

**Written Submission for Pre-Budget Consultations  
in Advance of the 2026 Federal Budget**

By:



**Canadian Association  
of Physicists**

**Association canadienne  
des physiciens et physiciennes**

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**Recommendation 1: Establish a Domestic Talent Retention Program**

Launch a fully-funded Domestic Talent Retention Program to complement Budget 2025's International Talent Attraction Strategy, focusing directly on increasing investigator-driven research funding.

**Recommendation 2: Lifecycle Funding for Major Research Facilities**

Formalize a comprehensive, portfolio-based lifecycle management framework for Major Research Facilities (MRFs) that guarantees sustainable funding from construction through operation and decommissioning.

**Recommendation 3: Embed Foundational Physics into BOREALIS**

Create frictionless funding pathways within BOREALIS and Defence Innovation Secure Hubs (DISH) that directly integrate university-level foundational physics, such as quantum sensing and industrially relevant photonics, into defence applications.

## **About Us**

Incorporated in 1945 and currently representing over 1,150 individual members and affiliates, 60 physics departments and 7 world-leading national research institutions, the Canadian Association of Physicists (CAP) / Association canadienne des physiciens et physiciennes (ACP) is a national network of physicists and physics students working in educational, industrial, and academic settings from coast to coast to coast. The CAP strives to unleash the full potential of physics and physicists for the benefit of Canada and the world.

Physics research and development in universities, research centres, and companies are essential for economic growth and societal advancement. It produces a well-trained workforce able to tackle difficult problems with knowledge and creativity. It drives technological innovation, creating new industries and improving existing ones, leading to job creation, increased productivity, and economic prosperity. Technologies developed through physics research, such as medical imaging devices and renewable energy technologies, directly benefit public health and environmental sustainability. Moreover, investments in physics research enhance Canada's competitiveness in global markets by training a skilled workforce and attracting high-tech industries. For example, quantum science and technologies, with their potential for revolutionizing computing, communication, and sensing capabilities, are poised to shape the next generation of technological advancements. Overall, physics research not only expands scientific knowledge but also plays a critical role in driving economic development and improving quality of life for citizens nationwide.

### **Recommendation 1: Establish a Domestic Talent Retention Program**

The Recommendation: Launch a fully-funded Domestic Talent Retention Program to complement Budget 2025's International Talent Attraction Strategy, focusing directly on increasing investigator-driven research funding.

Why this matters to the Federal Government:

- **Mitigating Brain Drain:** Budget 2025's \$1.65 billion international recruitment effort creates a severe asymmetry. Attracting foreign talent while starving existing domestic innovators guarantees that Canada's brightest minds will leave for better-funded jurisdictions.
- **Addressing the Affordability Crisis:** Graduate students and postdoctoral fellows are the engine of the Canadian research ecosystem, but their stipends have not kept pace with severe inflation and living costs, forcing top talent to abandon research. Budget 2024 dramatically improved funding levels in the Canada Research Training Awards Suite but the vast majority of trainees did not benefit and were left behind.
- **Driving National Productivity:** Investigator-driven research funding is the primary mechanism for paying these trainees. Boosting core grants is an urgent economic imperative to support the next generation of science and high-tech workers. Without retaining this highly qualified personnel, Canada cannot build the talent pipeline necessary to solve its lagging industrial productivity.

## **Recommendation 2: Lifecycle Funding for Major Research Facilities**

The Recommendation: Formalize a comprehensive, portfolio-based lifecycle management framework for Major Research Facilities (MRFs) that guarantees sustainable funding from construction through operation and decommissioning.

Why this matters to the Federal Government:

- **Preventing Stranded Assets:** Capital investments, such as the \$400 million infrastructure injection in Budget 2025, build world-class facilities. Without concurrent, long-term operational funding, these become "stranded assets": expensive infrastructure lacking the resources to employ expert technical staff or maintain complex equipment.
- **Maximizing Capital ROI:** To justify initial capital expenditures, facilities must actively execute mission-driven science. Sustainable operational funding ensures these national assets run at full capacity rather than sitting idle.
- **Securing the Training Environment:** MRFs act as essential training grounds. When operational funding falters, the graduate students and postdocs relying on investigator-driven grants cannot utilize the equipment. This stalls their research, directly delaying their transition into the high-tech workforce necessary for economic growth.

## **Recommendation 3: Embed Foundational Physics into BOREALIS**

The Recommendation: Create frictionless funding pathways within BOREALIS and Defence Innovation Secure Hubs (DISH) that directly integrate university-level foundational physics, such as quantum sensing and industrially relevant photonics, into defence applications.

Why this matters to the Federal Government:

- **Meeting the 5% Defence Target:** Hitting the 2035 NATO spending target requires building sovereign, dual-use capabilities. Leveraging the academic research ecosystem is the fastest way to fast-track advanced defense technologies.
- **Supply Chain and IP Security:** Explicitly funding academic-military-industry partnerships allows Canada to protect domestic intellectual property, reduce reliance on foreign technology suppliers, and achieve strategic autonomy under the new Defence Industrial Strategy. High risk, but high return research projects can provide world-leading innovations relevant for both sovereignty but also economic growth. Canada can look to best practices in other countries (e.g., DARPA) to program effectiveness and maximise return on investment.
- **Building the Defense Tech Workforce:** Foundational physics research is the vanguard of national security. Securing this pipeline relies entirely on investigator-driven grants that adequately compensate the graduate students and postdoctoral researchers doing the hands-on innovation. Failing to support these trainees through the affordability crisis cripples the workforce required to execute Canada's defense technology ambitions.

## **Summary**

Ahead of the 2026 Budget, the Canadian Association of Physicists urges the Federal Government to secure the nation's innovation pipeline and economic productivity by stabilizing the foundational elements of its research ecosystem. To prevent a severe brain drain exacerbated by the affordability crisis, Canada must establish a Domestic Talent Retention Program that boosts investigator-driven funding, adequately supporting the graduate students and postdoctoral fellows who represent the next generation of high-tech workers. Furthermore, recent federal capital investments must be protected with comprehensive lifecycle operational funding for Major Research Facilities to prevent the creation of stranded assets. Finally, integrating university-level foundational physics research into new defense frameworks like BOREALIS will leverage this highly qualified domestic talent to build sovereign dual-use capabilities, ensuring Canada can meet its strategic defense targets while driving long-term industrial innovation.