National Research Council Canada 2024-25 Departmental plan

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From the Minister

The Honourable François-Philippe Champagne
Minister of Innovation, Science and Industry

It is our pleasure to present the 2024–25 Departmental Plan for the National Research Council of Canada (NRC), which lays out the key priorities the NRC is working to advance for the benefit of all Canadians.

In 2024–25, the NRC will continue working with the Innovation, Science and Economic Development Portfolio and other federal partners to bolster Canadian innovation by fostering competitive, sustainable and inclusive economic growth.

In this first year of the NRC's new 2024-29 strategic plan, the NRC will focus its scientific and technical expertise on areas of critical importance to Canada. The NRC will develop new technologies for climate change adaptation and decarbonization, contribute unique facilities to increase Canada's health and biomanufacturing capacity, and help realize the potential of digital and quantum technologies. While focusing on the challenges facing us today, the NRC will also maintain its longstanding roles for the Canadian research and innovation ecosystem, including providing Canadian astronomers with access to world-class observatories and supporting business through the National Research Council Industrial Research Assistance Program (NRC IRAP).

Recognizing the value of diverse perspectives, the NRC will continue to promote inclusive research approaches and work closely with industry partners to provide them with the research and technical services they need to succeed. We invite you to read this report to learn more about how

the NRC, along with its portfolio partners, is working with Canadians of all backgrounds and in all regions—urban and rural—to position Canada as a leader in the global economy.

From the President

Mitch Davies
President,
National
Research Council
Canada

The National Research Council of Canada (NRC) advances research and innovation through the commitment and capabilities of its people. The NRC operates facilities in communities across Canada where we work in close collaboration with other researchers, with other federal organizations to support their mandates and with thousands of Canadian companies as they pursue innovation to compete and grow. The NRC is committed to delivering results for Canadians, advancing research and innovation to address the challenges we face and securing opportunities for an inclusive, prosperous and sustainable future.

Our recently released 2024–29 strategic plan was shaped by our employees, based on our capabilities and our commitment to address Canada's challenges and to find solutions that create opportunities for Canada. This departmental plan for 2024-2025 lays out our approach to begin delivery on our strategic plan, as we advance research and innovation of critical importance to Canada in areas where we aim for the greatest impact. These areas include:

- climate change and sustainability;
- health and biomanufacturing;
- digital and quantum technologies; and

- our continued role in support of foundational research.

With the recent $962M investment from the Government of Canada, we are renewing our facilities and infrastructure. We have approved the first round of projects already and we will see them begin to move from advanced planning through to the first phase of delivery this year. Many of these projects prioritize adding more digital capabilities into our facilities, which will open up new possibilities for how we conduct research and innovation with our partners.

We will undertake our work within an environment that prioritizes the health and safety of our employees, collaborators and clients and recognizes the value diverse perspectives bring to shaping and delivering our work. We will give special attention to how we can better support our industry clients and help them realize the economic potential of Canadian innovations. At the same time, we will maintain our enduring commitment to research excellence, which is at the heart of our mandate and ambition.

As we embark on the next chapter of the NRC's history, our staff are ready to pursue breakthroughs and develop solutions that improve the daily lives of Canadians.

Plans to deliver on core responsibilities and internal services

Core responsibilities and internal services:

- Science and Innovation
- Internal services

Science and Innovation

▼ In this section

Description

Grow and enhance the prosperity of Canada through: undertaking, assisting and promoting innovation-driven research and development; advancing fundamental science and Canada's global research excellence; providing government, business and research communities with access to scientific and technological infrastructure, services and information; and supporting Canada's skilled workforce and capabilities in science and innovation.

The NRC has three departmental results for tracking and reporting against its core responsibility:

1. Scientific and technological knowledge advances;
2. Innovative businesses grow; and
3. Evidence-based solutions inform decisions in government priority areas.

Quality of life impacts

The NRC is a federal research and development organization with a core responsibility of "Science and Innovation," that supports innovation across the Quality of Life Framework. The variety of services and areas of expertise that the NRC's research centres deliver indirectly supports elements of numerous Quality of Life domains, including "Environment," "Health," and "Society."

Most directly, the NRC contributes to the "Prosperity" domain and, especially, the indicator of "Investment in research and development." Its work as an enabler and collaborator with industry also helps develop and grow Canadian firms, thus contributing, in the longer term, to indicators like "Productivity."

Results and targets

For each departmental result related to Science and Innovation, the following tables show: the indicators; the results from the three most recently reported fiscal years; the targets; and target dates approved in 2024–25.

Table 1: Indicators, results and targets for Scientific and technological knowledge advances

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Citation score of NRC-generated publications relative to the world average	1.38	1.21	1.19	1.25	March 31, 2025
Number of peer-reviewed publications generated by the NRC	1,090	1,187	1,222	1,050	March 31, 2025

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Number of patents issued to the NRC	118	99	104	100	March 31, 2025
Number of licence agreements	54	30	46	35	March 31, 2025
Ratio of the NRC's workforce made up of equity deserving groups relative to Canadian average labour market availability - Women	1.02	1.03	1.04	1.00	March 31, 2025
Ratio of the NRC's workforce made up of equity deserving groups relative to Canadian average labour market availability - Indigenous Peoples	0.52	0.60	0.63	0.77	March 31, 2025
Ratio of the NRC's workforce made up of equity deserving groups relative to Canadian average labour market availability - Racialized persons	0.93	0.94	1.00	1.00	March 31, 2025

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Ratio of the NRC's workforce made up of equity deserving groups relative to Canadian average labour market availability - Persons with disabilities	0.43	0.45	0.57	0.70	March 31, 2025

Table 2: Indicators, results and targets for Innovative businesses grow

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Percentage of research and development clients who report positive benefits of working with the NRC	87%	93%	89%	90%	March 31, 2025
Percentage revenue growth of firms engaged with the NRC (NRC IRAP-engaged firms)	32%	32%	35%	20%	March 31, 2025
Percentage growth in Canada's science and technology related jobs through NRC supported firms (NRC IRAP-engaged firms)	20%	18%	21%	10%	March 31, 2025

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Revenue earned from clients and collaborators	$65.1M	$86.2M	$84.7M	$82.0M	March 31, 2025

Table 3: Indicators, results and targets for Evidence-based solutions inform decisions in government priority areas

Indicator	2020–21 result	2021–22 result	2022–23 result	Target	Date to achieve
Revenue earned from other federal government departments	$76.4M	$79.6M	$80.4M	$80.0M	March 31, 2025
Number of NRC peer-reviewed publications co-authored with other federal government departments	62	83	62	60	March 31, 2025

The financial, human resources and performance information for the NRC's program inventory is available on GC InfoBase.

Plans to achieve results

Departmental Result 1: Scientific and technological knowledge advances

The NRC conducts research aimed at achieving significant advancements in priority areas that create opportunities for Canada and the world. By undertaking impactful exploratory research, the NRC equips its partners

with the resources and expertise they need to advance their knowledge and innovate.

Exploratory research seeks to examine fundamental principles, concepts and theories within a particular field of study. It forms the basis upon which further research and practical applications can be built. To support Canadian leadership in priority research areas, the NRC will advance quantum science, develop Artificial Intelligence (AI) and digital solutions, ensure Canadian astronomers have access to world-leading telescopes and help fulfill global demand for measurement standards and solutions.

