the \$5 million dollar final grand prize for the greenest and most cost-effective approach. There is also a \$1 million dollar prize for the first producer of 2,500 litres of made-in-Canada biojet fuel that can be integrated into a cross-Canada commercial flight.

Use of fast-growing tree plantations will support innovation and the use of clean technology to treat municipal wastewater. This approach offers an alternative to discharging effluent to waterways. The way it works is that willows irrigated with nutrient rich wastewater produce a valuable crop of wood biomass for use in bioenergy production or a variety of other purposes. Such plantations offer communities with a way to cost-effectively and safely dispose of municipal wastewater. This project will provide a practical solution to a need affecting the daily livelihood of rural residents and an Indigenous community (Cold Lake First Nation).

As a follow-up to the forest bioeconomy framework for Canada, NRCan is putting in place a network of scientific, government and industry representatives to identify solutions to systemic risks in the fibre supply chain brought on by climate, policy and market changes.

Further, using NRCan's enhanced forest inventory, obtained via Lidar technology, forest industries will have geospatial tools to enrich their interpretation of forest resources, such as assessing the supply of woody biomass formulating business plans and meeting standards of quality, safety and sustainability. Provinces will have data to support strategic land use decisions regarding harvesting, species at risk and protected areas.

NRCan supports clean technologies and energy-efficient approaches to transition to the low-carbon economy

Through the **Clean Growth Program**,^{xxiii} launched in 2018, the Department will co-fund clean technology research, development and deployment projects with provinces and territories in Canada’s energy, mining and forestry sectors. The first approved project with **Goldcorp Borden**^{lviii}, replacing diesel equipment with battery electric vehicles, was announced on October 29, 2018. Other approved projects will be announced in 2019-20. These projects will enhance the competitiveness of Canada’s natural resource sectors and reduce the environmental impacts of climate change. In addition, building on its early successes, the **Clean Growth Hub**,^{lix} led jointly by NRCan and **Innovation, Science and Economic Development Canada**,^{lx} will continue to provide a single, easy point of contact for connecting clean technology producers and adopters with government programs and services.

The **Energy Innovation Program**^{lxi} will continue to drive clean energy innovation by supporting world-class research and development in federal energy laboratories, targeted funding for industry-driven research, development and demonstration projects, as well as collaborative projects between federal and external researchers. Projects focus on addressing innovation gaps and opportunities to significantly reduce GHG emissions in key priority areas such as, renewable energy, smart grids, reducing diesel dependency, oil and gas, and energy efficient buildings. The program is expected to result in 10-16 megatons of GHG emissions reductions annually by 2030.

NRCan continues to be a leader in renewable energy technology

On January 11, 2019, the Prime Minister announced \$25.6 million of funding towards a five-megawatt geothermal project near Estevan,

Saskatchewan. DEEP Earth Energy

Production’s geothermal facility will be the first-of-its-kind in Canada. It will produce energy for approximately 5,000 homes all while taking the equivalent of the yearly emissions of 7,400 cars out of the atmosphere.

The project will create 100 jobs during construction, provide Saskatchewan’s power grid with clean, renewable energy, and create new business opportunities for local communities. This project was funded through the Emerging Renewable Power Program.^{xviii}



Test drilling rig, DEEP Earth Energy Production’s geothermal facility, near Estevan, Saskatchewan.

In the coming year, NRCan’s energy, mining and materials research facilities will also continue to advance leading innovative technologies, creating jobs, Canadian intellectual property, expertise and growing the natural resource sector, including clean technologies.

In 2019-20, NRCan will continue leading the **Mining Value from Waste Program**, a pan-Canadian initiative, under the Green Mining Innovation banner, focused on reducing the environmental, social and economic footprint of mine wastes in support of the transition to a low-carbon and circular economy. NRCan will continue directing a **Canadian Mining Science and Engineering Laboratory Network** to drive collaborative innovation in science in the Canadian minerals and metals industry. The Department will also apply transformative technologies to solve mining challenges, including the application of emerging **Artificial Intelligence and Big Data techniques** to optimize mine productivity, enhance automation in mining, streamline the regulatory and permitting process for mining projects and improve energy management in mining and milling. Collectively, these activities will accelerate the development and deployment of clean technologies that will improve energy efficiency, minimize wastes and increase productivity in the mining sector.

In 2018, NRCan convened a stakeholder-driven **Small Modular Reactor (SMR) Roadmap**^{lxii} process for the potential development and deployment of SMRs in Canada. SMRs have the potential to provide energy from non-emitting sources, such as grid-scale electricity generation for use in heavy industry and remote communities. In 2019-20, NRCan will continue engagement on SMRs with Indigenous peoples, which began under the Roadmap, explore potential applications to off-grid mining sites in Canada and review the recommendations of the Roadmap report in detail.

NRCan helps make Canada’s natural resources more sustainable

NRCan will work with provinces, territories and other forest sector partners to conduct forest research, monitoring and reporting which will contribute to improved decision-making for forest practitioners and policy makers. This includes the production of the annual **State of Canada’s Forests**^{lxiii} report which provides a national snap shot of the

NRCan on Artificial Intelligence

Artificial Intelligence (AI) is driving global digital transformation fueled by data. It has the potential to double global economic growth rates by 2035 and boost labour productivity by up to 40% (Accenture, 2018). In Canada, AI could add \$7.5 billion to Canada’s GDP and 170,000 skilled jobs by 2025 (Digital Finance Institute).

Building on a solid data and AI foundation, NRCan has been aligning its AI activities and developing common objectives and storylines. In the coming years, the Department will focus on gaining a better understanding of the impact of **Digitally Disruptive Technologies**, including a pilot project for public engagement; developing a series of policy research papers on the impacts of AI on natural resource sectors; delivering data analytics training; building an inventory of NRCan AI projects; and engaging widely with other stakeholders to understand NRCan’s role in the digital transformation.

status of Canada’s forests and forest industry and tracks sustainable forest management practices using key indicators. As an example, harvest levels are expected to remain below the sustainable wood supply, given the strong provincial and territorial regulatory regimes in place.

Building on **Generation Energy**,^{xiii} NRCan is working to maximize Canada’s energy advantage to create jobs for Canadians and ensure Canada’s overall prosperity. This will entail wasting less energy, switching to clean power, using more renewable fuels, producing cleaner oil and gas and strengthening market access. These actions would serve to accelerate clean growth, enhance competitiveness and improve environmental performance to advance Canada toward a clean energy future.

A key contribution will be the development of **a framework for a clean electric future** – a commitment made by First Ministers in their December 2018 communique. The framework will aim at using clean, reliable and affordable power while promoting access to domestic and international markets.

NRCan will continue to implement programs that support the **Pan- Canadian Framework on Clean Growth and Climate Change (PCF)**^{xiv} — Canada’s plan to fight climate change, build resilience to the changing climate and drive clean economic growth.

With energy accounting for the majority of Canada’s greenhouse gas emissions, initiatives to improve energy efficiency across all resource sectors will be key to meeting reduction targets. Under the **Green Infrastructure**^{xv} stream of the **Investing in Canada Infrastructure Program**,^{lxiv} which supports the PCF, NRCan is investing in the deployment and demonstration of clean energy infrastructure through programs such as **Clean Energy for Rural and Remote Communities**,^{xx} **Emerging Renewable Power**,^{xviii} **Smart Grids**,^{xvi} **Energy Efficient Buildings** and **Electric Vehicles (EV) and Alternative Fuel Infrastructure**.^{xix}

Towards green infrastructure

NRCan is investing in clean energy through a suite of programs:

- **Clean Energy for Rural and Remote Communities** (\$217.8 million over 6 years), which aims to reduce diesel dependency in rural and remote communities across Canada;
- **Emerging Renewable Power** (\$200 million over 5 years), which is expanding the portfolio of commercially viable renewable energy sources available to provinces and territories, including tidal and geothermal energy;
- **Smart Grids** (\$100 million over 4 years), which is investing in the deployment of utility-led smart grid integrated systems and demonstration of smart grid technologies;
- **Energy Efficient Buildings** (\$182 million over 8 years), which will reduce energy use and emissions in the building sector through development of model building and retrofit codes for new and existing buildings; and,
- **Electric Vehicles (EV) and Alternative Fuel Infrastructure** (\$120 million over 4 years), which continues the success of the Budget 2016 program, will invest in 900 recharging refueling stations and demonstration projects that provide innovative solutions for barriers to EV infrastructure.

