



# Written Submission for the Pre-Budget Consultations in Advance of the Upcoming 2023 Budget

**By: Engineers Canada**

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## Recommendations to the federal government

**Recommendation 1:** That the government increase infrastructure investments and accelerate projects promised in the Investing in Canada Plan program.

**Recommendation 2:** That the government continue to support green infrastructure and natural resources investments.

**Recommendation 3:** That the government continue to support equity, diversity, and inclusion (EDI) initiatives across Canada, including supports for employers to address discrimination, harassment, and improving EDI in the workplace for women, Indigenous, Black and other racialized people, LGBTQ2S+ persons, and persons with disabilities.

**Recommendation 4:** That the government provide funding to support Indigenous people's access programs to post-secondary engineering education programs across Canada.

## Overview:

Engineers Canada is the national organization that represents the 12 provincial and territorial engineering regulators that license the more than 300,000 members of the engineering profession in Canada. As the only national voice for the engineering profession, our organization has a long-standing history of working and collaborating with the federal government to help inform and develop legislation, regulations, and policies.

### Recommendation 1: That the government increase infrastructure investments and accelerate projects promised in the *Investing in Canada Plan* program

Canada's long-term economic recovery requires that the federal government continue to increase investments in infrastructure projects, and accelerate already planned infrastructure projects through the [Investing in Canada Plan](#) program, and other legacy programs.

Much of Canada's core public and private infrastructure requires significant immediate and future investments to ensure its sustainability for its complete life and service cycle. Well-designed, properly built, continually maintained, and reliable infrastructure is critical to public safety, quality of life, and a competitive economy. The federal government is responding appropriately with infrastructure initiatives such as the Investing in Canada Plan and the Canada Infrastructure Bank, however more is needed. By continuing to invest in infrastructure projects and accelerating project approvals, jobs across the country will be created and the economy will continue to be supported.

It is imperative that the federal government continue to consult engineers throughout the lifecycle of projects that fall under the [Investing in Canada Plan](#), the [Canadian Infrastructure Bank](#), and other federally funded programs, including: [The Disaster Mitigation and Adaptation Fund](#), and [The National Infrastructure Assessment](#). Engineers allow for a comprehensive, evidence-based, and expert-driven assessment of public infrastructure needs in the short-and long-term. Public confidence and safety are at risk when engineers are not involved in the development and implementation of a wide range of regulations that require the application of engineering expertise. The unbiased expertise of the engineering profession is available to work collaboratively with the federal government to achieve evidence-based, long-term infrastructure planning that supports a net-zero emissions future while growing the national economy.

### Recommendation 2: That the government continue to support green infrastructure and natural resources investments

The federal government must continue to invest in green infrastructure to grow the Canadian economy, as well as to deliver on Canada's climate commitments. Retrofitting Canada's existing infrastructure to become energy efficient will support these economic and climate targets; an area of expertise that Canadian engineers are equipped to support and implement. The federal government should also continue to invest in nature-based solutions as a way to tackle climate change. Estimates suggest that nature-based solutions can provide 37 per cent of climate change mitigation needed to achieve Canada's

net-zero emissions by 2050.<sup>1</sup> Nature-based solutions also play a key role in climate change adaptation and building resilience in landscapes and communities. While we applaud the previous federal investments into the [Nature Smart Climate Solutions Fund](#) and other green infrastructure programs, more needs to be done in recognizing the role that green and natural infrastructure can play.

In addition, supporting Canada's natural resources sector remains critical to the national economy. The engineering profession plays a critical role in safely and sustainably extracting, processing, and delivering natural resources, such as water, wood, sand, gravel, ores, oil, and gas. Increasing support for such projects will reduce the need and cost of importation, support the labour force, and increase Canada's self-sufficiency.

### Recommendation 3: That the government continue to support equity, diversity, and inclusion (EDI) initiatives across Canada, including supports for employers to address discrimination, harassment, and improving EDI in the workplace for women, Indigenous, Black and other racialized people, LGBTQ2S+ persons, and persons with disabilities

Engineers Canada and the engineering regulators have been supporting increased gender equity in the profession since 2014 through the 30 by 30 initiative; however, we have seen limited commitment from engineering workplaces. Women make up over 50 per cent of the Canadian population yet represent 14 per cent of practicing professional engineers and 23.4 per cent of undergraduate engineering students.<sup>2</sup> The engineering profession can better understand and protect the public interest if it is representative of the demographics it serves. Our recent research on the experience of women in engineering identifies that a significant barrier for women's participation in the engineering profession remains consistent gender-based discrimination and harassment. Engineers who are women continue to face systemic barriers and toxic work environments, which are not experienced by their male colleagues. This culture of exclusion also impacts Indigenous, Black, people of colour, LGBTQ2S+ persons, and persons with disabilities who face similar obstacles due to systemic and unconscious bias. In addition, women in Canada remain severely underrepresented in both post-secondary engineering education and the engineering profession.