Advancing quantum science

Quantum science continues to hold significant promise for the development of ground-breaking applications, from ultra-precise measuring devices, to quantum computers and next-generation materials. The NRC will leverage its scientific expertise and collaborate with partners in the areas of quantum sensors, computing and communications, with a goal of furthering innovations in quantum science and technologies. These innovations will advance Canadian priorities in the areas of health care, climate change, transportation and cybersecurity.

The Government of Canada's National Quantum Strategy (NQS) was established in January 2023 to bring government, academic and industrial partners together to amplify Canada's existing global leadership in quantum research and grow Canada's quantum technologies, companies and talent. This includes advancing high-risk, high-reward quantum research. The NRC will leverage its scientific expertise and collaborate with partners in the areas of quantum sensors, computing, and communications in support of this strategy. Some examples include:

- The Internet of Things: Quantum Sensors Challenge program will launch an open call for proposals for collaborative projects with small and medium-sized enterprises (SMEs) focused on advancing quantum photonics, chip-based quantum systems and quantum metrology.
- The Applied Quantum Computing Challenge program will work on quantum algorithms, simulations and software to accelerate discovery and fund successful organizations through a recently closed call for proposals. The NRC will continue to collaborate with industry and academia to support commercial innovation, and with federal departments, agencies and Crown corporations to explore applications of quantum computing for public service operations and program delivery.
- The High-throughput and Secure Networks Challenge program will work with stakeholders to develop technologies enabling the implementation of next-generation and next-after-next-generation high-speed telecommunication networks. These include optical satellite communications, photonics for fiber and fixed wireless access, quantum-secured communications and tools for disseminating high-accuracy time signals across remote geographic areas.
- The Quantum Research and Development Initiative (QRDI) program will bring together federal departments and agencies to work on collaborative quantum research and development projects and engage with the broader Canadian quantum ecosystem.

The NRC will also collaborate with international peers on the development of measurement standards to accelerate the adoption of quantum technologies.

Developing digital and AI solutions

AI and digital technologies continue to have enormous potential for commercialization and advancing research. With great opportunity, these technologies also present considerable challenges, as digital and AI-related policies and regulations must balance their economic potential with the potential for ethical misuse. The NRC will continue to conduct research in this emerging field, paving the way for trustworthy, transformative solutions across diverse industries including defence, manufacturing, automotive and aerospace.

The NRC's Artificial Intelligence for Design Challenge program will launch a final wave of projects to advance algorithms, methods and datasets to assist engineers and scientists in the development and dissemination of novel core AI techniques to accelerate research, development, and innovation. The NRC's Digital Technologies division will continue to undertake exploratory research in Core AI and enhance AI algorithms, while keeping responsible AI as a cornerstone these its efforts.

The NRC's collaborative activities in applied AI research and data analytics innovation span domains and create opportunities to support industrial automation in the automotive and aerospace industries. The NRC will work to strengthen Canadian technological leadership in the emerging and global Advanced Air Mobility (AAM) market by developing advanced AI-enabled counter drone technologies and advancing remote sensing capabilities. It will also contribute to a range of climate change and sustainability projects, such as developing a digital environmental blue economy hub, digitalizing battery manufacturing and improving materials and process components of the battery value chain. By enhancing high-performance computing capabilities, the NRC will also advance projects in bioinformatics, aging-in-place technologies and tools to support vaccine discovery and manufacturing.

The NRC will support the federal government and Canadian firms with research and development in privacy enhancing technologies and encryption methods resilient to quantum computing threats. These activities will help position the NRC as a centre of excellence for the federal government in the development and use of AI and digital technologies that are responsible, trustworthy and secure.

Ensuring Canadian astronomers have access to world-leading telescopes

Astronomy and astrophysics continue to make stunning advances in our understanding of the Universe and our place within it. The NRC maintains and operates large-scale astronomical facilities for Canada and represents the country in world-leading astronomy projects. Through NRC's financial and in-kind contributions, the Canadian astronomy community is provided with merit-based access to these facilities, opportunities for training highly qualified personnel and the facilities and expertise required to test and deploy new technologies.

To deliver this important mandate, the NRC will continue forging international partnerships with ground-breaking international telescopes, including the Atacama Large Millimeter Array (ALMA) and the Square Kilometre Array (SKA) radio telescopes. The NRC will bring its digital processing expertise to these projects, working with partners to deliver the second-generation ALMA correlator and the SKA Central Signal Processor.

In addition to supporting Canadian astronomers' access to world observatories, the NRC will continue to manage and operate one of the most powerful digital science platforms for data-intensive astronomy in the world, the Canadian Astronomy Data Centre (CADC). The CADC enables the exploration and analysis of large datasets by Canadian and international astronomers in a fully integrated, cloud-based, open-science environment.

Fulfilling global demand for measurement standards and solutions

As Canada's national metrology institute, the NRC performs measurement research and provides metrological services, which benefit Canada's society, economy and environment. There is an increasing demand for measurement standards and solutions in areas where accurate specialized measurements are needed to provide evidence for the development and enhancement of regulations, and standards that promote the market adoption of innovative products and services. This includes advancing measurement for quantum technologies, electrification of transportation, digitalization and automation of manufacturing processes, climate change factors and for the characterization of critical minerals.

The NRC will take a leading role in the international roadmap for the redefinition of the International System of Units' (SI) second by advancing research on portable optical clocks, which use laser light to measure atom vibrations and provide unprecedented precision in timekeeping. It will also collaborate with industry and international partners to establish a digital framework for measurement data representation that is understandable by computers to underpin the digital transformation of metrological infrastructure.

Departmental Result 2: Innovative businesses grow

The NRC fosters innovation and economic prosperity in Canada through its research and development, and advisory services, funding and partnerships with Canadian SMEs. The NRC provides industry with access to the most relevant business and technical knowledge, facilities and expertise so that firms can bring innovative ideas to market, enhance their capabilities and connect with global markets and value chains.

Working with Canadian businesses and industries in their efforts to innovate and grow is vital to what the NRC does. This includes conducting research, applying new processes and techniques and building partnerships, all of which have the potential to create new products and services for Canadian companies. Through established programming like the NRC Industrial Research Assistance Program (NRC IRAP), the NRC will continue to connect Canadian innovators with the research and development, and facilities they need to innovate and grow, and enable partnerships and connections in Canada and around the world.

Sustaining momentum for SME growth

NRC IRAP, the NRC's largest program, has been central to Canada's innovation system for over 75 years, delivering growth-focused advice and support to over 8,000 Canadian SMEs annually. In addition to delivering impactful and expert advisory services, NRC IRAP will continue to build networks, create connections and deliver funding to support Canadian SMEs to grow their innovation capacity and bring their ideas to market. Pending the establishment and launch of the Canada Innovation Corporation (CIC) by 2026-2027 and NRC IRAP's subsequent transition to the CIC, NRC IRAP will continue to support a select number of larger-scale research and development projects. Furthermore, to continue to improve its service to Canadians, the NRC will:

- Refine NRC IRAP strategies for supporting ecosystem development, including ongoing work with NRC research centres and regional innovation partners, to help NRC IRAP clients overcome challenges in developing, producing and commercializing new products and services.
- Build a market and technical intelligence team that will define target markets, strategic technologies and value chains, supported by AI,

sector teams and subject expert teams, for design and alignment across NRC IRAP services.