The Department is supporting progress towards a **low carbon transportation sector through** the delivery of programs for both passenger vehicles and the freight sector. NRCan is advancing the development of a national **Zero Emission Vehicle Strategy**^{xxi} for Canada to deploy more low-emission vehicles on Canada’s roads, while also supporting the government-wide **Clean Fuel Standard Initiative**^{xxii} to incent the use of a



Electric vehicle charging

broad range of low carbon fuels, energy sources and technologies, such as electricity, hydrogen and renewable fuels, including renewable natural gas. As part of these same efforts, NRCan is leading the **Electric Vehicle and Alternative Fuel Infrastructure Initiative**^{xix}, which in Phase II is working towards completing a national network of EV faster chargers with 900 additional chargers, as well as supporting another 15 natural gas stations on routes used for more than 80% of Canada’s freight shipments and 12 hydrogen stations in metropolitan areas, by 2024. This builds off the more than 100 EV fast chargers, the 7 natural gas stations and 3 hydrogen stations successfully completed in Phase I. The Electric Vehicle Infrastructure Demonstration Program component further facilitates uptake of EV infrastructure through funding real-world demonstrations of next-generation charging stations and innovative solutions to barriers for EV infrastructure in the urban environment, (e.g. at multi-unit residential buildings and for people without dedicated parking), at workplaces and for public transit.

In another effort to reduce GHG emissions, NRCan will refer to the final report of the **Expert Panel on Sustainable Finance**,^{lxv} launched to engage a wide variety of stakeholders on sustainable finance in Canada, to support and inform the Department’s approach to encouraging the financing of energy efficiency retrofits for buildings.

More broadly, NRCan aims to facilitate informed decision-making by households, industry and policy-makers in the move toward a low-carbon energy future. In 2019-20, NRCan will work with Statistics Canada, Environment and Climate Change Canada and the **National Energy Board**^{lxv} to improve Canada’s relatively decentralized **energy information systems**^{lxvi}. This includes filling key data gaps related to an inclusive, low carbon energy future; establishing a new user-friendly website to access federal energy information; and, engaging provinces and territories to bolster intergovernmental collaboration on energy information.

Experimenting with new approaches: Encouraging efficiency and renewable energy

NRCan participates in the Government of Canada-wide *Experimentation Works* initiative, by using online experiments to assess how well Canadians understand EnerGuide labeling in the home and on vehicles, as well as what strategies work to encourage homeowners to learn more about home energy audits. These experiments reached over 30,000 Canadians and provided the Department with key evidence for how Canadians understand information about energy efficiency and consumption.

In 2019-20, the Department will explore opportunities to leverage data visualization techniques to determine if making energy more visible to Canadians can improve low carbon and energy efficient actions in the home.

Departmental Risk

NRCan has identified a number of risks under this Core Responsibility, including remaining competitive in the global marketplace for the clean technology sector and keeping abreast of the rapid pace of science and technological innovation.

NRCan will continue to manage these risks through the development, implementation and monitoring of mitigation strategies, including:

- Building on Generation Energy to accelerate clean growth, enhancing competitiveness and improving environmental performance;
- Providing federal leadership and scientific expertise to advance sustainable energy technologies;
- Investing in research, development, demonstration and deployment projects that advance solutions to pressing environmental challenges; and
- Supporting federal green initiatives and government efforts to meet the Paris agreements to reduce GHG emissions, support clean growth and sustainable development.

Planned results

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017–18 Actual results
Natural resource sectors are innovative	Percentage of NRCan-funded innovation projects that result in new intellectual property (IP), standards or regulations	At least 5% of projects will have IP or an impact on codes, standards and regulations by project completion (typically 2-4 years)	March 2020	10% ⁹ (From eco-Energy Innovation Initiative)	42% ⁹ (From eco-Energy Innovation Initiative)	Not Available ¹⁰
	Percentage of NRCan-funded clean energy innovation projects advancing along the innovation scale	At least 50% of research, development and demonstration projects advance one level on the technological readiness scale by project completion (typically 3-4 years)	March 2024	67% ⁹ (From eco-Energy Innovation Initiative)	86% ⁹ (From eco-Energy Innovation Initiative)	Not Available ¹⁰
	Number of NRCan-funded green mining technologies, including waste and water management, proven through demonstrations	At least 7	March 2022	0	3	5

⁹ Results provided are for reference from the eco-Energy Innovation Initiative, the predecessor to the Energy Innovation Program. Due to differing objectives between programs and individual projects, these results cannot be treated as baseline or comparative for new programs implemented in 2017-18 and 2018-19 as part of Budget 2017 announcements. Result data for beyond 2017 for the new programs will be available at the completion of projects as per the dates listed under “Date to achieve target”.

¹⁰ This indicator tracks progress on results at the completion of NRCan-funded projects. NRCan will report interim progress in future Departmental Results Reports.

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017–18 Actual results
	Number of new forestry products developed that are informed by NRCan tools and knowledge	At least 6	March 2020	6	7	7
Clean technologies and energy efficiencies enhance economic performance	Success of NRCan-funded clean technology demonstrations in terms of economic performance	At least 50% success rate measured by project completion (typically 3-4 years)	March 2024	Not Available ¹¹	Not Available ¹¹	Not Available ¹¹
	Ratio of leveraged investments in energy innovation projects funded by NRCan	At least 1:1 ratio of industry investment to government investment	March 2020	1.1:1	0.8:1	2.6:1
	Total annual energy savings resulting from adoption of energy efficiency codes, standards and practices	Annual savings of at least 600 petajoules (PJ)	March 2030	Not Available ¹²	Not Available ¹²	27.4 PJ

¹¹ This indicator tracks progress on long-term outcomes and results will be available at the completion of NRCan-funded projects. NRCan will report interim progress in future Departmental Results Reports.

¹² The standards for calculation of energy efficiency have changed since 2017 and the results for prior years for this indicator are not comparable.

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017–18 Actual results
Canada's natural resources are sustainable	Percentage of Canadian electricity generated from non-greenhouse gas emitting sources	At least 90%	March 2030	79.9%	80.8%	81.6%
	Number of renewable energy projects in remote communities and off-grid industrial operations	At least 50	March 2024	Not Available ¹³	Not Available ¹³	Not Available ¹³
	Amount of wood harvested compared to the sustainable supply	Harvest is less than sustainable supply	March 2020	161 million m ³ total harvest versus total wood supply of 226 M m ³ (State of Forest (SoF) Report, 2016 – data from 2013)	155 million m ³ total harvest versus total wood supply of 227 M m ³ (SoF, 2017 – data from 2014)	156 million m ³ total harvest versus total wood supply of 227 M m ³ (SoF, 2018 – data from 2015)
	Number of low-carbon recharging and refueling stations under development or completed	At least 900 Electric vehicle charging stations At least 15 Natural gas refuelling stations At least 12 Hydrogen refuelling stations	March 2024	Not Available ⁴	Not Available ⁴	Electric vehicle charging stations = 102 Natural gas refuelling stations = 7 Hydrogen refuelling stations = 3 Grand Total = 112 ¹⁴

¹³ This is a new indicator implemented in 2018-19. Past actuals are not available as the indicator tracks a new program that began in January 2018.

