ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS

August 25, 2025

The Honourable François-Philippe Champagne
Minister of Finance and National Revenue
Department of Finance Canada
90 Elgin Street
Ottawa, ON K1A 0G5

Re: OSPE's 2025 Federal Pre-Budget Submission

Dear Minister Champagne,

On behalf of the Ontario Society of Professional Engineers (OSPE), I am pleased to submit our recommendations for the 2025–2026 federal budget. Engineers are central to Canada's responses to climate adaptation, resilient infrastructure, clean energy, industrial renewal, and the safe deployment of emerging technologies. Our submission outlines targeted, practical measures that leverage engineering expertise to deliver long-term value for Canadians.

Summary of Priority Recommendations

Advancing Education and Employment Initiatives for Engineers

Strengthen STEM pathways, implement Blue Ribbon Panel supports for postsecondary engineering, expand diversity and inclusion programs, create bridging supports for internationally educated engineers (including Indigenous-focused pathways in mining/critical minerals), and advance national licensure and interprovincial mobility.

Strengthening Canada's Electricity System

Invest in grid modernization and resilience; enable renewable integration; scale energy storage; support smart grids and decentralized systems (including district/thermal networks and microgrids); and streamline policy/regulatory frameworks.

Sustainable Construction for Canada

Adopt lifecycle assessment standards, embodied-carbon labeling, low-carbon material certification, recycled-content requirements, and incentives for circular economy practices in construction.

Integration of Innovative Low-Carbon Technologies

Accelerate smart building systems, grid-connected distributed renewables, green hydrogen, and advanced wind solutions to diversify Canada's clean-energy portfolio.

Resilience to Climate Change

Fund flood- and fire-resilient construction, energy-efficient HVAC, seismic retrofits, early-warning systems, and upgrades to critical infrastructure and water systems (including treatment for contaminants of emerging concern).

Equitable Access to Sustainable Housing and Inclusive Design

Support affordable, energy-efficient housing; invest in a diverse construction/engineering workforce; and implement universal design standards and accessible public infrastructure.

Emerging Technologies for Future Growth

Invest in cybersecurity and AI capacity; modernize engineering regulation; and fund national upskilling with ethics, safety, and public-interest guardrails.

Investment for Public Health

Advance a "Clean Indoor Air" framework aligned with best-practice standards to improve ventilation, filtration, and monitoring in public buildings and high-risk settings.

Address Tariffs and Strengthen Engineering Trade Resilience

Develop an engineering-led industrial strategy; align R&D with domestic manufacturing; modernize procurement to favour Canadian-engineered solutions; and fund national mapping of engineering strengths alongside an Innovation-to-Industry coalition.

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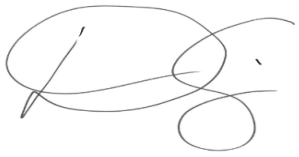
These proposals aim to accelerate sustainable growth, enhance climate and infrastructure resilience, improve public health, and rebuild Canada's industrial capacity—while ensuring the engineering profession has the tools, policies, and regulatory clarity to serve the public interest.

We would welcome the opportunity to discuss these recommendations with you and your officials. Please contact Paola Cetares, Director of Public Affairs, at pcetares@ospe.on.ca or 416-223-9961 ext. 225 to coordinate next steps.

Thank you for your consideration and for your government's continued leadership in building a stronger, more resilient Canada.

Sincerely,



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FEDERAL 2025 PRE-BUDGET SUBMISSION

The Ontario Society of Professional Engineers (OSPE) respectfully submits the following recommendations for consideration in the 2025–2026 federal budget. Our proposals reflect the critical role engineers play in addressing Canada's most pressing challenges; from climate adaptation and infrastructure renewal to industrial revitalization, workforce development, and technological innovation. To fully leverage the expertise of Canada's engineering community, the federal government must invest in policies and programs that support engineering education, fair procurement practices, equitable employment standards, clean energy innovation, and a robust, engineering-driven industrial strategy. These targeted investments will deliver long-term value for Canadians by strengthening our economy, building climate resilience, and ensuring inclusive and sustainable growth.

1. Advancing Education and Employment Initiatives for Engineers

Strengthening STEM Education

Increase federal funding for STEM (Science, Technology, Engineering, and Mathematics) education programs to develop a skilled workforce that meets the rising demand for engineers.

Implementing Blue Ribbon Panel Recommendations for Postsecondary Education

Provide dedicated funding to implement the Blue Ribbon Panel's recommendations to strengthen engineering education in postsecondary institutions nationwide.

Promoting Diversity and Inclusion in Engineering

Fund programs dedicated to fostering diversity and inclusion within the engineering sector.