The NRC will also work to strengthen its connection to industry by harnessing its portfolio of research expertise, its labs and its connections to Canadian innovators. The NRC will leverage its Challenge programs as platforms to build stronger relationships with academia and industry and will collaborate on projects with vast market potential. The NRC will also look at new and transformational ways to increase access to its specialized expertise, labs and connections for industry to take their technologies to market.

Advancing industrial decarbonization and sectoral transformation

By 2030, Canada is committed to reducing greenhouse gas emissions to 40% below 2005 levels, and to have the foundations needed to achieve "Net-Zero Emissions" before 2050. Some of Canada's sectors emit large amounts of greenhouse gases that contribute to climate change, and will need to find alternatives to their products and processes to reduce their carbon footprints. The NRC will support these transitions across many sectors, including in transportation and construction.

The NRC will support the transportation sector in accelerating the transition towards zero emission vehicles (ZEV) by helping to address barriers to the adoption of electric vehicles (EVs). In particular, it will:

- Collaborate with academia and industry on the manufacturing, integration and security of energy storage systems, light-weighting solutions and aerodynamic improvements.
- Through the Materials for Clean Fuels Challenge program, discover new catalyst materials using AI, develop catalyst materials to convert

captured carbon dioxide into renewable fuels and support new technologies for industrial-scale hydrogen production.
- Develop reliable measurements and standards for the next generation of power electronic modules and rapid charging stations for EVs.
- Develop and mature clean technologies in areas of novel aircraft configurations, electrical propulsion, clean fuels and airborne batteries to support a more sustainable aviation sector.
- Explore other opportunities to apply technologies developed for ground vehicles to reduce emissions in aviation and marine transportation.

In support of the Canadian Critical Minerals Strategy, the NRC will accelerate the discovery of new processes and materials to unlock a clean, efficient and competitive battery supply chain in Canada. This year, the NRC will advance the development of new technology solutions to make the processing, refining and recycling of critical minerals more sustainable. The NRC will accomplish this in close collaboration with Natural Resources Canada.

The NRC will also support the construction industry's decarbonization efforts through the development of low carbon construction materials and systems. As announced in Budget 2022, the NRC's Platform to Decarbonize the Construction Sector at Scale will work with stakeholders to develop new low-carbon standards, specifications, guidelines and National Model Codes. The NRC has also launched two new Challenge programs to bring together leading innovators to tackle this issue:

- The Low Carbon Built Environment Challenge program will enable industry to build construction tools, materials and products that will reduce life-cycle carbon emissions of buildings and infrastructure. The results of the program will make it possible to design, procure, build, retrofit and operate built structures that contribute to achieving the

Government of Canada's goals of 40% lower carbon emissions by 2030 and net-zero emissions by 2050.

- The Construction Sector Digitalization and Productivity Challenge program will develop digital, fit-for-purpose solutions to empower construction professionals in the transition to low-carbon operations, and work with industry and academia to develop and implement a roadmap to further guide the digitalization of the construction sector. The program will perform research and development to encourage greater environmental and productivity benefits from modular low-carbon solutions.

Supporting effective scale up

The NRC's Canadian Photonics Fabrication Centre (CPFC) provides advanced engineering and manufacturing services, commercial-grade prototyping and pilot-run production facilities to help companies in bringing innovations from concept to market. The CPFC's pure-play foundry is crucial to maintaining Canada's position in the semiconductor supply chain and supporting the growth of Canadian firms that depend on it. As announced in Budget 2021, the NRC will continue to modernize and revitalize its facilities, including the CPFC and the Advanced Technology Fabrication facility, to maintain capacity to support and grow the Canadian photonics sector and maintain a strong scientific position in quantum and semiconductor photonics. The NRC will also work with new potential clients to identify their needs and provide design services to help lower the barriers of entry for SMEs to access CPFC support and resources. The CPFC will also launch a technology roadmap exercise to anticipate future market trends and requirements and support the prioritization of research and development activities.

The NRC will work to enhance the performance of Canada's aerospace supply chain by accelerating innovations in product development, reducing maintenance costs and improving manufacturing productivity. Specifically, the NRC will develop digital twin and virtual testing technologies to accelerate the development and certification of aeronautical products and advance manufacturing capabilities of high-quality composite, metallic and hybrid products. These technologies will contribute to the development of more advanced and reliable aircraft while improving the product lifecycle.

This year, the NRC will strengthen international collaborative relationships and networks to create opportunities for Canadian companies to access new markets and innovation chains, supporting their growth and scale-up. It will deepen its relationships with international organizations in its priority economies of Japan, the United Kingdom, and Germany, and focus efforts on areas of common interest including AI, manufacturing and clean energy. The NRC will deliver Canada's full membership in Eureka, a 45+ economy network, facilitating industry-led transnational co-innovation projects. This year, the NRC will also co-chair the 2024-25 Eureka network with Germany. With Canada's anticipated association to Horizon Europe, the NRC will work to create consortia projects that help Canadian companies access collaborative research and development investments with European actors.

Departmental Result 3: Evidence-based solutions inform decisions in Government priority areas

The NRC has a rich history of advancing government priorities through the provision of evidence-based solutions and high-quality collaborative research. In partnership with key federal and industry stakeholders in research and technology advancement, the NRC will continue to pioneer innovations that address Canada's most pressing issues and capitalize on emerging opportunities.

Advancing national priorities through collaboration brings together the NRC's national network of researchers and facilities with academia, government and industry. Together, they work on scientific discoveries and technological breakthroughs such as made-in-Canada vaccines and innovative technologies that improve Canada's ability to withstand extreme weather events.

Securing Canada's health & biomanufacturing capacity

The pandemic cast a spotlight on Canada's healthcare vulnerabilities, including an overreliance on foreign sources of critical health products and supplies. Canada's Biomanufacturing and Life Sciences Strategy lays out a blueprint to grow a strong, competitive domestic life sciences sector, with cutting-edge biomanufacturing capabilities. The NRC plays a key role in contributing to the growth of the life sciences sector by providing expertise, technology platforms, intellectual property assets, infrastructure and funding support for cutting-edge research and development in Canada.

This year, the NRC will operationalize new biomanufacturing capacity for biologics and vaccines through its clinical trial material facility (CTMF). The CTMF will serve as a product development bridge for innovative vaccines, biologic medicines and other biologics materials, by producing small-batch clinical trial material from cell-based biologics production platforms. It will fill a gap in the Canadian biomanufacturing ecosystem and act as a technology transfer hub for academic and industry partners to produce material for phase I clinical trials (enabling first-in-human and proof of concept studies), prior to producing material at commercial scales. The NRC will continue to collaborate with other Canadian biomanufacturing facilities, including academically-led biomanufacturing initiatives and the

independently operated Biologics Manufacturing Centre (BMC) Inc., to work towards a more effective and integrated Canadian biomanufacturing ecosystem.

To contribute to Canada's capacity and capabilities in pandemic preparedness, the NRC will partner with the Canada Biomedical Research Fund (CBRF) hubs across the country. Funded under Canada's Biomanufacturing and Life Sciences Strategy, these hubs conduct high-risk, applied research to develop innovative biologics to meet current and future infectious disease threats, including antimicrobial resistance. This year, the NRC will collaborate with CBRF research hubs to identify synergistic areas where combined expertise will develop industry-relevant bioprocess innovations to accelerate biologics production.