¹⁴ NRCan surpassed the proposed targets for Phase 1 of the Electric Vehicle and Alternative Fuel Infrastructure Deployment initiative for each of the three refueling station types (electric charging, natural gas and hydrogen). Phase 2 includes notional targets for the number of charging and refueling stations to be under development or completed by 2024. These stations are in addition to those that were built under the first phase of the Program.

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017–18 Actual results
	Change in greenhouse gas emissions resulting from NRCan-funded clean technology demonstrations	<p>Clean Growth Program: Between 0.3 – 0.7 megatons (Mt) of direct annual GHG reduction, dependent on projects received, success of projects and on-going operation at full production capacity</p> <p>Energy Innovation Program: Between 4.25 Mt of direct annual GHG reductions and a combined total 10-16 Mt GHG direct and indirect reductions per year</p>	<p>March 2026 (Clean Growth Program)</p> <p>March 2030 (Energy Innovation Program)</p>	Not Available ⁴	<p>Clean Growth Program: Not Available⁴</p> <p>0.8 Mt/year¹⁵ (From eco-Energy Innovation Initiative)</p>	<p>Clean Growth Program: Not Available⁴</p> <p>Energy Innovation Program: 1.2 Mt/ year</p>
	Number of policies and initiatives developed collaboratively with Indigenous groups and communities	At least 10	March 2020	Not available ⁴	Not available ⁴	Not available ⁴

¹⁵ Result provided is for reference from 2016-17 eco-Energy Innovation Initiative project reports, the predecessor to the Energy Innovation Program.

Budgetary financial resources (dollars)

2019-20 Main Estimates	2019-20 Planned spending	2020-21 Planned spending	2021-22 Planned spending
\$594,180,420	\$594,180,420	\$556,279,817	\$405,215,689

Human resources (full-time equivalents)

2019-20 Planned full-time equivalents	2020-21 Planned full-time equivalents	2021-22 Planned full-time equivalents
1,590	1,546	1,518

Globally Competitive Natural Resource Sectors

Description

Advance and promote market access, inclusiveness and competitiveness for Canada’s natural resource sectors, in support of jobs and economic growth.

This Core Responsibility supports the advancement of the following **Strategic Priorities**:

- Improving market access and competitiveness in the natural resource sectors;
- Strengthening relationships and advancing reconciliation with Indigenous peoples; and,
- Ensuring our decisions and actions are grounded in transparent and robust science.

This Core Responsibility also contributes to the achievement of the following Minister of Natural Resources **Mandate Letter Commitments**:ⁱⁱ

- Identify opportunities to support workers and businesses in the natural resource sectors that are seeking to export their goods to global markets;
- Build on the work of Generation Energy and work with provinces and territories to accelerate clean growth strategies;
- Advance better rules for the review of major projects;
- Advance efforts to replace the National Energy Board with the proposed Canadian Energy Regulator;
- Continue collaboration with the United States and Mexico in areas of mutual benefit, including on energy security and cross-border infrastructure; and,
- Defend Canadian workers potentially affected by trade disputes, including in the forestry, energy and mining sectors.

Planning highlights

Canada is globally recognized for its abundant natural resources and remains one of the world’s most attractive countries for investment in sustainable natural resources development. Domestically, the natural resource sectors continue to be a driver of growth, accounting for a significant proportion of the gross domestic product (GDP) and creating well-paying jobs.

At the same time, the global competitiveness landscape is evolving. Canada’s natural resource sectors are currently facing a number of challenges, including infrastructure constraints, cyclical downturns in pricing, trade uncertainties, punitive tariffs and U.S. tax reform challenges, as well as new regulatory changes and policy approaches. These challenges underscore the importance of NRCan’s continuous efforts to diversify trade and to support the competitiveness of Canada’s energy, mining and forest sectors. As part of this task, NRCan is working collaboratively with provincial and territorial counterparts and Indigenous peoples to strengthen the competitiveness of our natural resource sectors.

NRCan is working to enhance access to new and priority markets for Canada’s natural resources

NRCan recognizes the importance of infrastructure in trade diversification, and the need to address market access and infrastructure challenges. Building on the October 1, 2018 announcement to proceed with the **Liquefied Natural Gas Canada**^{lxvii} project, NRCan will continue to advance the development of major infrastructure projects and work with the Minister of Finance on the **Trans Mountain Expansion Project**.^{lxviii} NRCan will support the Government’s path forward to address the guidance provided by the Federal Court of Appeal in August 2018.

NRCan will also target new and priority markets for Canada’s natural resource sectors to support workers and businesses that are seeking to export their goods, services and technologies to global markets. The Department will seek to enhance market integration, competitiveness and free trade in natural resources by leveraging both new and existing trade agreements such as the **Canada-European Union Comprehensive Economic and Trade Agreement**,^{ix} as well as the **Comprehensive and Progressive Agreement for Trans-Pacific Partnership**.^x At the same time, NRCan will continue to build constructive energy relations with key markets in Asia through high-level policy dialogues.

Equally important, will be the effective implementation of the **Canada-United States-Mexico Agreement**^{xi} and the Canada-United States Energy Side Agreement, which includes changes that will save the Canadian energy sector upwards of \$60 million annually in fees/costs, makes the trade of energy efficiency goods and services easier and less costly for Canadian companies, and furthers energy development through greater cooperation and enhanced regulatory and transparency measures.

The Department will continue strong collaboration with the United States and Mexico in the context of the deeply integrated North American energy market. This includes working to preserve the security, reliability and sustainability of the North American Energy system. NRCan will continue to collaborate with the United States and Mexico to facilitate the development of more secure and resilient cross-border infrastructure, including a strong focus on enhancing the cybersecurity of critical energy infrastructure in support of the new **National Cybersecurity Strategy**,^{xxxix} launched in 2018.

In 2019-20, NRCan will advance its bilateral and multilateral engagements with international institutions and organizations by building on the momentum from Canada’s G7 presidency in 2018. Canada’s Natural Resources Minister will provide global leadership on action to support a clean energy future as Chair of the **Clean Energy Ministerial (CEM) and Mission Innovation (MI)**^{xii} to be hosted in Vancouver in May 2019. This event provides a unique opportunity for Canada to demonstrate its clean

energy leadership along with its international partners, in taking tangible steps to advance our shared priorities of clean growth and energy access. In Vancouver, Canada will seek solutions to closing the global clean energy infrastructure investment gap and promote measures to ensure the development of quality and resilient infrastructure. Canada will ensure that its domestic energy advantage and its energy vision are also properly reflected in other multilateral fora, including under Japan’s G20 presidency, France’s G7 presidency and the biennial Ministerial Meeting of the [International Energy Agency](#).^{lxix}

NRCan will continue working with stakeholders across the country to ensure Canada’s natural resources remain a source of jobs and prosperity for all Canadians. This includes working with the [Resources of the Future](#)^{lxx} and [Clean Technology Economic Strategy Tables](#),^{lxxi} which are looking at opportunities to improve competitiveness and unlock future growth, as well as with the Joint Industry-Government Working Group to address oil and gas industry competitiveness concerns.

Ensuring that Canadians are engaged in the future of the new and inclusive resource economy

As outlined in the Minister’s Mandate Letter, NRCan will advance efforts to introduce better rules for the review of major projects including replacing the [National Energy Board](#)^{iv} with the proposed [Canadian Energy Regulator](#).^v Also within [Bill C-69](#),ⁱⁱⁱ the [Impact Assessment Act](#)^{vi}, proposes to provide better rules so that Canadians, companies and investors can be confident that good projects will be built while protecting the environment, respecting Indigenous rights, creating jobs and growing the economy. The Department will work with other federal departments to develop the regulatory framework and the science required for the implementation of the new impact assessment regime.

