

**Written Submission
House of Commons Standing Committee on Finance
August 15, 2009**

**Pre-Budget Consultations
Engineers Canada**

Executive Summary

Engineers Canada is the national and international voice of Canada's engineering profession. We promote and facilitate high academic, professional and ethical standards across the country. As professionals, engineers are obliged to keep the public safety paramount.

Engineers Canada has identified three measures by which the federal government can become more active and ultimately promote economic prosperity and sustainability.

Canada's infrastructure - our highway systems, water systems, sewers, and bridges - is vital to our quality of life, public health and economic prosperity. It is also integral to public safety and public protection. Unfortunately, there continues to be increasing signs that our infrastructure is deteriorating rapidly. There exists a sizable amount of scientific, engineering and insurance industry research supporting what Canadians already know to be true from their own daily experiences: the need to repair and rehabilitate our existing infrastructure, and to build new infrastructure. The National Roundtable on Sustainable Infrastructure is an initiative of the infrastructure community. The Round Table aims to be a "go to" resource on infrastructure that is capable of advising stakeholders and filling the information gap to assist decision makers in determining sound choices about infrastructure and optimize their investment strategies.

Innovative approaches are needed to deal with the new realities of the 21st century. Changes in climate and extreme weather events threaten our existing infrastructure and the engineering profession has been at the forefront in developing solutions. Engineers Canada has worked in collaboration with the federal government and with funding for shared initiatives such as the Public Infrastructure Engineering Vulnerability Committee (PIEVC) in dealing with climate change. Initiatives such as these serve as constructive mechanisms for the engineering profession to bring together stakeholders and help focus governments' attention on solutions to pressing issues. However, Engineers Canada strongly believes that a long-term approach and commitment by government is required.

Research and Development, and Innovation – Investment into Canada's research and development and innovation communities will ensure economic prosperity and quality of life. In instances where innovation intersects with the practice of engineering, engineers are well positioned to provide expertise in the development of controls to ensure public safety. Our first priority is always public protection.

Engineers Canada is convinced that lack of proper investment today will result in a transfer of even greater costs to future Canadian generations.

Submission

While fiscal turbulence continues to affect our country, professional engineers feel compelled to offer our advice on matters where our experience, education and expertise can help create a more prosperous and sustainable economic, environmental and social future for Canada.

Engineers Canada represents the 12 provincial and territorial associations that regulate the practice of engineering in Canada and license Canada's 160,000 professional engineers. Engineers Canada has appeared before the Standing Committee during its pre-budget hearings on several occasions and would like to thank the Committee Clerk, Chair and Members for including us in this important federal undertaking.

Engineers Canada respectfully submits the following recommendations to the House of Commons Standing Committee on Finance.

1) Infrastructure

Canada's competitiveness and future prosperity requires governments at all levels to embrace a long-term, coordinated vision for public infrastructure that maximizes our return on investment. Innovative approaches, best practices, and collaboration, combined with a more efficient use of existing infrastructure, can provide support for long-term economic growth, improved public safety, an enhanced quality of life and the environment.

Engineers Canada commends the federal government for understanding infrastructure, which plays such an important role in public safety and Canada's future prosperity. We maintain that all levels of government, expert practitioners, managers and users of public infrastructure need to cooperate and share information about best practices to create a common vision for long-term infrastructure planning. In this vein, Engineers Canada and other members of the engineering community have established The National Round Table on Sustainable Infrastructure (NRTSI), which brings together relevant infrastructure stakeholders from all orders of government, industry and academia in a forum to debate and discuss priorities and longer-term issues.

While we recognize that the federal government has made significant commitments in the 2007 Budget and the 2008 Economic Statement, with increasing investment in public infrastructure through programs such as the redirection of portions of the gas tax to municipalities, we maintain that additional effort is required in order to ascertain the sustainability and predictability of Canada's long-term infrastructure funding.

Engineers Canada recognizes that long-term plans for strategic infrastructure investments cannot be developed in isolation. Government policy, regulatory and/or legislative decisions need to have input from infrastructure practitioners. Engineers Canada is eager to share the expertise of professional engineers with the federal government and work together to develop a sustainable approach towards infrastructure for this country.

Recommendations:

- Engineers Canada urges the federal government to carefully consider the value that The National Round Table on Sustainable Infrastructure can bring to long-term infrastructure planning, economic viability, national asset management, governance, competitiveness and a best practices resource tool to be shared with internal and external stakeholders.

2) *Climate Change*

Climate change has already begun to affect the way Canadians live, and consequently the way we build our homes, roads, water systems, bridges and communities. A changing climate exposes our infrastructure to conditions they were not initially designed to withstand. This could result in reduced serviceable lifespan, disruptions in economic activity, greater maintenance costs, and risks to public safety.

We maintain that engineers have a responsibility to prevent and/or minimize such disruptions and reduce risks by designing, building and maintaining resilient infrastructure that can adapt to the impacts of a changing climate. Furthermore, we recognize the implications of this huge challenge.

Engineers are continuing to play a leadership role in building and maintaining infrastructure, which can withstand the new climatic realities. Engineers also are developing innovative approaches aimed at minimizing greenhouse gas emissions. The federal government can assist through increased funding for climate change research, most notably improving the reliability of regional climate datasets to support better infrastructure design.

We look forward to continuing to work with government on the climate change issue, which will also require a long-term commitment and vision.

Recommendations:

- Provide sustained funding commitments for existing shared initiatives such as the Public Infrastructure Engineering Vulnerability Committee (PIEVC), which has been conducting a comprehensive assessment of the vulnerability of Canada's infrastructure assets to the impacts of climate change, and continues to monitor the results of the first national assessment, which will be used as key input to the review of infrastructure codes and standards that may need to be modified to account for future climate change.

3) *Research, Development and Innovation:*

Investment in research, development and innovation allows businesses and universities to develop new designs and products that improve efficiency, promote environmental stewardship and enhance Canadian economic diversity. Innovation has proven to be an essential component of a high-performing economy.

As an example, Engineers Canada promotes the development of new technologies that assist in the reduction of greenhouse gas emissions through good engineering practice. Other examples include infrastructure designs that increase energy efficiency or use materials that require less energy. Emerging technologies and innovative research have tangible and cost-efficient results.

Engineers Canada has continuously engaged and encouraged the federal government to explore ways to improve Canada's competitiveness, outputs and quality of life while developing long-term approaches that allow sustained growth and prosperity through the support of innovative practices, multidisciplinary research, new techniques, and long-term strategies. The importance of research, development and innovation will always be paramount to professional engineers – we have been involved and we will continue working on this important issue in order to ensure Canada's prosperity.

Funding from the federal government for research and innovation helps to ensure adequate funds are available to support the procurement and retention of talent and to reinforce the position of Canada as a solid place to invest. Canada is blessed with excellent engineering universities and technical institutes, and Canada maintains the highest rate of college completion among its peer countries. However, Canada produces fewer high level graduates in the math, science, computer science and engineering disciplines. Increasing the number of graduates with advanced qualifications in these fields will only enhance Canadian innovation and productivity growth.

Recommendations:

- Engineers Canada encourages committed federal government investment in research, development and innovation in Canada.

Given the role of professional engineers in building a safer and healthier, our industry knowledge can serve as a valuable asset to the federal government. We look forward to working together in the future on these and other important shared matters. Engineers Canada urges the government to fully consider our recommendations.

In closing, Engineers Canada would again like to thank the Honourable Members of the House of Commons Standing Committee on Finance, the Committee Clerk, the Chair and Vice-Chairs for providing us the opportunity to briefly detail several of the issues which are at the forefront of the engineering professions priorities.