The NRC will develop next-generation precision tools and micro-analytical devices for distributed diagnoses and therapies for clinical use and commercial adoption. In the coming years, the NRC will focus on three key research areas related to next-generation solutions: microfluidics powered technologies, access to affordable precision-engineered cell and gene therapies, and digital health and virtual care.

To support the development and adoption of innovative point-of-care diagnostics, the NRC will renew and strengthen collaboration through the NRC and the University of Toronto's Collaborative Centre for Research and Applications in Fluidic Technologies (CRAFT). This partnership will develop multiple new applications for fluidic technologies, promote the recruitment and training of postdoctoral fellows and graduate students, and create an innovative ecosystem to engage public and private stakeholders for technology adoption in a clinical setting. It will catalyze new discoveries and scale up production of existing prototypes to help industry commercialize and deliver higher quality patient care tools and products at a lower cost.

Increasing the affordability and accessibility to quality healthcare will require the development of innovative therapies and technology solutions. Through its Disruptive Technology Solutions for Cell and Gene Therapy Challenge program, the NRC will continue to collaborate with academics, clinicians and other public and private stakeholders to develop modular, multifunctional and personalized made-in-Canada therapeutics. These therapeutics will be deployed through a distributed health delivery model in partnership with various clinical centres to reduce time from diagnosis to treatment, and support efficacious, safe, affordable and accessible therapeutics for Canadians.

The NRC will continue to develop digital health and virtual care technologies to assess health status non-invasively and improve accessibility to timely clinical assessment. Through its Aging in Place Challenge program, the NRC will work with its government and university collaborators to develop accessible, user-centric devices (leveraging its living-labs model) and digital health technologies to support the advancement of distributed care solutions in remote areas. These activities will help improve older adults' quality of life and support a sustainable model for long-term care. This year, the NRC will focus on developing tools that extract, identify and deploy health monitoring devices for emergency triage and for remote physiological monitoring.

Improving Canada's ability to adapt to climate change and extreme weather

Understanding how to adapt and protect infrastructure and homes from climate change impacts and extreme weather is important to building Canada's climate resilience. The NRC will leverage its existing expertise, facilities, partnerships and industry connections to improve the resilience of Canada's built environment. It will also work to build Canada's capacity to address food insecurity resulting from climate change.

Through the Climate Resilient Built Environment (CRBE) initiative, the NRC and Infrastructure Canada will develop innovative tools and technologies to integrate resilience into building and infrastructure design and standards. In 2024–25, the NRC will assist operators and government departments in building climate resilient ground transportation systems and water and wastewater systems. The NRC will conduct research and develop science-based guidance to share with communities on how to adapt to climate change and extreme weather events, including wildfire mitigation and nature-based solutions to erosion and flooding. It will also explore technical solutions to monitor public infrastructure for proactive maintenance.

To mitigate the impact of climate change on Canada's food industry and address food insecurity in Northern and remote communities, the NRC will advance technologies for alternative food production systems and climate-resilient crops. This year, the NRC will develop a roadmap for applying new standardized data management strategies to enable better application of AI, Machine Learning (ML) and Deep Learning (DL) approaches to crop design. Through the Ocean program, the NRC will contribute to the maintenance of healthy ocean environments and to developing the economic potential of marine bioresources. This year, the NRC will work to evaluate biosensing and modeling technologies to monitor ocean health and explore novel technologies to transform marine biomass into value-added products. Underpinning the theme of increased food security, the NRC will leverage its atypical fermentation facility in Prince Edward Island to focus on client-driven research and development to support the advancement of technologies and processes for increased valorization of marine and crop bioresources.

Supporting OGD priorities

Guided by the Department of National Defence's national security and force development priorities, the NRC will apply targeted research and innovation to enhance the capability, readiness and affordability of Canada's air defence fleet. The NRC will also provide novel technologies and evidence-based insights that Canada's defence research and development community needs to ensure the Royal Canadian Navy is equipped and prepared.

In support of government priorities in health-related domains, the NRC and its federal government partners will develop diagnostic platforms and device-based technologies that empower discovery, quality control and new process manufacturing. For example, it will work with the Public Health Agency of Canada to deliver fit-for-purpose microfluidics-based technical solutions for infectious disease detection and monitoring. It will also build on pandemic-era federal collaborations, including supporting regulatory innovation for medical devices and molecular diagnostics for biomanufacturing.

Advancing reconciliation

The NRC is working to advance reconciliation and renew relationships with Indigenous peoples by building intentional relationships with Indigenous researchers, innovators, communities, organizations and governments, and bridging knowledge systems to enhance existing research practices and develop new strategies that address the needs of Canadians.

In 2024-25, the NRC will continue to help revitalize Indigenous languages through the Canadian Indigenous languages technology project. The NRC will work with Indigenous communities and language experts to develop technologies that support language reclamation, revitalization and stabilization. This year, the NRC will expand on four families of technologies (i.e., interactive text-based grammars for teachers of Indigenous

languages, speech generation in Indigenous languages, read along studios, and tools for writing in Inuktut and other languages), building upon the NRC's strength through projects with significant traction and support in Indigenous communities.

The NRC's Arctic and Northern Challenge program (ANCP) will continue to work closely with northern organizations and other partners to address pressing issues affecting the quality of life of Northern peoples, under its research themes of housing, health, food and water. With Indigenous investigators, co-investigators or collaborators in each of its 10 newly-approved research projects, 2024–25 will see the acceleration of NRC-supported research activities across the Canadian North. 2024–25 is the final year for the widely-applauded Canada-Inuit Nunangat-United Kingdom (CINUK) research program's projects, a sub-set of projects within the ANCP, and the NRC will work with its Inuit, United Kingdom and Canadian partners to develop research transition and knowledge dissemination strategies for its CINUK-supported projects.

Newly launched in 2023–24, the ANCP's second call for development grants will also be underway. These smaller grants provide funding for Northern organizations to conduct community-level consultation to ensure local support for a project idea, before a proposal is written, and to fully develop their research and development approach, before submitting a research proposal at the end of the grant. This novel approach is receiving strong Northern support, and the NRC anticipates increasing uptake of these grants in 2024–25. The program will continue to seek advice through its Northern-based Program Advisory Committee; advance its new processes for regionally-based proposal reviews, reviewer and northern expert compensation; and support NRC research staff with Indigenous cultural competency training, in line with the Truth and Reconciliation

Commission's Call to Action #57. Combined, these initiatives will support the advancement of Indigenous research priorities in new and innovative ways.

Key risks

The NRC has a number of internal and external issues and risks that may impact the organization's ability to achieve its strategic objectives. Inflation, a possible recession and its impact on the SME community, an escalation of international tensions and increased malicious cyber activity could all negatively impact the NRC's operations. Internally, the NRC's aging facilities may present obstacles to conducting its leading-edge research. With competitive labour markets and an aging workforce, there is also a risk that the NRC may not be able to attract and retain the talent it needs to advance its mandate.

In 2024–25, the NRC will continue to actively monitor and manage its issues and risks by executing various action plans to mitigate their likelihood and impact. The NRC will continue to carry out facility and building revitalization projects as part of its major facilities renewal initiative. Furthermore, the NRC will embed the modernization of its IT equipment into investment planning processes. To mitigate the threat of cyberattacks, the NRC will continue to strengthen its cyber security posture to safeguard the NRC's IT and networks. To address talent shortage risks, the NRC will implement a new Talent Attraction Strategy and continue to implement recruitment programs to help build Canada's pool of STEM professionals.