NRCan will continue to support the partnership work of the Indigenous Advisory and Monitoring Committees for the [Line 3 Replacement](#)^{lxxii} and [Trans Mountain Expansion project](#)^{lxxiii} in order to facilitate meaningful Indigenous involvement in the review and monitoring of the environmental, safety and socio-economic issues related to the projects over their lifecycles.

Supporting gender diversity in the energy sector: The Clean Energy, Education, and Empowerment (C3E) Initiative

The successful movement towards a clean energy future depends on our ability to harness talent and ideas from all members of society. Through the **Clean Energy, Education, and Empowerment (C3E) Initiative**, NRCan with its international partners, is working to **enable greater gender diversity in clean energy professions**. This includes attracting more women to clean energy careers, supporting women’s advancement into leadership positions, providing role models and advocates for women in clean energy, and connecting women to share ideas and information. In 2019-20, Canada will launch the inaugural C3E Awards Program to recognize outstanding women in the sector, as well as release an updated gender-data benchmarking pamphlet.

In 2019-20, NRCan will continue to work with federal, provincial, territorial and Indigenous partners to deliver a co-developed **Arctic and Northern Policy Framework (ANPF)**. The Framework will set the policy direction and align key initiatives across departments to support a North that is self-reliant, vibrant and sustainable - with a time horizon of 2030. Natural resources development, particularly mining, is a key economic driver in the North. However, the mineral potential in the North remains largely untapped due to challenges such as a lack of infrastructure and limits to geological knowledge, access to skilled workers and affordable energy sources. Through the **ANPF**, NRCan will work with partners to examine ways to address these critical needs. NRCan will also support Crown-Indigenous Relations and Northern Affairs Canada in negotiating a Beaufort Sea oil and gas co-management and revenue-sharing agreement with the governments of the Northwest Territories and Yukon and the Inuvialuit Regional Corporation.

Building healthy and resilient communities in the North: the Arctic and Northern Policy Framework

The **ANPF** is a key horizontal priority for NRCan. It will become the primary vehicle for the Government of Canada to address the needs of the North. The framework aims to provide the foundations to build healthier and resilient communities in the North, generating jobs and wealth, including in the natural resource sector. Currently, there is a significant lack of infrastructure, a shortage of skilled workers, inadequate science and knowledge, and limited affordable energy sources. The Framework will aim to tackle these issues so that citizens of the North and Arctic have the opportunities to be self-reliant.

In addition to its work through the **Clean Energy, Education and Empowerment (C3E) Initiative**,^{lxxiii} NRCan will exercise leadership on the **Equal by 30 campaign**^{lxxiv} - a public commitment by public and private sector organizations to work towards equal pay, equal leadership and equal opportunities for women in the clean energy sector by 2030.

NRCan is enhancing the competitiveness of Canada’s natural resource sectors

NRCan will continue its engagement with other federal departments, provincial counterparts, industry and other stakeholders to identify challenges facing the energy sector and possible levers available to governments to address these challenges. This work will include following up on the **Joint Working Group on a Future Vision for Canada’s Upstream Oil and Gas Sector**^{lxxv} and working in the context of the Energy and Mines Ministers’ Conference on how to create an enabling environment to advance energy projects related to oil, gas and value-added products in Canada. Additionally,

NRCan will continue to monitor **Canadian crude oil prices** and work with the **National Energy Board**^{iv} to find ways to further optimize oil pipeline capacity out of Western Canada in both the short and long term.

To help establish Canada as a world leader in sustainable and responsible mineral development and lay the foundation for lasting success at home and abroad, the Department has released the **Canadian Minerals and Metals Plan (CMMP)**^{vii} - in collaboration with provinces and territories. Ministers will develop the first of a series of CMMP Action Plans in 2020. The Action Plans will focus on ensuring the mining

industry remains a significant contributor to prosperity for Canadians – providing jobs, supporting communities, fostering innovation and adoption of clean technologies, establishing a strong Canada brand and attracting investment. In addition, in line with the CMMP objective to develop export opportunities for the mining sector, NRCan will support Government of Canada’s efforts in facilitating **access to new markets for mining services and suppliers**, including those specializing in **electrification, renewable energy and clean technology**. This will include participation in mining trade shows and missions abroad, including China (**China Mining**^{lxxvi}), Africa (**Mining Indaba**^{lxxvii}) and the Americas (**Expomin**^{lxxviii}).

In 2019-20, NRCan will continue to work with other government departments, offshore boards, provinces and industry to deliver resource assessments for Marine Conservation Targets to locate areas of greatest offshore mineral and energy potential. The Department will enable industry to become more innovative and competitive in their search for deep mineral deposits, particularly around mining-dependent communities through the Targeted Geoscience Initiative. The **GEM Program**^{xxxix} will bring geoscience knowledge of the North up to the standards needed for companies to make better exploration investment decisions and for northern communities to make appropriate land-use decisions.

The Department will defend Canadians, communities, workers and industry from labour disputes through implementation of the **Softwood Lumber Action Plan (SLAP)**^{viii}. These efforts will enhance knowledge of Canadian wood products; promote Canada’s environmental performance to address market access and regulatory issues that could limit trade; and promote the use of Canadian wood in non-traditional construction. As a

NRCan is investing in the next generation of scientists in support of the competitiveness of the natural resource sectors

Since 1997, NRCan has contributed to the Youth Employment Strategy through the Science and Technology Internship Program (Green Jobs), which supports the integration of youth into Science, Technology, Engineering and Math (STEM) fields in the natural resource sectors. Budget 2017 provided \$16.4 million over two years to deliver 1,200 of these internships to contribute to the development and promotion of Canadian scientific and technological capabilities, and ensure that Canada has the skilled labour force required to maintain competitive natural resource sectors.

feature of Canada’s SLAP, NRCan will continue to actively encourage and support Indigenous participation in the forest economy, delivering \$13 million over 3 years (2017-20) through the **Indigenous Forestry Initiative (IFI)**.^{xxxiii}

The IFI supports Indigenous-led economic development in areas such as clean technology and participation in Canada’s emerging bioeconomy; access and use of forest resources; and economic opportunities from environmental stewardship. NRCan will continue to encourage Indigenous participation in the forest economy, by engaging Indigenous groups and communities, facilitating the development of forestry projects and partnerships and investing in Indigenous-led economic development.

In addition, the Department will provide financial support to the design, development and construction of at least one offshore wood building demonstration project that will **showcase Canadian wood and wood construction techniques** that are novel to that market. NRCan will provide funding to the **Canadian Wood Council (CWC)**^{lxxix} and **Woodworks/Cecobois**^{lxxx} programs to promote and increase the use of wood in non-traditional building construction within Canada, influencing over two hundred and fifty projects to use wood over traditional building materials. The Department will also support the CWC in establishing a set of low-rise commercial wood building technical guides and tools to increase the uptake of wood-based structures in that market segment.

Departmental Risk

NRCan has identified a number of risks under this Core Responsibility, including the changing trade context and market access for the natural resource and clean technology sectors, maintaining public confidence and engagement, including of Indigenous peoples, in natural resources development and keeping ahead of the rapid pace of science and technological innovation.

NRCan will continue to manage these risks through the development, implementation and monitoring of mitigation strategies, including:

- Supporting legislative actions, including enhancements to tax measures that promote clean technologies, to establish Canada as an attractive economy for investment in the global market;
- Supporting the diversification of Canada’s market for natural resources, which includes strategies on addressing trade barriers and infrastructure capacity; and,
- Continuing work to restore public trust in regulatory processes and environmental assessments of natural resources development.