Bridging Program for Internationally Graduated Engineers

Establish comprehensive programs to support the integration of internationally trained engineers into Canada's workforce. Addressing skills recognition, language barriers, and industry adaptation will harness the talents of diverse international engineers, driving innovation and economic growth.

Indigenous Engineering Pathways for Mining and Related Projects

Fund programs to increase Indigenous participation across engineering disciplines connected to mining and critical minerals projects; not only sector-specific roles, but also the electrical, civil, mechanical, environmental, and other disciplines these projects rely on throughout planning, construction, operations, remediation, and decommissioning. Prioritize co-designed bridging programs (scholarships, mentorships, paid co-ops, upskilling) and supports for Indigenous-owned engineering firms and partnerships.

National Licensure and Interprovincial Mobility

Support the creation of a national licensure framework for professional engineers to eliminate regulatory fragmentation across provinces.
This includes:

- Establishing mutual recognition mechanisms to ensure consistent qualifications nationwide
- Reducing administrative and financial barriers for engineers seeking to practice across provinces and territories
- Providing federal leadership in modernizing licensure processes to reflect the needs of a mobile, modern engineering workforce

The federal government should work with regulators, provincial governments, and professional organizations to streamline interprovincial mobility and develop **transparent, fair, and harmonized fee structures** to facilitate compliance and reduce unnecessary burden.

Advancing Fair Procurement and Fee Standards for Engineering Services

Adopt **Qualifications-Based Selection (QBS)** as a procurement best practice for federally funded engineering and infrastructure projects. QBS prioritizes expertise, experience, and value over low-cost bidding, leading to better outcomes, reduced lifecycle costs, and improved public safety.

Encourage federal departments and agencies to consult **OSPE's Engineering Fee Guidelines** when developing contracts for engineering services. Fair and transparent compensation reflects the complexity, risk, and scope of engineering projects and contributes to better quality control, talent retention, and project sustainability.

Collaboration with Professional Organizations

Foster collaboration between the federal government and professional organizations such as OSPE. Integrating engineers' expertise into national decision-making processes on energy policy, green housing, and infrastructure development ensures informed and effective policies.

Note on Employment Standards

While OSPE advocates for the inclusion of engineers under the **Employment Standards Act** (ESA), we recognize that employment legislation is under provincial jurisdiction. However, the federal government can encourage national dialogue and share best practices across provinces to promote fair and equitable workplace standards in the engineering profession.

2. Strengthening Canada’s Electricity System

Enhance Grid Modernization and Resilience:

Invest in upgrading and expanding Canada's electricity transmission and distribution infrastructure to enhance grid resilience against cyber-attacks and natural disasters. This could include advanced grid technologies and thermal energy systems that improve the management and balancing of electricity supply and demand, particularly with the increased integration of renewable energy sources.

Support for Renewable Energy Integration:

Provide incentives and funding for the integration of renewable energy sources such as solar, wind, hydroelectric and thermal energy into the national grid. This could include subsidies for renewable energy projects, grants for research and development in storage technologies, and financial support for upgrading grid infrastructure to accommodate variable energy sources.

Develop Energy Storage Solutions:

Allocate substantial funding towards the development and deployment of energy storage technologies. Energy storage is critical for balancing supply and demand, stabilizing the grid, and maximizing the utilization of intermittent renewable energy sources.

Promote Smart Grid Technologies:

Encourage the adoption of smart grid technologies through funding and regulatory support. Smart grids, when integrated with **thermal networks and control systems**, enable real-time optimization of electricity and heat use, enhancing energy efficiency, reliability, and sustainability.

Implement Decentralized Energy Systems:

Support the development of decentralized energy systems such as **district thermal networks**, community-based renewables, and microgrids. These systems allow for localized control of electricity and thermal resources, improving energy security, reducing transmission losses, and supporting community resilience and decarbonization goals.

Foster Research and Development:

Increase funding for research and development in next-generation clean energy technologies, including **thermal energy systems** (e.g., geothermal, solar thermal, and combined heat and power). Partnerships between government, academia, utilities, and industry can accelerate innovation and commercialization in this critical space.

Regulatory and Policy Framework Enhancement:

Revise and modernize regulatory and policy frameworks to facilitate the deployment of renewable and **thermal energy** technologies. Streamline permitting processes for district energy and combined heat and power systems and develop clear guidelines to support their integration into local, regional, and national energy planning.

3. Sustainable Construction for Canada

Establish Lifecycle Assessment (LCA) Standards

Develop and enforce mandatory lifecycle assessment standards for construction materials. Assessing environmental, social, and economic impacts promotes sustainability in construction and supports Canada's decarbonization goals.