Snapshot of planned resources in 2024–25

- Planned spending: $1,423.62M
- Planned full-time resources: 3,342.6

Related government priorities

▼ Gender-based analysis plus

Building a diverse and representative workforce, removing barriers and fostering an inclusive culture are key priorities for the NRC. In support of these priorities, the NRC engages its employees, clients and collaborators on GBA Plus practices. This includes offering training, sharing information and tools, and integrating a GBA Plus lens in program design, delivery and evaluation.

For 2024–25, the NRC will continue to build capacity and expand awareness on the importance of GBA Plus across the organization. The NRC's new 2024–29 Strategic Plan identifies inclusive innovation as a key priority, which includes GBA Plus and reflects the NRC's commitment to adopting an intersectional lens. The NRC has engaged employees across the organization and has set goals at all levels of the organization for the next five years, beginning in 2024–25.

To achieve these goals, NRC programs will continue to develop equity in workforce representation and collect data on the composition of its workforce with regard to the four Employment Equity (EE) groups (women, racialized persons, Indigenous peoples, and persons with disabilities). Since data on representation is more accurate when all employees self-identify, programs will continue to promote and encourage the use of self-identification for existing staff and newly hired employees. The NRC will increase efforts to recruit new employees from EE groups by advertising both broadly and at targeted populations, implementing its hiring targets for equity deserving groups and collecting data on the proportion of newly hired staff from designated groups.

The NRC will continue to work with the Treasury Board of Canada Secretariat (TBS) in 2024–25 to leverage their collaborative program with Statistics Canada on Business Innovation and Growth Support (BIGS). BIGS data enables the NRC to understand how equity-deserving groups may be disproportionately impacted by its programs so that strategies to mitigate any negative impacts can be determined. Existing NRC programs such as NRC IRAP and the Collaborative Science, Technology and Innovation Program (CSTIP) will also continue to implement GBA Plus data collection and practices to understand the experience of equity-deserving groups in accessing support, and to develop mitigation strategies to address any barriers.

Operationally, the NRC will refresh its Inclusive Innovation Community of Practice to bring employees across the country together to create dialogue on the organization's external impacts on diverse groups and to foster an equitable, diverse, and inclusive workforce and workplace, looking specifically at how to incorporate best practices in the delivery of their new strategic plans. The NRC Committee on Recruitment and Retention of Women in STEM will also continue to meet quarterly to explore the experiences, challenges and opportunities facing women in STEM. Furthermore, the NRC will continue its efforts in bolstering Indigenous engagement and accessibility within the organization, and the organization's GBA Plus Focal Point and center of expertise will be continue to be available to staff for any GBA Plus related questions or support.

▼ United Nations 2030 Agenda for Sustainable Development and the UN Sustainable Development Goals

The NRC's 2023 to 2027 Departmental Sustainable Development Strategy (DSDS) highlights how the NRC will contribute to the Government of Canada's Federal Sustainable Development Strategy (FSDS), including specific actions that will be taken to address all 3 dimensions of sustainable development— social, economic and environmental. The strategy is framed using the 17 Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda, and the NRC will be advancing the following 13 goals:

SDG 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture: The NRC will work towards improving the accessibility, availability and quality of Arctic and Northern food resources through applied research, and technology development and application. Also, through continued leadership in standards and certified reference materials for food, the NRC will help to ensure food and environmental safety and security for all Canadians.

SDG 3 Ensure healthy lives and promote well-being for all at all ages: By participating in Northern-led projects, the NRC will support the improvement of health resources in the North and Arctic and increased physical, mental, emotional and spiritual wellbeing.

SDG 4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all: The NRC is committed to prioritizing Northern-led projects with a focus on Northern capacity building. To support this goal, the NRC will participate in projects that will increase Northern and Indigenous Research and Development capacity (individual, organizational and community) to address pressing issues confronting Northerners.

SDG 6 Ensure availability and sustainable management of water and sanitation for all: By participating in Northern-led research projects focused on improving Northern and Arctic water and sewage services, the NRC will support the development of technologies that will help increase the quality, availability and accessibility of the Northern safe water supply.

SDG 7 Ensure access to affordable, reliable, sustainable and modern energy for all: To support this goal, the NRC will contribute to Canada's Critical Mineral Strategy by accelerating the development of clean, renewable fuels (low-carbon fuels and hydrogen) and energy storage materials and devices that will facilitate the transition to low- and zero-carbon fuel and the electrification of the Canadian energy supply. In addition, the NRC will also work with the Canadian construction industry to build low-carbon construction tools, products and services and will support the implementation of new codes, standards and specifications to decarbonize the Canadian Construction sector.

SDG 8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all: The NRC is committed to supporting inclusive and sustainable growth and will contribute to this goal by supporting Canadian SMEs in their development of clean technologies to drive economic growth and by proving a broad range of research and technical services to industry clients and collaborators to increase their capacity to bring innovative products, services and processes to market.

SDG 9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation: The NRC will improve the resilience of Canadian infrastructure by coordinating and supporting

efforts to reduce the climate adaptation knowledge gap and accelerate the development of climate-smart codes, standards and guidance. The NRC will also support the development of performance-based codes to allow the construction industry to innovate in developing fit-for-purpose low-carbon solutions. In addition, the NRC will establish platforms to facilitate the development of industry-led solutions for technical challenges in critical mineral value chains for current and next-generation, high-performance batteries.

SDG 10 Reduce inequality within and among countries: The NRC is committed to advancing reconciliation and reducing inequality. To support this goal, the NRC will increase its Indigenous relationship building efforts which aim to develop intercultural competency among NRC employees and build intentional relationships with Indigenous researchers, innovators and communities to advance equity for First Nations, Inuit and Métis communities. Furthermore, the NRC will work in collaboration with Indigenous communities and language experts to develop technologies that will contribute to the revitalization of Indigenous languages. The NRC will also work to not only remove barriers in hiring practices and systems, but also put in place programs that foster an inclusive and diverse workplace.

SDG 11 Make cities and human settlements inclusive, safe, resilient and sustainable: The NRC will support this goal by increasing the precision of measuring black carbon emissions. Furthermore, the NRC will also contribute to the development of new solutions to improve indoor air quality, such as equipping Canadians with better information to help reduce radon exposure and developing solutions to decrease wildfire smoke exposure. The NRC will also support the development and deployment of novel sensors and measurement

instruments, to enable the mapping of environmental pollutants and support government and industry partners in reducing harmful air pollutants such as black carbon.

SDG 12 Ensure sustainable consumption and production patterns: The NRC is committed to making its operations sustainable and climate resilient, while minimizing waste and maximizing recycling and composting. To contribute to this goal, the NRC will divert non-hazardous, construction and demolition waste from landfills and will build capacity in green procurement. In addition, the NRC will support Canada's transition to low-carbon modes of transportation by developing new technologies and optimizing and testing technology solutions aimed at improving vehicle efficiency as well as infrastructure performance and safety.