Planned results

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017-18 Actual Results
Access to new and priority markets for Canada's natural resources is enhanced	Canada's share of U.S. and global imports of natural resources	Canada's market share in the U.S. = At least 24.4% of total U.S. imports (in value) Canada's market share in the World (non-U.S.) = At least 1.2% of the total World imports (in value)	December 2019	25.1% (U.S.) 1.3% (global imports)	23.8% (U.S.) 1.4% (global imports)	25.2% (U.S.) 1.4% (global imports)
	Number of Canadian-owned resource companies operating abroad	At least 800	December 2019	904	839	895
	Number of NRCan international engagements that support the development or expansion of trade and investment in natural resources	At least 26	March 2020	Not Available ⁴	Not Available ⁴	27
	Average number of companies, provinces/territories and Indigenous leaders participating in trade and promotion missions	Companies: At least 10 Provinces and Territories: At least 2 Indigenous Communities: At least 1	March 2020	Not Available ⁴	Not Available ⁴	Companies: 6.67 Provinces and Territories: 0.33 Indigenous Communities: 0.22

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017-18 Actual Results
Canadians are engaged in the future of the new and inclusive resource economy	Percentage of policy, regulatory and legislative changes with formal mechanisms for broad public engagement	At least 50%	March 2020	Not Available ⁴	Not Available ⁴	77%
	Number of joint analytical products with provinces and territories	At least 8	March 2020	6	11	10
	Number of Indigenous groups and communities implicated in economic development projects	At least 15	March 2020	Not Available ⁴	Not Available ⁴	Not Available ⁴
Enhanced competitiveness of Canada's natural resource sectors	Percentage of resource development project decisions on target as per timelines	100%	March 2020	100%	100%	100%
	Number of times NRCan's economic and investment data are accessed	At least 150,000 quarterly average	March 2020	34,746	31,247	133,147 ¹⁶

¹⁶ Since the 2018-19 Departmental Plan, NRCan has revised the methodology to more accurately count access to NRCan's economic and investment data rather than to landing pages for this data. The 2017-18 results reflect the change in methodology.

Budgetary financial resources (dollars)

2019-20 Main Estimates	2019-20 Planned spending	2020-21 Planned spending	2021-22 Planned spending
\$572,418,934	\$572,418,934	\$479,831,299	\$573,785,697

Human resources (full-time equivalents)

2019-20 Planned full-time equivalents	2020-21 Planned full-time equivalents	2021-22 Planned full-time equivalents
385	281	280

Internal Services

Description

Internal Services are those groups of related activities and resources that the federal government considers to be services in support of programs and/or required to meet corporate obligations of an organization. Internal Services refers to the activities and resources of the 10 distinct service categories that support Program delivery in the organization, regardless of the Internal Services delivery model in a department. The 10 service categories are: Management and Oversight Services; Communications Services; Legal Services; Human Resources Management Services; Financial Management Services; Information Management Services; Information Technology Services; Real Property Services; Materiel Services; and Acquisition Services.

Planning highlights

In the coming year, NRCan’s Internal Services will continue to support the Department in advancing the Minister’s Mandate Letter commitments and Government of Canada priorities. By providing corporate support, NRCan’s Internal Services will ensure that NRCan programs are equipped with the tools required to deliver results to Canadians.

Supporting science

NRCan is committed to the integrity of the research and science conducted in the Department. A **Scientific Integrity Policy**^{xxxvi} was adopted in December 2018 that sets out the overarching principles for the design, conduct, review, management, communication and use of research, science and science-related activities in the Department. The Plan will be implemented, starting in 2019-20, using a phased approach.

The Department will also continue to make its science more accessible, open and transparent for Canadians. In support of Canada’s commitments under the **4th National Action Plan on Open Government**, NRCan will develop an Open Science Roadmap to provide a plan for greater openness in its science and research activities. Cognizant that Canadians rely on NRCan science to inform decision-making in government, industry and public fora, the Department will increase engagement with Canadians to support enhanced dialogue and interaction between knowledge generators and knowledge users.



The photo reflects water sample collection and analysis at a mining site

Emergency Management and Cybersecurity

NRCan supports the **Government of Canada’s national security and emergency management agenda** by providing scientific advice and leadership. In 2019-20, NRCan will continue to provide strategic advice and operational support during emergencies. NRCan will design sustainable processes to protect our assets by mitigating cyber risks through strengthening our IT security governance and building on the multi-year **Cyber Security Action Plan**.

Open and Accountable Government

NRCan is leading a digital-first approach to communications with Canadians, a strategy which extends to the Department’s approach to open and accountable government. By favouring the release of content into new media channels like Twitter and YouTube, while maintaining connections to traditional media, NRCan is making information more accessible and transparent for Canadians.

For example, NRCan’s digital magazine, **Simply Science’s**^{lxxxii} ultimate goal is to position our scientists and experts in all of Canada’s regions front and centre, providing them with a platform to share their work with a broad audience in a dynamic way, using a variety of formats including articles, videos and podcasts

Through a **Federal Geospatial Platform initiative**,^{xlv} **Open Maps**^{lxxxiii} provides all Canadians with access and use of the Government of Canada’s geospatial data, services and applications. These can be used to support research, application development, data visualization and collaboration with other Canadians. In support of the Government of Canada’s commitments under the **4th Biennial Open Government Partnership Action Plan (2018-20)**,^{lxxxiii} NRCan will develop an **Open Science Roadmap** to provide a plan for greater openness in its science and research activities. Canadians rely on NRCan science to inform decision-making in government, industry and public fora. To better understand how Canadians use the science and data produced by NRCan, we will continue to develop indicators to measure the benefits of our science and to measure progress in making our science and data more accessible.

Workforce and Workplace

Our dynamic workforce drives NRCan’s delivery of results to Canadians. In 2019-20, NRCan will continue to foster a healthy and inclusive workplace for our employees. In the coming year, the Department will launch the 2019-22 Official Languages Action Plan, introduce a LGBTQ2+ network and strengthen our Indigenous recruitment strategy.

The Department is also developing experimental evaluations of various approaches to recruitment, screening, performance management and retention of staff to ensure NRCan continues to recruit and retain the first-class employees to advance our priorities. In addition, the Department will advance corporate change in support of reconciliation by providing training and awareness for employees and investing in targeted activities to help us become an employer of choice for Indigenous peoples.

Building a more diverse workplace

In 2019-20, NRCan will open the **Indigenous Centre for Learning and Dialogue** in Ottawa. This new centre will serve as a departmental forum for Indigenous employees to advance Indigenous interests within the Department, to share information, and to support awareness activities that promote Indigenous cultures and values within NRCan. NRCan strives to create ample opportunities to support women and other **employment equity** groups in hiring and career development. The Department is working to identify gaps in the programs that we operate to ensure that we are promoting women in all fields, in order to increase diversity in traditionally male dominated natural resource fields. The Department has also a new champion role for women in the natural resource sectors at NRCan and has appointed two **Women’s Champions**. In 2019-20, our champions will develop a Women in Natural Resources framework to guide the Department’s efforts to mainstream gender equality in forestry, mining and energy sectors.