Although Engineers Canada is working with provincial and territorial regulators, post-secondary institutions, and employers to address underrepresentation of women, we have had limited influence on the practices and policies within the workplace. Additional federal support is needed to incentivise small and medium-size employers, as well as large corporations, to make EDI a business priority. The 30 by 30 initiative has a goal of raising the percentage of newly licensed engineers who are women to 30 per cent by the year 2030. Nationally, this figure is approximately 20 per cent. Reaching 30 by 30 requires commitments from employers, in addition to the existing commitments of regulators and post-secondary institutions, to help drive cultural change in the engineering profession.

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<sup>1</sup> Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (2019). "Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services". Retrieved from:

[https://ipbes.net/sites/default/files/inline/files/ipbes\\_global\\_assessment\\_report\\_summary\\_for\\_policymakers.pdf](https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf)

<sup>2</sup> Engineers Canada (2021). "30 by 30 data" Retrieved from: <https://engineerscanada.ca/sites/default/files/2021-12/30-by-30-data-presentation-Oct-2021-en.pdf>

The federal government should work collaboratively with the engineering profession in supporting improvements in equity, diversity, and inclusion in the engineering profession. The federal government must take the initiative to fund employer training programs, workplace mentorships for women and underrepresented engineers, and work-integrated learning opportunities that encourage women, Indigenous, Black, people of colour, LGBTQ2S+ persons, and persons with disabilities to pursue engineering education and engineering careers.

Additionally, the federal government should provide funding towards the creation of EDI training and resources, focused on engineering, for small and medium-sized business enterprises, as well as remote workplaces in construction, mining, natural resources, and other engineering sectors that lack access to EDI resources. Recruiting and retaining a more diverse talent base allows workplaces to leverage the best talent from all parts of society. It also increases innovative thinking and provides a deeper understanding of clients' needs. Equitable, diverse, and inclusive workplaces are more creative, cognitively flexible, collaborative, supportive, and productive. The engineering profession requires diverse problem-solvers to address those challenges in the public interest and to promote Canada's innovative capacity.

#### Recommendation 4: That the government provide funding to support Indigenous people's access programs to post-secondary engineering education programs across Canada

While Indigenous people make up more than 4.9 per cent of the total Canadian population, Indigenous people account for only 0.6 per cent of engineering undergraduate enrolment. A 2021 report commissioned by Engineers Canada estimates that Indigenous representation in the engineering profession is at only 0.73 per cent.<sup>3</sup>

These statistics are staggering and make it clear that there are significant barriers impacting Indigenous people entering and staying in both engineering education and the engineering profession. Some of these barriers include the socio-economic disparity between Indigenous and non-Indigenous populations, the intergenerational trauma of residential schools, inadequate funding for Indigenous schools, early education gaps for Indigenous students, and a lack of awareness around engineering as a viable and desirable career option for Indigenous students.

Although the federal government has outlined their commitment to support Indigenous people in STEM, it is important that the government provide sustainable funding for Indigenous learners, along with support programs that provide adequate tools for Indigenous students to succeed in the post-secondary environment. Doing so will not only sustain the economy and Canada's innovation output, but it will also support the Truth and Reconciliation Commission's Call to Action to eliminate educational and employment gaps between Indigenous and non-Indigenous Canadians.<sup>4</sup>

Specific, culturally relevant supports for Indigenous students interested in engineering that support every step in their post-secondary education have been successful in increasing Indigenous undergraduate

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<sup>3</sup> Engineers Canada (2021). "Indigenous Engineering in Canada." Retrieved from: <https://engineerscanada.ca/indigenous-engineering-in-canada>.

<sup>4</sup> Truth and Reconciliation Commission of Canada (2015). "Truth and Reconciliation Commission of Canada: Calls to Action." Retrieved from: [http://trc.ca/assets/pdf/Calls\\_to\\_Action\\_English2.pdf](http://trc.ca/assets/pdf/Calls_to_Action_English2.pdf).

student enrolment in engineering. Programs such as the University of Manitoba's [Engineering Access Program](#) (ENGAP), Queen's University's [Aboriginal Access to Engineering](#) program, and the University of Saskatchewan's [Indigenous Engineering Access Program](#), are holistic programs that support and create pathways for Indigenous learners in engineering. Engineers Canada's [Indigenous People's Access to Post-Secondary Engineering Education Programs: A Review in Practice Consensus](#) provides a guide for post-secondary engineering programs, and we also convene a resource network of engineering academics working to decolonize their programs. All these tools are helpful, but without funding sources it is impossible for Indigenous access programs to take root and succeed.

By supporting these targeted programs within post-secondary institutions that support the academic, social, and cultural needs of Indigenous students, the federal government would support the access to post-secondary education and future skill development of Indigenous learners. Engineers Canada's Indigenous Advisory Committee developed recommendations for the integration of truth and reconciliation in engineering education, published in the summer of 2022. All recommendations require financial support from federal agencies to succeed. More funding is also required to continue this research and to develop tools for educators to enable decolonization and foster a sense of belonging.

The federal government must continue to close the education gap between Indigenous and non-Indigenous people and advance reconciliation through education and labour market opportunities and collaborate with Indigenous leaders, communities, and the engineering profession to develop an effective and comprehensive strategy to support Indigenous people's access to post-secondary engineering education.