Implement Embodied Carbon Labels

Introduce labeling that discloses the embodied carbon content of construction materials. Encouraging the selection of low-carbon materials drives demand for sustainable products and reduces overall carbon footprints.

Promote low-carbon Building Material Certification

Support the expansion of certification programs for green building materials. Verifying environmental attributes of products stimulates the market for sustainable materials and incentivizes their adoption.

Mandate Recycled Content Requirements

Implement regulations mandating a minimum percentage of recycled content in construction materials. Reducing reliance on virgin resources fosters a circular economy in the building industry and minimizes environmental impact.

Encourage Circular Economy Practices in Construction

Provide incentives for practices that promote the reuse, recycling, or repurposing of construction materials. Reducing construction waste promotes resource efficiency and environmental sustainability.

4. Integration of Innovative low-carbon Technologies

Promote Smart Building Systems

Support the widespread adoption of smart building technologies that optimize energy consumption through automated controls, real-time monitoring, and predictive analytics.

Grid-Connected Renewable Energy Integration

Encourage the integration of decentralized renewable energy systems, such as solar panels and wind turbines, into the national power grid. Augmenting energy supply with renewable sources reduces reliance on non-renewable energy and supports environmental targets.

Green Hydrogen Production

Invest in green hydrogen production technologies using renewable energy sources. Hydrogen is a clean energy carrier that can significantly contribute to Canada's decarbonization efforts and energy diversification.

Innovative Wind Energy Solutions

Invest in cutting-edge wind energy technologies, such as vertical-axis turbines and airborne wind energy systems. Diversifying and enhancing Canada's renewable energy portfolio supports energy security and environmental goals.

5. Resilience to Climate Change

Flood-Resistant Construction Techniques

Fund the development and implementation of flood-resistant construction practices, including elevating structures and improving drainage systems.

Fire-Resistant Building Materials

Support research and incentives for fire-resistant building materials to mitigate wildfire risks. Enhancing building resilience against wildfires reduces recovery costs and protects lives and property in fire-prone areas.

Energy-Efficient HVAC Systems

Encourage the adoption of energy-efficient heating, ventilation, and air conditioning (HVAC) systems that adapt to climate variations.

Seismic Retrofitting

Invest in programs to retrofit existing buildings to withstand seismic events. Ensuring structural integrity protects communities from earthquakes and reduces potential damages.

Early Warning Systems

Allocate funding to enhance early warning systems for extreme weather events. Timely alerts help communities prepare and respond effectively, mitigating the impacts of disasters.

Investment in Critical Infrastructure Resilience

Provide funding to retrofit and strengthen critical infrastructure such as bridges, power grids, and water treatment plants, developing and enhancing effective water treatment systems to address environmental challenges that could impact drinking water quality and human health, and actions necessary to reduce or eliminate potential contaminants such as Cyanotoxins from Harmful Algal Blooms, Chemicals of Emerging Concern (pharmaceuticals and endocrine disrupting compounds, Personal Care Products, PFAS), Antimicrobial Resistance. Ensuring the continued functioning of vital services during disasters protects public safety and economic stability.

Climate-Resilient Water Management

Fund adaptive water management strategies focusing on; development of an effective watershed management program to identify specific environmental characteristics of the watershed and actions necessary to reduce or eliminate potential contaminants. improved stormwater management, water storage, and enhanced distribution systems. Protecting against floods and droughts ensures reliable water supply and supports sustainable water resource management.

6. Equitable Access to Sustainable Housing and Inclusive Design

Promote Equitable Access to Sustainable Housing

Allocate funding to encourage the development of affordable, energy-efficient housing projects, particularly for marginalized communities.

Support Diverse Workforce Engagement in Construction and Engineering

Introduce programs prioritizing mentorship and training for diverse groups, including women and minorities, in the construction and engineering industries. Creating a more inclusive workforce bridges the talent gap and fosters innovation in sustainable housing development.

Inclusive Design Standards for Housing and Infrastructure

Develop and enforce building standards that prioritize universal accessibility, ensuring homes and public spaces accommodate individuals with diverse physical abilities. Reflecting Canada's diversity in design promotes inclusivity and ensures equitable access to built environments.

Accessible Infrastructure Development

Provide funding for the development of accessible infrastructure, such as ramps, elevators, and public spaces designed for individuals with disabilities.

7. Emerging Technologies for Future Growth

Cybersecurity Investments for a Secure Digital Future

Allocate significant funding for cybersecurity research and development to counter emerging cyber threats, enhance data protection, and improve cybersecurity resilience. Protecting sensitive data and critical systems is essential as Canada’s reliance on digital infrastructure grows.