Budgetary financial resources (dollars)

2019-20 Main Estimates	2019-20 Planned spending	2020-21 Planned spending	2021-22 Planned spending
\$122,871,508	\$122,871,508	\$119,183,842	\$118,897,557

Human resources (full-time equivalents)

2019-20 Planned full-time equivalents	2020-21 Planned full-time equivalents	2021-22 Planned full-time equivalents
1,038	1,028	1,027

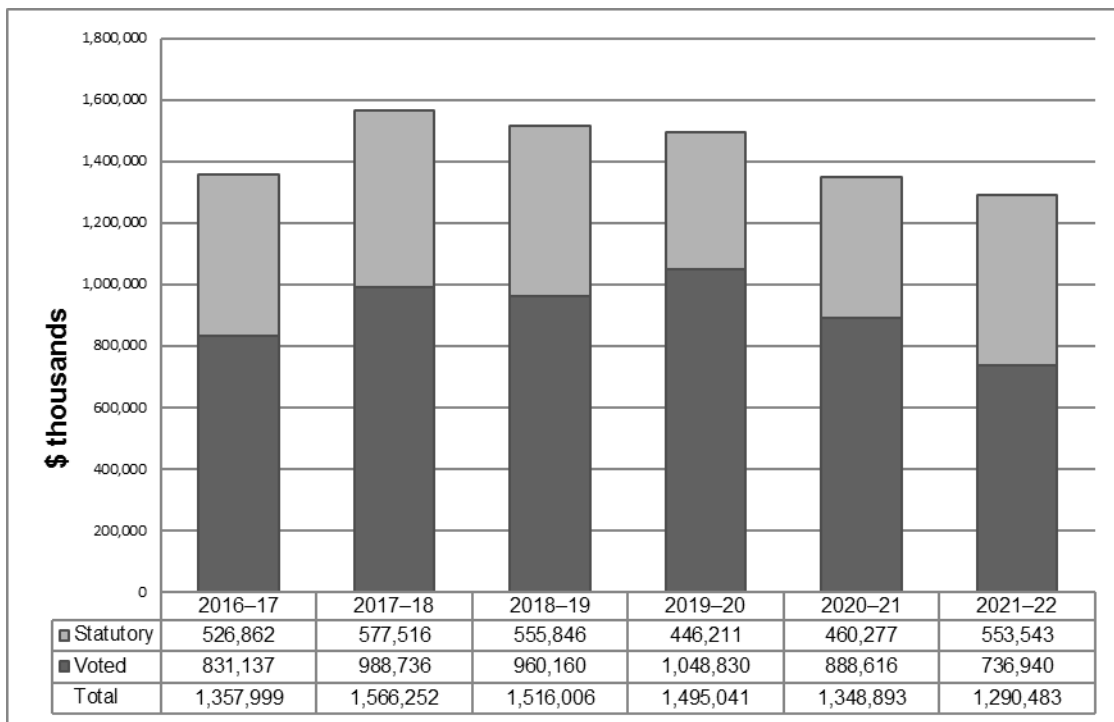
Financial, human resources and performance information for NRCan’s Program Inventory is available in the [GC InfoBase](#).^{lxxxiv}



Spending and human resources

Planned spending

Departmental spending trend graph



Budgetary planning summary for Core Responsibilities and Internal Services (dollars)

Core Responsibilities and Internal Services	2016–17 Expenditures	2017-18 Expenditures	2018–19 Forecast spending	2019-20 Main Estimates	2019-20 Planned spending	2020-21 Planned spending	2021-22 Planned spending
Natural Resources Science and Risk Mitigation	\$205,782,987	\$189,693,261	\$206,951,967	\$205,570,026	\$205,570,026	\$193,598,174	\$192,584,248
Innovative Solutions and Sustainable Natural Resource Development	\$396,734,230	\$548,425,192	\$497,189,154	\$594,180,420	\$594,180,420	\$556,279,817	\$405,215,689
Globally Competitive Natural Resource Sectors	\$629,574,353	\$685,107,560	\$656,662,341	\$572,418,934	\$572,418,934	\$479,831,299	\$573,785,697
Subtotal	\$1,232,091,570	\$1,423,226,013	\$1,360,803,462	\$1,372,169,380	\$1,372,169,380	\$1,229,709,290	\$1,171,585,634
Internal Services	\$125,907,344	\$143,026,202	\$155,202,517	\$122,871,508	\$122,871,508	\$119,183,842	\$118,897,557
Total	\$1,357,998,914	\$1,566,252,215	\$1,516,005,979	\$1,495,040,888	\$1,495,040,888	\$1,348,893,132	\$1,290,483,191

For 2016-17 and 2017-18, the figures represent the actual expenditures as reported in the Public Accounts of Canada, while those of 2018-19 represent the forecasted expenditures to year end. For 2019-20 to 2021-22, the figures represent total planned spending, reflecting funding approved to support NRCan program activities.

From 2016-17 to 2017-18, overall NRCan expenditures increased mainly due to a reassessment of royalties paid from prior years related to the Statutory Atlantic Offshore accords resulting in a one-time payment to the province of Nova Scotia, wage increases and retroactive payments, as well as new or incremental spending pertaining to the Green Municipal Fund, Oil & Gas Clean Technology, Energy Innovation Program and Electric Vehicle Infrastructure Demonstration program and an up-front multi-year endowment to the Federation of Canadian Municipalities for the Green Municipal Fund. These increases are partially offset by reduced spending in Federal Infrastructure Initiative as the program is winding down.

From 2017-18 to 2018-19, NRCan is forecasting a slight decrease in spending mainly as a result of the sunseting of the Oil & Gas Clean Technology program, as well as reduced spending in the Investments in Forest Industry Transformation program, Federal Infrastructure Initiative and Statutory Atlantic Offshore accords; further, there was no payment in 2018-19 to the Green Municipal Fund. The reductions were mainly offset by increased spending in the Green Infrastructure envelope, the Advancing Clean Technology - Clean Growth program, Indigenous Advisory and Monitoring Committees for Energy Infrastructure Projects and the Spruce Budworm Early Intervention Strategy.

The slight decrease between 2018-19 forecasted spending and 2019-20 planned spending is mainly due to a decrease in Statutory Atlantic Offshore payments and reduced spending for the ecoENERGY for Renewable Power program as it nears completion.

Planned spending in Voted authorities from 2019-20 to 2021-22 is declining, mainly as a result of reduced funding profiles for major initiatives and sunseting programs. Sunseting programs could be renewed pending the priorities of government. Outcomes of such decisions will be reflected in the Department's future budget exercises and Estimates documents. The following major initiatives will be sunseting over the next two years:

Sunseting on March 31, 2020 and potentially up for renewal:

- Softwood Lumber Action Plan envelope; and,
- Geo-mapping for Energy and Minerals initiative.

Sunseting on March 31, 2021 and potentially up for renewal:

- ecoENERGY for Renewable Power program;
- Impact Canada initiative; and,
- Advancing Clean Technology – Clean Growth Program.

Planned spending in Statutory authorities is increasing from 2019-20 to 2021-22, mainly as a result of the Atlantic Offshore Accounts. Statutory payment obligations under these accords are largely driven by oil and gas prices, production levels and anticipated corporate income taxes related to offshore operations. The planned spending is based on the Department's economic modeling forecasts prepared in the fall of 2018.

Planned human resources

Human resources planning summary for Core Responsibilities and Internal Services (full-time equivalents)

Core Responsibilities and Internal Services	2016–17 Actual full-time equivalents	2017-18 Actual full-time equivalents	2018–19 Forecast full-time equivalents	2019-20 Planned full-time equivalents	2020–21 Planned full-time equivalents	2021–22 Planned full-time equivalents
Natural Resources Science and Risk Mitigation	1,208	1,138	1,202	1,240	1,185	1,169
Innovative Solutions and Sustainable Natural Resource Development	1,447	1,524	1,600	1,590	1,546	1,518
Globally Competitive Natural Resource Sectors	335	390	384	385	281	280
Subtotal	2,990	3,052	3,186	3,215	3,012	2,967
Internal Services	906	928	992	1,038	1,028	1,027
Total	3,896	3,980	4,178	4,253	4,040	3,994

For 2016-17 and 2017-18, the figures represent the FTEs as reported in the Departmental Results Report while 2018-19 represents the forecasted FTEs to year end. For 2019-20 to 2021-22, the figures represent total Planned FTEs to support NRCan program activities, approved by Treasury Board. NRCan's total FTE count remains relatively steady from 2016-17 to 2017-18.

