



THE ONTARIO SOCIETY OF PROFESSIONAL ENGINEERS (OSPE) NATIONAL STRATEGY

2019 Canadian Federal Election



The Ontario Society of Professional Engineers (OSPE) is the voice of the engineering profession. We represent the entire engineering community in Ontario, including professional engineers, engineering graduates and students who work or will work in several of the most strategic sectors of the economy.

As an advocacy organization, OSPE examines policy issues from an engineering perspective and provides applicable research and recommendations to help government make informed decisions. Engineers must share their expertise to ensure that sound policy solutions are developed and implemented in the province of Ontario and throughout Canada. This document contains recommendations from professional engineers for all political parties to consider ahead of the 2019 Canadian Federal Election.

Energy

Canada's economic well-being is linked to the reliability and cost effectiveness of our energy systems. Effective policies must accommodate fundamental engineering principles that govern energy production, distribution and consumption.



1. Fund Canada's smart grid

- In cooperation with the provinces, provide funding and regulatory support for a nation-wide transition to smarter and greener grids
- Require regulators, local distribution companies and/or independent system operators to track and report on behind-the-meter generation and associated energy production and greenhouse gas emissions

2. Support energy conservation, efficiency and innovation

- Create pricing mechanisms that encourage the adoption of locally-owned energy generation and storage systems (distributed energy resources), and encourage technological innovation by supporting grants and incentive programs for innovators
- Perform a review of all energy efficiency programs and develop initiatives to promote the efficient use of low carbon industrial and heating fuels

3. Develop advanced nuclear energy technology

- In consultation with Indigenous communities, provincial and territorial governments, partner with the private sector to establish a Small Modular Reactor (SMR) program that uses fissile and fertile isotopes in existing nuclear waste as fuel for new SMRs, and maintain the high environmental and safety standards established by the Canadian Nuclear Safety Commission

4. Encourage the adoption of clean energy technology

- Incorporate Canadian-designed and built hydrogen technologies into all types of vehicles, including mining equipment, trucks, buses, and cars and trains, opening potentially world-scale manufacturing and sales opportunities
- Reduce carbon emissions using technologies such as geo-exchange systems and district energy

Environment

Protecting the environment is essential to promoting a sustainable and healthy lifestyle for current and future generations. As problem solvers, engineers provide important insights on system planning, efficiencies and integration, total lifecycle costing and scenario analysis for sound policy making.



1. Combat climate change

- Continue to implement an increasing federal price on carbon, and transparently re-invest revenues into sustainable infrastructure and research and development for green technologies
- Create a strong regulatory framework and new areas of research and innovation in the development of low-carbon technology, and consult engineers in policy development
- Focus on an outcome-based, cost-effective carbon emissions reduction funding program for buildings rather than selecting winning and losing technologies
- Continue funding the Collaboration on Community Climate Action Program, the Community Ecoefficiency Acceleration Program and the Sustainable Affordable Housing Innovation program

2. Establish a Green Bank

- Drive private investment towards green, low-carbon technologies and infrastructure using the German development bank (KfW) as an example, offering individuals, businesses and public entities finance options to move climate and environmental protection initiatives forward

3. Develop a National Flood Action Plan

- Implement a national flood forecasting system that provides centralized and harmonized collection and dissemination of floodplain and mapping data, recognizing the importance of collaboration between Indigenous, provincial and territorial governments in areas of overlapping jurisdiction
- Create a national response mechanism with the aid of local and municipal authorities, with clear steps and standards and an information policy covering risk communication that facilitates participation from the public in the decision making process

4. Ban single-use plastics

- Work with the Canadian Council of Ministers of the Environment to ensure single-use plastics are banned throughout the country, and develop consistent national standards to monitor progress and detection of plastics, making data transparent and available to the public
- Provide industry with financial incentives to develop smarter design techniques that create products with the smallest environmental footprint
- Launch an awareness campaign informing Canadians of the harmful impact of plastics and highlight the need to use other environmentally-friendly alternatives

Diversity & Inclusion

Stereotypes, bias and discrimination continue to impact the Science, Technology, Engineering and Math (STEM) sector's ability to attract and retain diverse talent. This has a negative impact on Canada's success and competitiveness and is ultimately hindering economic growth and innovation.



1. Address the gender pay gap

- While the Pay Equity Act obligates employers to examine compensation practices to ensure women and men receive equal pay for equal work, it is a limiting legislation as it only applies to federally regulated workplaces
- Work with provincial governments across the nation to ensure that all provinces are taking concentrated efforts to eliminate the pay gap

2. Encourage industry to create inclusive workplaces

- Develop and implement programs and policies that address barriers to success for under-represented groups and measure and evaluate progress, making changes and improvements as required
- Help businesses transform recruitment and retention practices to increase diversity and foster inclusion

3. Involve Indigenous communities in Canada's STEM sector

- According to Engineers Canada, only one per cent of undergraduate engineering students across the country are Indigenous.