Artificial Intelligence (AI) Integration into Cybersecurity and Beyond

Fund initiatives exploring the integration of AI to enhance cybersecurity capabilities and other sectors. AI-driven solutions are crucial for detecting and responding to sophisticated cyber threats, while ensuring innovations adhere to ethical guidelines, respect privacy, and align with societal values. It is essential to address the ethical implications of AI, such as bias, transparency, and accountability, to foster trust and ensure responsible deployment.

Data Governance and Privacy Protection

Invest in legislative initiatives that address privacy concerns related to emerging technologies. Implementing robust data governance frameworks will safeguard individual rights and foster greater trust in technological advancements.

Cleantech: Pioneering Sustainable Innovation

Allocate funds to cleantech solutions vital for environmental sustainability and economic resilience, including decentralized wastewater treatment and carbon capture and storage (CCS) technologies.

AI and the Engineering Workforce

Invest in upskilling and reskilling initiatives to ensure engineers remain competitive in an AI-driven economy. Ensure inclusion and diversity in AI skill development to prevent bias and promote equitable opportunities in engineering AI applications. Engineers must receive ongoing training in AI concepts, tools, and ethics to remain competent in an evolving technological landscape. Engineers must remain at the forefront of AI adoption to drive innovation while ensuring that technological advancements align with public interest and ethical considerations.

8. Investment for Public Health

Clean Indoor Air Act for Canada

Implement comprehensive measures to improve indoor air quality, including alignment with ASHRAE standards. Investing in advanced air filtration systems, ventilation upgrades, and air quality monitoring protects individuals from health risks posed by pollutants and airborne viruses.

9. Address Tariffs and Strengthen Engineering Trade Resilience

Canada must reclaim its capacity to design, manufacture, and export innovative technologies that serve domestic needs and strengthen global competitiveness. Engineers are central to this vision. To ensure sustainable economic growth, supply chain resilience, and job creation, the federal government must embed engineering expertise into every stage of industrial policy—from research to commercialization.

OSPE urges the government to adopt the following measures in Budget 2025–2026:

Develop and Fund a National Industrial and Manufacturing Strategy

Establish a pan-Canadian industrial strategy that prioritizes engineering-driven innovation and manufacturing, with engineers actively participating in national policy discussions. Canada currently lacks a cohesive framework to translate R&D into commercial production and long-term competitiveness.

Create a Canadian Societal Return on Investment (RoI) Framework for R&D Funding

Mandate the use of a Societal RoI framework for evaluating publicly funded research and innovation projects. In addition to scientific merit, the framework should assess:

- Industrial capacity building
- Economic impact
- Engineering leadership
- Environmental resilience
- Social and regional equity

This will ensure that public R&D investments deliver measurable domestic value, not just ideas commercialized abroad.

Align Research Funding with Domestic Manufacturing Capacity

Tie federal R&D grants and tax incentives to projects with a clear pathway to Canadian-based production and export. Canada's innovation system must be anchored in domestic job creation, not foreign commercialization.

Invest in Engineering-Led Manufacturing Sectors

Prioritize co-investment in strategic sectors where Canadian engineering leadership offers a global competitive advantage:

- Clean energy systems (e.g., SMRs, thermal networks, district energy)
- Aerospace and advanced rail manufacturing
- Water technologies and climate resilience infrastructure
- Biomanufacturing and agri-tech

These high-potential sectors can drive innovation, employment, and export growth when powered by engineering excellence.

Fund a National Mapping of Engineering-Driven Industrial Strengths

Provide funding to organizations like OSPE to conduct a national asset mapping of Canada's engineering-driven industrial base. This mapping will identify critical gaps in:

- Infrastructure
- Skills and talent pipelines
- Regulatory and investment frameworks

Such insight will support more strategic investments, workforce development, and regional partnerships.

Support an Innovation-to-Industry Coalition

Fund and facilitate a national **Engineering–Industry Innovation Roundtable**, co-led by OSPE, to:

- Bridge R&D and manufacturing
- Align academic innovation with industrial priorities
- Foster collaboration among engineers, startups, post-secondary institutions, and manufacturers

This coordinated approach will help close the gap in Canada's innovation-to-commercialization pipeline.

Modernize Procurement and Trade Rules to Favor Canadian Engineering

Review and revise procurement regulations and interprovincial trade barriers to prioritize Canadian-engineered and Canadian-made solutions, especially in publicly funded infrastructure and innovation projects. Government purchasing power should help scale domestic industries and stimulate homegrown demand.