The decrease between 2018-19 Forecasted FTEs and 2021-22 Planned FTEs is mainly attributed to the sunsetting of major initiatives, which were explained in the Budgetary Planning Summary Section. As new initiatives are undertaken, plans for future FTE requirements will be adjusted accordingly.

Estimates by vote

For information on NRCan's organizational appropriations, consult the 2019-20 Main Estimates.^{lxxxv}

Consolidated Future-Oriented Condensed Statement of Operations

The Consolidated Future-Oriented Condensed Statement of Operations provides a general overview of NRCan’s operations. The forecast of financial information on expenses and revenues is prepared on an accrual accounting basis to strengthen accountability and to improve transparency and financial management. The forecast and planned spending amounts presented in other sections of the Departmental Plan are prepared on an expenditure basis; as a result, amounts may differ.

A more detailed Consolidated Future-Oriented Statement of Operations and associated notes, including a reconciliation of the net cost of operations to the requested authorities, are available on the [NRCan website](#).^{lxxxvi}

Consolidated Future-Oriented Condensed Statement of Operations for the year ending March 31, 2020 (dollars)

Financial Information	2018-19 Forecast results	2019-20 Planned results	Difference (2019-20 Planned results minus 2018- 19 Forecast results)
Total expenses	1,587,029,720	1,582,820,706	(4,209,014)
Total net revenues	28,639,885	38,277,417	9,637,532
Net cost of operations before government funding and transfers	1,558,389,835	1,544,543,289	(13,846,546)

The decrease of \$4.2 million in total expenses between years is mainly explained by:

- A \$93 million increase in Innovative and Sustainable Natural Resources Development mainly related to an increase of \$128 million due to a reprofile of funding for various initiatives such as for the Green Infrastructure envelope (\$52 million), for Advancing Clean Technology – Clean Growth (\$42 million), for the Impact Canada Initiative (\$24 million) and for the Clean-up of the Gunnar uranium mining facilities (\$9.7 million). Offset by a decrease in the planned funding for ecoENERGY for Renewable Power (\$30 million);
- An \$84 million decrease in Globally Competitive Natural Resource Sectors mainly due to a decrease in the Statutory Atlantic Offshore Accounts and the related transfers to provinces due to anticipated larger royalties as a result of production and oil prices as well as known forfeitures in 2018-19. Offset by an increase mainly due to a reprofile of funding for Investments in Forest Industry Transformation (\$21 million); and

- A \$14.4 million decrease in Internal Services mainly due to the sunsetting of the Federal Infrastructure Initiative.

The increase of \$9.6 million in total net revenues is mainly due to an estimated increase in Vote Netted Revenue in 2019-20.

The charts presenting the distribution of Natural Resources Canada's total forecast expenses for 2018-19 and planned expenses for 2019-20 by Core Responsibility on an accrual basis are available on the [NRCan website](#).^{lxxxvi}

NRCan's Consolidated Future-Oriented Statement of Operations is available on the [NRCan website](#).^{lxxxvi}



Additional information

Corporate information

Organizational profile

Appropriate minister: The Honourable Amarjeet Sohi, P.C., M.P.

Institutional head: Christyne Tremblay

Ministerial portfolio

- [Atomic Energy of Canada Limited](#)^{lxxxvii},
- [National Energy Board](#),^{iv}
- [Canadian Nuclear Safety Commission](#)^{lxxxviii},
- [Canada-Newfoundland and Labrador Offshore Petroleum Board](#)^{lxxxix},
- [Canada-Nova Scotia Offshore Petroleum Board](#)^{xc};
- [Northern Pipeline Agency](#)^{xc}; and
- Energy Supplies Allocation Board (inactive).

Enabling instruments

- [Department of Natural Resources Act](#)^{xcii}, S.C. 1994, c. 41
- [Forestry Act](#)^{xciii}, R.S.C., 1985, c. F-30
- [Resources and Technical Surveys Act](#)^{xciv}, R.S.C., 1985, c. R-7
- [Energy Efficiency Act](#)^{xcv}, S.C. 1992, c. 36
- [Extractive Sector Transparency Measure Act](#)^{xcvi}, S.C. 2014, s.376
- [Explosives Act](#)^{xcvii}, R.S.C., 1985, c. E-17

Year of incorporation/commencement: 1994


Raison d’être, mandate and role

“Raison d’être, mandate and role: who we are and what we do” is available on [NRCan’s website](#)^{xcviii}.

Reporting framework

NRCan’s Departmental Results Framework and Program Inventory of record for 2019-20 are shown below:

Natural Resources Canada’s Departmental Results Framework

NRCan CORE RESPONSIBILITIES		
<p>Natural Resource Science and Risk Mitigation</p>  <p>Lead foundational science and share expertise for managing Canada’s natural resources, reducing the impacts of climate change and mitigating risks from natural disasters and explosives.</p>	<p>Innovative and Sustainable Natural Resources Development</p>  <p>Lead the transformation to a low-carbon economy by improving the environmental performance of Canada’s natural resource sectors through innovation and sustainable development and use.</p>	<p>Globally Competitive Natural Resource Sectors</p>  <p>Advance and promote market access, inclusiveness and competitiveness for Canada’s natural resource sectors, in support of jobs and economic growth.*</p>
DEPARTMENTAL RESULTS AND INDICATORS		
<p>Canadians have access to cutting-edge research to inform decisions on the management of natural resources</p> <ul style="list-style-type: none"> ❖ Number of times scientific products related to natural resources are accessed by Canadians ❖ Percentage of environmental assessment processes for which NRCan provided scientific and technical expertise ❖ Number of times stakeholders acknowledge using NRCan’s scientific and technical products in making their decisions ❖ Number of training and development initiatives that enable NRCan to incorporate Indigenous traditional knowledge in conjunction with NRCan science ❖ Quality index of geographic and locational data on Canada’s land resources, water and infrastructure <p>Communities and officials have the tools to safeguard Canadians from natural hazards and explosives</p> <ul style="list-style-type: none"> ❖ Percentage of hazardous natural events within Canada for which a notification was issued in a timely manner ❖ Number of enhanced wild fire monitoring tools using remotely sensed information ❖ Percentage of inspections of explosives rated safe <p>Communities and Industries are adapting to climate change</p> <ul style="list-style-type: none"> ❖ Percentage of Canadian communities and industries that have taken steps to adapt to climate change ❖ Number of times NRCan products and expertise on adaptation are accessed by communities and industry 	<p>Natural resource sectors are innovative</p> <ul style="list-style-type: none"> ❖ Percentage of NRCan-funded innovation projects that result in new intellectual property, standards or regulations ❖ Percentage of NRCan-funded clean energy innovation projects advancing along the innovation scale ❖ Number of NRCan-funded green mining technologies, including waste and water management, proven through demonstrations ❖ Number of new forestry products developed that are informed by NRCan tools and knowledge <p>Clean technologies and energy efficiencies enhance economic performance</p> <ul style="list-style-type: none"> ❖ Success of NRCan-funded clean technology demonstrations in terms of economic performance ❖ Ratio of leveraged investments in energy innovation projects funded by NRCan ❖ Total annual energy savings resulting from adoption of energy efficiency codes, standards and practices <p>Canada’s natural resources are sustainable</p> <ul style="list-style-type: none"> ❖ Percentage of Canadian electricity generated from non-GHG emitting sources ❖ Number of renewable energy projects in remote communities and off-grid industrial operations ❖ Amount of wood harvested compared to the sustainable supply ❖ Change in greenhouse gas emissions resulting from NRCan-funded clean technology demonstrations ❖ Number of low-carbon recharging and refueling stations under development or completed ❖ Number of policies and initiatives developed collaboratively with Indigenous groups and communities 	<p>Access to new and priority markets for Canada’s natural resources is enhanced</p> <ul style="list-style-type: none"> ❖ Canada’s share of U.S. and global imports of natural resources ❖ Number of Canadian-owned resource companies operating abroad ❖ Number of NRCan international engagements that support the development or expansion of trade and investment in natural resources ❖ Average number of companies, provinces/territories and Indigenous leaders participating in trade and promotion missions <p>Canadians are engaged in the future of the new and inclusive resource economy</p> <ul style="list-style-type: none"> ❖ Percentage of policy, regulatory and legislative changes with formal mechanisms for broad public engagement ❖ Number of joint analytical products with provinces and territories ❖ Number of Indigenous groups and communities implicated in economic development projects <p>Enhanced competitiveness of Canada’s natural resource sectors</p> <ul style="list-style-type: none"> ❖ Percentage of resource development project decisions on target as per timelines ❖ Number of times NRCan’s economic and investment data are accessed
PROGRAM INVENTORY		
<ul style="list-style-type: none"> Canadian Geodetic Survey: Spatially Enabling Canada Geological Knowledge for Canada’s Onshore and Offshore Land Core Geospatial Data Canada-US International Boundary Treaty Canada Lands Survey System Geoscience for Sustainable Development of Natural Resources Pest Risk Management Forest Climate Change Climate Change Adaptation Explosives Safety and Security Geoscience to Keep Canada Safe Wildfire Risk Management Polar Continental Shelf program 	<ul style="list-style-type: none"> Clean Energy Technology Policy, Research and Engagement Clean Growth in Natural Resource Sectors Energy Innovation Program Green Mining Innovation Fibre Solutions Sustainable Forest Management Cumulative Effects Lower Carbon Transportation Electricity Resources Energy Efficiency Energy and Climate Change Policy Innovative Geospatial Solutions 	<ul style="list-style-type: none"> Forest Sector Competitiveness Provision of Federal Leadership in the Minerals and Metals Sector Energy Safety and Security, and Petroleum Resources International Energy Engagement Statutory Offshore Payments Natural Resources Canada’s Indigenous Partnerships Office – West Major Projects Management Office Initiative Science and Technology Internship Program <p>* Also includes statutory payments for offshore petroleum.</p>