SDG 13 Take urgent action to combat climate change and its impacts: The NRC is committed to combating climate change by supporting industry to develop the technologies, innovations and tools needed to transition to a net-zero economy. To support this goal, the NRC will advance research in clean energy production and storage, low-carbon transportation, industrial decarbonization, and adaptation and resilience. Furthermore, the NRC will implement the Greening Government Strategy by greening its operations through actions such as increasing the use of clean electricity in NRC facilities, producing or purchasing renewable electricity, adopting a net-zero requirement for all new construction and reducing its real property portfolio by 20% to reduce recapitalization, operational and maintenance costs for a sustainable real property portfolio.

SDG 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development: The NRC is committed to growing Canada's blue economy by placing equal value on ocean health and economic gain and supporting the development of technologies to improve ocean health. To contribute to this goal, the NRC will be advancing research in coastal resilience, intelligent marine assets, pollution remediation and bio assets.

SDG 15 Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss: To support biodiversity, the NRC will assess its owned properties for opportunities to conserve biodiversity through impact and species-at-risk assessments. As part of this assessment, the NRC will be evaluating which properties could be recognized as Other Effective area-based Conservation Measures (OECMs). OECMs are lands and waters that are managed in a manner that achieves long-term conservation of biodiversity, maintains ecosystems and supports healthy populations of wild species.

More information on NRC's contributions to Canada's Federal Implementation Plan on the 2030 Agenda and the Federal Sustainable Development Strategy can be found in the NRC's Departmental Sustainable Development Strategy.

Program inventory

Science and Innovation is supported by the following programs:

- Aerospace
- Aquatic and Crop Resource Development

- Automotive and Surface Transportation
- Business Management Support (Enabling)
- Biologics Manufacturing Centre
- Canadian Photonics Fabrication Centre
- Collaborative Science, Technology and Innovation Program
- Construction
- Design & Fabrication Services (Enabling)
- Digital Technologies
- Energy, Mining and Environment
- Genomics Research & Development Initiative Shared Priority Projects
- Herzberg Astronomy & Astrophysics
- Human Health Therapeutics
- Industrial Research Assistance Program
- International Affiliations
- Medical Devices
- Metrology
- National Science Library
- Ocean, Coastal and River Engineering
- Quantum and Nanotechnologies
- Research Information Technology Platforms (Enabling)
- Special Purpose Real Property (Enabling)
- TRIUMF

Supporting information on planned expenditures, human resources, and results related to the NRC's program inventory is available on GC Infobase.

Summary of changes made to reporting framework since last year

The programs Advanced Electronics and Photonics, Nanotechnology and Security and Disruptive Technologies were consolidated and now form the new Quantum and Nanotechnologies program and the new Canadian

Photonics Fabrication Centre. These changes were part of the 2024–25 amendment process.

Internal services

▼ In this section

Description

Internal services are the services that are provided within a department so that it can meet its corporate obligations and deliver its programs. There are 10 categories of internal services:

- management and oversight services
- communications services
- legal services
- human resources management services
- financial management services
- information management services
- information technology services
- real property management services
- materiel management services
- acquisition management services

Plans to achieve results

Building on recent years' foundational efforts to modernize how it operates, the NRC will continue to renew and recapitalize its facilities and labs, advance a digital transformation, and leverage new procurement authorities. The NRC will also continue to foster a diverse and healthy workforce as well as reinforce a safety-first culture across all parts of the NRC.

The 2022 Fall Economic Statement provided the NRC with $962.2 million over eight years, beginning in 2022–23, and $121.1 million per year, ongoing, to modernize the NRC's facilities. To recapitalize its mission-critical infrastructure within the timeframe and optimize the impact of these investments, the Office of Facilities Renewal Management will implement a new investment management framework to identify and prioritize future major capital investment projects at the NRC. The NRC will incorporate environmental, health and safety considerations into the initial planning phases of its facilities renewal to mitigate risks and anticipate future needs.

Through the NRC's facility renewal, the NRC will incorporate more digital sensors into its new facilities and use data and automation to add new functionalities to its research and development activities. Examples of NRC facilities that are planned to benefit from work undertaken in 2024–25 to increase digital capabilities include digital twinning for ocean research, the Convair aerospace data acquisition platform, and the material acceleration platform for critical minerals research. To support a dynamic, collaborative and secure research environment that empowers researchers to develop and apply cutting-edge digital tools and services to emerging research and innovation areas, the NRC will also allocate a portion of its facility renewal funding to enhance the foundational IM/IT infrastructure of the research facilities being renewed.

The NRC will build on its current Workplace Safety Campaign efforts to strengthen the safety culture at the NRC. Over the coming year, the NRC will host strategic health, safety and environment campaigns to enhance the collective understanding of how each NRC employee plays a role in driving excellence in this area and to keep health, safety and environmental considerations at the forefront of all decision-making.

The NRC's increased contracting authorities and procurement flexibilities will come into effect in June 2024. In response, the NRC will expand its procurement services to prepare for an increased volume and complexity in procurement, as well as other government-wide commitments, including accessibility commitments, greening criteria and increasing procurement from Indigenous businesses. Key actions will include increased staffing of the procurement team, updating the NRC's procurement management framework, and formalizing a monitoring program to enhance quality assurance processes. The NRC will also establish and implement a new Procurement Oversight Board to oversee the NRC's new procurement authorities.

In addition to adding procurement-related flexibilities to the NRC Act, language was also added to confirm IT as central to delivery of the NRC mandate, given the digital nature of research. The NRC will work with Shared Services Canada to establish an implementation plan that will provide NRC researchers with access to secure, modern IT environments that will increase productivity and the security of digital assets.

To attract, develop and retain a diverse pool of highly qualified talent in research, enabling and leadership functions, the NRC will implement its new Talent Attraction Strategy. This will include improving recruitment materials, increasing NRC's presence in the labour market and adopting innovative and flexible talent attraction and hiring methods. It will also

continue to implement recruitment programs to hire more students, postdoctoral fellows and research associates to help build Canada's pool of STEM professionals.

The NRC is committed to ensuring its workforce is healthy and representative of the diversity of Canada. It will continue to advance employee and workplace wellness initiatives, and augment its efforts to increase the representation of members of Employment Equity (EE) designated groups in its workforce.

Through the NRC's facility renewal and digital transformation, its increased procurement flexibilities, a constant focus on health and safety, and a renewed commitment to a diverse workforce, NRC internal services will support the achievement of NRC's mandate.

Snapshot of planned resources in 2024–25

- Planned spending: $171.52M
- Planned full-time resources: 1,056.5

Related government priorities

Planning for contracts awarded to Indigenous businesses

The NRC's target is to award a minimum of 5% of the total value of its contracts to Indigenous businesses by the end of 2024–25.

This year, the NRC will continue to expand and improve its Indigenous supplier database by actively seeking resources and establishing partnerships with Indigenous associations and organizations. It will also review and update internal policies to align with its commitment to achieving its 5% procurement target for Indigenous businesses. New tools, including the Indigenous Procurement Plan and Indigenous-inclusive

templates, will be assessed to ensure they efficiently meet evolving needs and adhere to best practices. This will be further supported through collaboration and consultation with other government departments to enhance the NRC's approach and best practices.

The NRC will collaborate with Indigenous businesses and business associations, organizations and communities to seek their input and confirm its alignment with their objectives. The NRC will develop a comprehensive plan for Indigenous participation, with the overarching objectives of identifying potential barriers and challenges, and finding innovative solutions through engagement. The NRC will maintain a continuous feedback loop on its plan and make necessary adjustments to ensure its responsiveness to the evolving requirements and needs of its Indigenous collaborators. This will be achieved through a phased approach: Phase 1 - Community Outreach and Engagement; Phase 2 - Procurement and Indigenous business participation; and Phase 3 - Gather Feedback on the Action Plan.