Work with Indigenous communities, industry, academia and associations like OSPE to facilitate conversations, create an open dialogue and develop relationships between these groups.

4. Develop incentives for organizations to hire International Engineering Graduates (IEGs)

- Fund bridging programs and courses to integrate IEGs into the engineering profession, working with provincial governments and regulators to remove barriers to obtaining licensure and ensure employers focus on attracting and retaining diverse talent

5. Reduce the burden of unpaid care responsibilities for women

- Generate awareness and acceptance of parental leave options for men and women, work with the provinces to achieve accessible, affordable and flexible childcare, and provide tax credits and programs that facilitate outsourcing of eldercare

6. Create robust enforcement mechanisms for existing policies and programs

- Determine the effectiveness of Bill C-25, requiring corporations to provide information on policies related to diversity on their board of directors and within senior management

7. Invest in labour market analysis, research and tools to support gender equity in engineering

- Provide funding to federal departments to help address data gaps and assess how diverse groups experience programs, and to organizations that make tools such as **DiversifySTEM**, an app featuring microlessons for employers to help create more inclusive workplace cultures

Infrastructure

Engineers must be empowered with greater autonomy to provide essential management expertise and oversight of public and private infrastructure, enhancing the value, functionality and resiliency of projects that support communities across Canada.



1. Establish an independent, non-partisan agency for financing and project prioritization

- Develop standard, evidence-based project evaluation tools and independently review the quality of project evaluation reports for each major infrastructure project to recommend whether it merits federal government investment
- Provide transparent reports available to the public outlining all project approvals and rejections, along with detailed summaries of decisions

2. End short and long-term drinking water advisories in Indigenous communities

- Consult engineers in planning for water and wastewater projects to repair, upgrade or build infrastructure to ensure that all Canadians have reliable access to safe, clean drinking water

3. Adopt green or natural infrastructure where possible

- Ensure the financial, environmental and social costs and benefits of both grey and green

infrastructure options are measured and integrated into lifecycle asset planning and management

4. Update the National Building Code

- Reduce carbon emissions and gradually improve energy efficiency of existing and new buildings, while adopting a zero-emission building code for new buildings by 2050

5. Ensure investments in infrastructure include community housing

- Establish permanent funding for Rent-Geared-To-Income (RGI) housing, and preserve tax exemption treatment of non-profit housing programs
- Engineers should be consulted to ensure planning leads to specific, actionable strategies for optimizing social efficiency, effectiveness and equity with current construction technologies

6. Promote electrification of transportation and establish a national safety and licensing framework for the adaptation of automated vehicles (AVs)

- Encourage the transition to electric vehicles for personal use by funding purchase incentives using a fossil fuel vehicle tax
- Develop fuel cells and battery-powered options for trains, long haul trucks and transit vehicles, as well as synthetic carbon-neutral liquid fuels for commercial aircraft
- Develop rules and regulations for traffic manuals and cyber security protocols for AVs while seeking to reduce traffic congestion, increase safety and reduce GHG emissions
- Provide funding to post-secondary institutions and industry for research and innovation regarding AVs and connected vehicles, as well as allocating funds to upgrade current infrastructure for their deployment

Research & Innovation

Ontario's engineers are uniquely positioned across several industries – from mobile internet, automation, cloud technology, advanced manufacturing, energy storage, advanced oil and gas exploration, mineral extraction, and renewable energy, amongst others – to contribute directly to Canada's economy through its research and development (R&D) ecosystem.



1. Continue to invest in R&D and innovation, with a heightened focus on commercialization

- Increase financial support for a national structure for expertise-sharing to allow regional innovation centres, small businesses and entrepreneurs to access the expansive knowledge base across the country
- Help drive Canadian projects focused on measurable knowledge transfer between academia and industry, like the Downsview Aerospace Innovation and Research (DAIR) Hub, a consortium of large aeronautics and space companies and leading post-secondary institutions that have come together to develop a physical aerospace hub at Downsview Park in Toronto, supported by all three levels of government

2. Invest in skills and knowledge training

- Create a strong culture across Canada of continuous learning, where employers and employees are provided with the tools to upskill and retrain, providing incentives in the form of paid time or tax breaks for approved curriculum in high-demand sectors

- Provide continuous investment in talent development to support innovation through organizations and institutions, such as the Centre of Excellence in Next Generation Networks (CENGN) and Evolution of Networked Services through a Corridor in Quebec and Ontario for Research and Innovation (ENQCOR), which will help Canada stay competitive in the global race of economic growth

3. Shape curriculum at a national level to remain competitive

- Work closely with industry and academia to ensure graduates' practical skills and knowledge is aligned with what the economy requires now and in the future
- Continue investment in experiential learning opportunities at post secondary institutions, providing resources needed to develop technological and entrepreneurial skills

OSPE's National Strategy for the 2019 Canadian Federal Election was prepared by professional engineers who volunteer on OSPE's advocacy Task Forces. More information regarding the rationale behind each recommendation provided in this document is available on OSPE's Society Notes blog at www.blog.ospe.on.ca.



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