Supporting information on the Program Inventory

Supporting information on planned expenditures, human resources and results related to NRCan's Program Inventory is available in the [GC InfoBase](#).^{xcix}

Supplementary information tables

The following supplementary information tables are available on [NRCan's website](#)^c

- ▶ Departmental Sustainable Development Strategy
- ▶ Details on transfer payment programs of \$5 million or more
- ▶ Disclosure of transfer payment programs under \$5 million
- ▶ Gender-based analysis plus
- ▶ Horizontal initiatives
- ▶ Up-front multi-year funding

Federal tax expenditures

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance Canada publishes cost estimates and projections for these measures each year in the Report on Federal Tax Expenditures.^{ci} This report also provides detailed background information on tax expenditures, including descriptions, objectives, historical information and references to related federal spending programs. The tax measures presented in this report are the responsibility of the Minister of Finance.

Organizational contact information

Natural Resources Canada
580 Booth Street
Ottawa, Ontario
K1A 0E4
Canada

Appendix: definitions

appropriation (crédit)

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures (dépenses budgétaires)

Operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

Core Responsibility (responsabilité essentielle)

An enduring function or role performed by a department. The intentions of the department with respect to a Core Responsibility are reflected in one or more related Departmental Results that the department seeks to contribute to or influence.

Departmental Plan (plan ministériel)

A report on the plans and expected performance of an appropriated department over a three-year period. Departmental Plans are tabled in Parliament each spring.

Departmental Result (résultat ministériel)

Any change or changes that the department seeks to influence. A Departmental Result is often outside departments' immediate control, but it should be influenced by Program-level outcomes.

Departmental Result Indicator (indicateur de résultat ministériel)

A factor or variable that provides a valid and reliable means to measure or describe progress on a Departmental Result.

Departmental Results Framework (cadre ministériel des résultats)

The department's Core Responsibilities, Departmental Results and Departmental Result Indicators.

Departmental Results Report (rapport sur les résultats ministériels)

A report on the actual accomplishments against the plans, priorities and expected results set out in the corresponding Departmental Plan.

evaluation (évaluation)

In the Government of Canada, the systematic and neutral collection and analysis of evidence to judge merit, worth or value. Evaluation informs decision making, improvements, innovation and accountability. Evaluations typically focus on programs, policies and priorities and examine questions related to relevance, effectiveness and efficiency. Depending on user needs, however,

evaluations can also examine other units, themes and issues, including alternatives to existing interventions. Evaluations generally employ social science research methods.

experimentation (expérimentation)

Activities that seek to explore, test and compare the effects and impacts of policies, interventions and approaches, to inform evidence-based decision-making, by learning what works and what does not.

full-time equivalent (équivalent temps plein)

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

gender-based analysis plus (GBA+) (analyse comparative entre les sexes plus [ACS+])

An analytical process used to help identify the potential impacts of policies, Programs and services on diverse groups of women, men and gender-diverse people. The “plus” acknowledges that GBA goes beyond sex and gender differences. We all have multiple identity factors that intersect to make us who we are; GBA+ considers many other identity factors, such as race, ethnicity, religion, age, and mental or physical disability.

government-wide priorities (priorités pangouvernementales)

For the purpose of the 2019–20 Departmental Plan, government-wide priorities refers to those high-level themes outlining the government’s agenda in the 2015 Speech from the Throne, namely: Growth for the Middle Class; Open and Transparent Government; A Clean Environment and a Strong Economy; Diversity is Canada's Strength; and Security and Opportunity.

horizontal initiative (initiative horizontale)

An initiative in which two or more federal organizations, through an approved funding agreement, work toward achieving clearly defined shared outcomes, and which has been designated (by Cabinet, a central agency, etc.) as a horizontal initiative for managing and reporting purposes.

non-budgetary expenditures (dépenses non budgétaires)

Net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance (rendement)

What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve, and how well lessons learned have been identified.

performance indicator (indicateur de rendement)

A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, Program, policy or initiative respecting expected results.

Performance Information Profile (profil de l'information sur le rendement)

The document that identifies the performance information for each Program from the Program Inventory.

performance reporting (production de rapports sur le rendement)

The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

plan (plan)

The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead up to the expected result.

planned spending (dépenses prévues)

For Departmental Plans and Departmental Results Reports, planned spending refers to those amounts presented in the Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their Departmental Plans and Departmental Results Reports.

priority (priorité)

A plan or project that an organization has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired Departmental Results.

Program (programme)

Individual or groups of services, activities or combinations thereof that are managed together within the department and focus on a specific set of outputs, outcomes or service levels.

Program Inventory (répertoire des programmes)

Identifies all of the department's programs and describes how resources are organized to contribute to the department's Core Responsibilities and Results.

result (résultat)

An external consequence attributed, in part, to an organization, policy, Program or initiative. Results are not within the control of a single organization, policy, Program or initiative; instead they are within the area of the organization's influence.

statutory expenditures (dépenses législatives)

Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

sunset program (programme temporisé)

A time-limited program that does not have an ongoing funding and policy authority. When the program is set to expire, a decision must be made whether to continue the program. In the case of a renewal, the decision specifies the scope, funding level and duration.

target (cible)

A measurable performance or success level that an organization, Program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

voted expenditures (dépenses votées)

Expenditures that Parliament approves annually through an Appropriation Act. The Vote wording becomes the governing conditions under which these expenditures may be made.

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