5% reporting field	2022-23 actual result	2023-24 forecasted result	2024-25 planned result
Total percentage of contracts with Indigenous businesses	1.8%	1.6%	5%

Planned spending and human resources

This section provides an overview of NRC's planned spending and human resources for the next three fiscal years and compares planned spending for 2024–25 with actual spending from previous years.

▼ In this section

Spending

Table 4: Actual spending summary for core responsibilities and internal services ($ dollars)

The following table shows information on spending for each of NRC's core responsibilities and for its internal services for the previous three fiscal years. Amounts for the current fiscal year are forecasted based on spending to date.

Core responsibilities and internal services	2021–22 actual expenditures	2022–23 actual expenditures	2023–24 forecast spending
Science and Innovation	1,285,688,819	1,306,954,477	1,341,495,335
Internal services	150,620,495	163,802,501	176,375,188
Total	**1,436,309,314**	**1,470,756,978**	**1,517,870,522**

▼ Explanation of table 4

Upward trend in spending primarily associated with new funding received to revitalize and modernize NRC's scientific infrastructure.

Table 5: Budgetary planning summary for core responsibilities and internal services (dollars)

The following table shows information on spending for each of NRC's core responsibilities and for its internal services for the upcoming three fiscal years.

Core responsibilities and internal services	2024–25 budgetary spending (as indicated in Main Estimates)	2024–25 planned spending	2025–26 planned spending	2026–27 planned spending
Science and Innovation	1,423,622,051	1,423,622,051	1,369,537,465	1,318,164,322
Internal services	171,520,923	171,520,923	180,066,049	179,553,623
Total	**1,595,142,974**	**1,595,142,974**	**1,549,603,514**	**1,497,717,945**

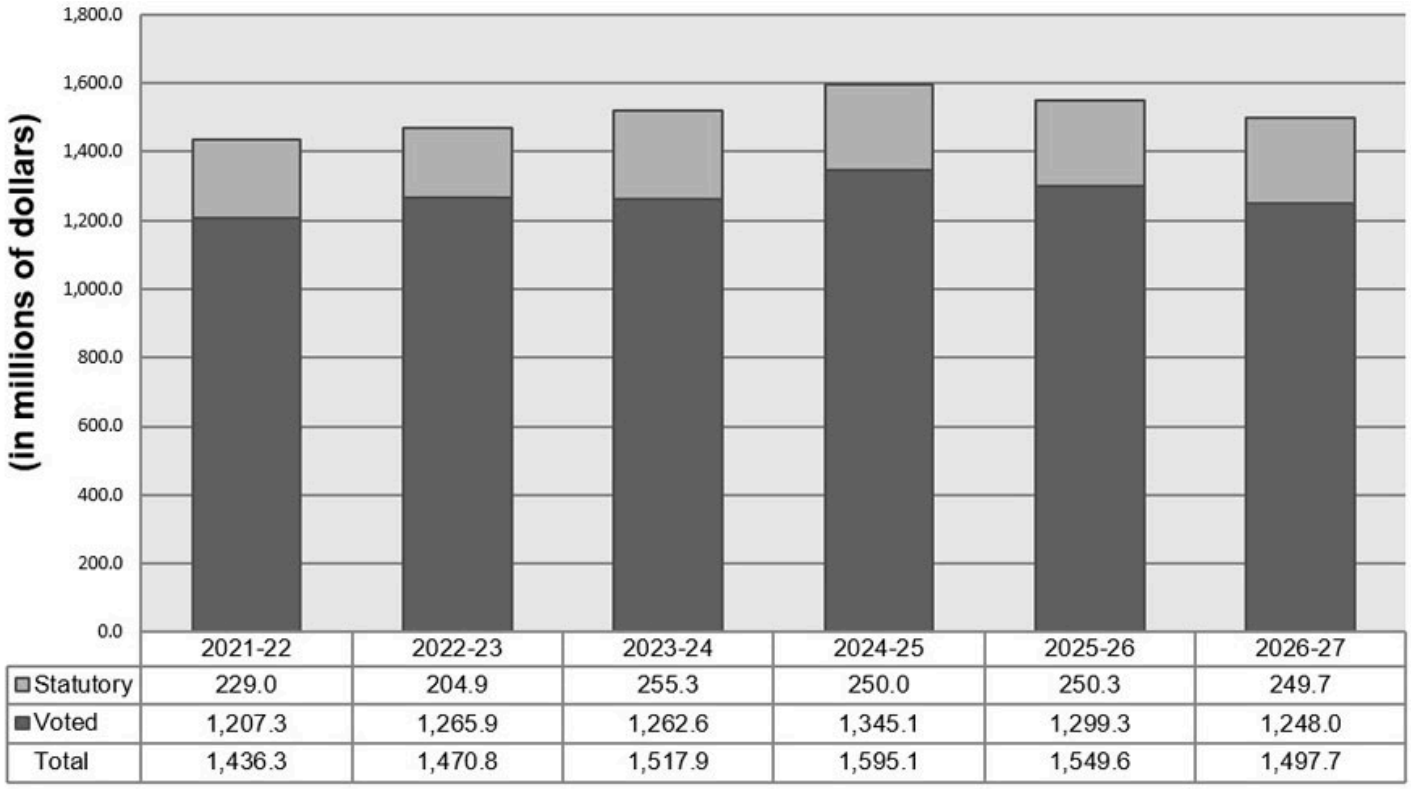
▼ Explanation of table 5

The reduction in expenditures in 2025-26 onward is primarily due to sunset funding and savings associated with Budget 2023, offset by new capital investment spending to revitalize and modernize NRC's scientific infrastructure.

Funding

Figure 1: Departmental spending 2021–22 to 2026–27

The following graph presents planned spending (voted and statutory expenditures) over time.



	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Statutory	229.0	204.9	255.3	250.0	250.3	249.7
Voted	1,207.3	1,265.9	1,262.6	1,345.1	1,299.3	1,248.0
Total	1,436.3	1,470.8	1,517.9	1,595.1	1,549.6	1,497.7

▼ Text description of figure 1

Fiscal year	Statutory	Voted	Total
2021-22	229.0	1,207.3	1,436.3
2022-23	204.9	1,265.9	1,470.8
2023-24	255.3	1,262.6	1,517.9
2024-25	250.0	1,345.1	1,595.1
2025-26	250.3	1,299.3	1,549.6
2026-27	249.7	1,248.0	1,497.7

The planned spending reduction in 2025-26 onward is primarily due to savings associated with Budget 2023.

Estimates by vote

Information on NRC's organizational appropriations is available in the 2024–25 Main Estimates.

Future-oriented condensed statement of operations

The future-oriented condensed statement of operations provides an overview of the NRC's operations for 2023–24 to 2024–25.

The forecast and planned amounts in this statement of operations were prepared on an accrual basis. The forecast and planned amounts presented in other sections of the Departmental Plan were prepared on an expenditure basis. Amounts may therefore differ.

A more detailed future-oriented statement of operations and associated notes, including a reconciliation of the net cost of operations with the requested authorities, are available on NRC's website.

Table 6: Future-oriented condensed statement of operations for the year ending March 31, 2025 (dollars)

Financial information	2023–24 forecast results	2024–25 planned results	Difference (2024–25 planned results minus 2023–24 forecast results)
Total expenses	1,534,098,000	1,526,757,000	(7,341,000)
Total revenues	179,793,000	184,756,000	4,963,000
Net cost of operations before government funding and transfers	1,354,305,000	1,342,001,000	(12,304,000)

▼ Explanation of table 6

NRC's 2024–25 planned expenses and revenues are based on the Annual Reference Level Update (ARLU). Planned expenses include a reduction of $6.4M related to the Refocusing Government Spending proposals as outlined in Budget 2023. Also included in planned expenses are the NRC's portion of the expense accounts of the Canada-France-Hawaii Telescope Corporation (CFHT) ($1.4M) and TMT International Observatory LLC (TIO) ($2.9M).

The 2024–25 planned revenues are composed of research services ($78.2M), technical services ($86.7M), intellectual property, royalties and fees ($5.7M), sale of goods and information products ($3M), rentals ($6.9M), and grants & contributions ($1.5M). Also included is $2.8M of accrued adjustments mainly from lease inducement revenue ($2.1M) and the consolidation of the revenue accounts of CFHT and TIO ($0.5M).

Human resources

Table 7: Actual human resources for core responsibilities and internal services

The following table shows a summary of human resources, in full-time equivalents (FTEs), for NRC's core responsibilities and for its internal services for the previous three fiscal years. Human resources for the current fiscal year are forecasted based on year to date.

Core responsibilities and internal services	2021–22 actual FTEs	2022–23 actual FTEs	2023–24 forecasted FTEs
Science and Innovation	3,307.7	3,300.8	3,263.1
Internal services	978.2	962.5	1,054.5

Core responsibilities and internal services	2021–22 actual FTEs	2022–23 actual FTEs	2023–24 forecasted FTEs
Total	**4,285.9**	**4,263.3**	**4,317.7**

▼ Explanation of table 7

Increase in FTEs primarily due to an increase in procurement personnel associated with NRC's new infrastructure funding, an increase in Human Resources personnel, and new hires relating to the Decarbonization of the Construction Sector initiative.

Table 8: Human resources planning summary for core responsibilities and internal services

The following table shows information on human resources, in full-time equivalents (FTEs), for each of NRC's core responsibilities and for its internal services planned for 2024–25 and future years.

Core responsibilities and internal services	2024–25 planned fulltime equivalents	2025–26 planned fulltime equivalents	2026–27 planned fulltime equivalents
Science and Innovation	3,342.6	3,342.6	3,322.6
Internal services	1,056.5	1,056.5	1,056.5
Total	**4,399.1**	**4,399.1**	**4,379.1**

▼ Explanation of table 8

Planned FTE increase in 2024-25 onward is primarily due to FTEs associated with new NRC initiatives including the Climate Resilient Built Environment (CRBE) strategy, the Square Kilometer Array Observatory, the Quantum Research and Development Initiative, the Canadian Critical Minerals Strategy, and Canada's Indo-Pacific Strategy.

Corporate information

▼ Organizational profile

Appropriate minister(s): The Honourable François-Philippe Champagne, P.C., M.P., Minister of Innovation, Science and Industry

Institutional head: Mitch Davies

Ministerial portfolio: Innovation, Science and Economic Development

Enabling instrument(s): *National Research Council Act*, R.S.C. 1985, c. N-15

Year of incorporation / commencement: 1916

Other: The NRC is a departmental corporation of the Government of Canada, reporting to Parliament through the Minister of Innovation, Science and Industry. The NRC works in partnership with members of the Innovation, Science and Economic Development Portfolio to leverage complementary resources to promote science and research and integrated innovation, to exploit synergies in key areas of science and technology, to promote the growth of small and medium-sized enterprises and to contribute to Canadian economic growth. The NRC's Council provides independent strategic advice to the NRC

President and it reviews organizational performance. The President provides leadership and strategic management and is responsible for the achievement of the NRC's long-range goals and plans in alignment with government priorities. Each of the NRC's Vice-Presidents is responsible for a number of areas composed of programs and research initiatives, research centres, the NRC Industrial Research Assistance Program and/or a corporate branch. Vice-Presidents and NRC managers are responsible for executing plans and priorities to ensure successful achievement of objectives.

▼ Organizational contact information

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Website(s):

https://nrc.canada.ca/en/

Supplementary information tables

The following supplementary information tables are available on NRC's website:

- Details on transfer payment programs
- Gender-based analysis plus

Information on NRC's departmental sustainable development strategy can be found on NRC's website.

Federal tax expenditures

NRC's Departmental Plan does not include information on tax expenditures.

Tax expenditures are the responsibility of the Minister of Finance. The Department of Finance Canada publishes cost estimates and projections for government wide tax expenditures each year in the Report on Federal Tax Expenditures.

This report provides detailed information on tax expenditures, including objectives, historical background and references to related federal spending programs, as well as evaluations, research papers and gender-based analysis plus.

Definitions

▼ List of terms

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 document that sets out a department's priorities, programs, expected results and associated resource requirements, covering a three-year period beginning with the year indicated in the title of the report. Departmental Plans are tabled in Parliament each spring.

departmental result (résultat ministériel)
A change that a 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)
A framework that consists of the department's core responsibilities, departmental results and departmental result indicators.

Departmental Results Report (rapport sur les résultats ministériels)
A report on a department's actual performance in a fiscal year against its plans, priorities and expected results set out in its Departmental Plan for that year. Departmental Results Reports are usually tabled in Parliament each fall.

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 Plus) (analyse comparative entre les sexes plus [ACS Plus])

An analytical tool used to support the development of responsive and inclusive policies, programs and other initiatives. GBA Plus is a process for understanding who is impacted by the issue or opportunity being addressed by the initiative; identifying how the initiative could be tailored to meet diverse needs of the people most impacted; and anticipating and mitigating any barriers to accessing or benefitting from the initiative. GBA Plus is an intersectional analysis that goes beyond biological (sex) and socio-cultural (gender) differences to consider other factors, such as age, disability, education, ethnicity, economic status, geography, language, race, religion, and sexual orientation.

government-wide priorities (priorités pangouvernementales)

For the purpose of the 2024–25 Departmental Plan, government-wide priorities are the high-level themes outlining the government's agenda in the 2021 Speech from the Throne: building a healthier today and tomorrow; growing a more resilient economy; bolder climate action; fighter harder for safer communities; standing up for diversity and inclusion; moving faster on the path to reconciliation and fighting for a secure, just, and equitable world.

horizontal initiative (initiative horizontale)

An initiative in which two or more federal organizations are given funding to pursue a shared outcome, often linked to a government priority.

Indigenous business

As defined on the Indigenous Services Canada website in accordance with the Government of Canada's commitment that a mandatory minimum target of 5% of the total value of contracts is awarded to Indigenous businesses annually.

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.

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.

program (programme)

Individual or groups of services, activities or combinations thereof that are managed together within a department and that focus on a

specific set of outputs, outcomes or service levels.

program inventory (répertoire des programmes)

An inventory of a department's programs that describes how resources are organized to carry out the department's core responsibilities and achieve its planned 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.

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.

From: National Research Council Canada

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