

Engineers Canada's Submission to the House of Commons Standing Committee on Transport, Infrastructure and Communities on the update on Infrastructure Projects and the Investing in Canada Plan

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Overview

The Government of Canada, through the *Investing in Canada Plan*, has made promises to provide significant and historic investments in infrastructure to provide communities across Canada with the necessary tools and supports that are required to prosper and innovate. The goal of the *Investing in Canada Plan* is to create long-term economic growth, create inclusive communities, and to support a low carbon, green economy. Several projects are now underway that have been approved under the \$180+ billion *Investing in Canada Plan*.

Engineers Canada strongly believes that the federal government must collaborate with the engineering profession to identify appropriate solutions to infrastructure needs. Together with provincial and territorial governments, municipalities and stakeholders, engineers can use their unbiased and professional expertise to help the federal government build a long-term strategy for infrastructure funding. This strategy must include targeted investments in critical infrastructure, the use of sound asset management practices, and priority-setting to keep our communities safe and prosperous.

Investing in trade and transportation infrastructure

Recommendation #1: Licensing of engineers within the federal government

Public confidence and safety is at risk when engineers are not involved in the development and implementation of a wide range of legislation and regulations that require the application of engineering principles. In some cases, federally regulated industries may be putting the safety of Canadians at risk by failing to require compliance with provincial acts and licensing requirements for engineering work. The involvement of engineers in the development and implementation of legislation and regulations governing infrastructure, transportation, resource development, and manufacturing is crucial for the protection of public safety.

The federal government must ensure that engineers are involved throughout the entire life cycle of Canadian infrastructure projects within the *Investing in Canada Plan*. It is equally important that federal public servants who are tasked with overseeing engineering work are licensed engineers. Oversight, design approvals, and project management for engineering work falls within the scope of engineering and is required by provincial and territorial law to be carried out by a professional engineer.

Within the *Investing in Canada Plan*, the federal government should ensure that demand-side legislation requires that engineering work be performed by individuals who are licensed to do so, thereby encouraging compliance with professional legislation. The federal government is also encouraged to clarify and enforce regulations, rules, guidelines, and standards that call for qualified, unbiased, and accountable persons to perform work that protects the public when safety management and regulatory compliance is delegated to federally regulated industries.

Investing in green infrastructure

While adaptation of infrastructure to Canada's changing climate has a community focus, a coordinated outlook on climate change that promotes climate resilience is needed to improve codes, standards, regulations, climate information, policies, procedures, and professional practices. It is Engineers Canada's view that climate resiliency is the goal, and adaptation is the key strategy to achieve it. All adaptation actions should lead to an outcome of improved resiliency for all communities, be it municipalities, cities, towns, or First Nations communities. Building infrastructure today without adequately addressing and planning for future climate impacts creates vulnerability gaps that will cause later service disruptions and failures, thus increasing costs to government, the private sector, and the public.

Climate resilient infrastructure in Canada is critical, not only to ensure public confidence but to uphold public safety. The threat posed to Canada's public infrastructure by the effects of climate change and extreme weather is compounded by the age of Canada's infrastructure. With proper investment and planning, investments in infrastructure will enhance Canada's productivity, growth, and competitiveness, and decrease the costs of repair over the longer term.

Climate resilience is the ability of communities across Canada to prepare, plan for, absorb, recover from, and successfully adapt to actual or potential adverse climate events occurring over the service life of infrastructure. The government's promise to include climate resilience as a key pillar in federal infrastructure programs and projects is a proactive response to this growing threat to Canada's public infrastructure. Including a complementary climate resilience objective for public infrastructure projects at provincial, territorial, and municipal levels is required to complete the implementation of this strategy. It requires coordination among all levels of government and at all stages of infrastructure procurement, construction, operation, and maintenance.

Recommendation #2: Incorporate climate vulnerability assessments into proposals for infrastructure design and build requests that involve new construction or refurbishment

Resilient infrastructure is the driving force behind productive societies, stable sectors, and increased public confidence in civil infrastructure. However, the Canadian Infrastructure Report Card delineates that much of Canada's current infrastructure is vulnerable to the effects of Canada's changing climate, which is becoming increasingly frequent and severe.¹ Vulnerable infrastructure presents a risk, not only to public safety, but also to the productivity of Canadian individuals and businesses. Without the consistent application of climate vulnerability assessments to inform infrastructure design, public infrastructure and trust towards infrastructure will remain fragile.

Provinces, municipalities, and non-governmental organizations applying for federal government funding to build or rehabilitate infrastructure should demonstrate that they have either assessed their infrastructure climate vulnerability and service risks in advance, or require this as part of their design and build procurement process. In addition, they should demonstrate that they have taken reasonable

¹ Canadian Infrastructure Report Card (2016). "Canadian Infrastructure Report Card: Informing the Future." Retrieved May 4, 2018, from: <http://canadianinfrastructure.ca/en/index.html>.

measures to address risks through adaptation measures that assure improved resilience to protect their communities.

The integration of climate change vulnerability and risk assessments, using tools during the planning stages of all infrastructure projects would greatly inform actions that enhance the resilience of infrastructure across Canadian communities, increase public confidence, and support productivity.

The assessment tool is only the first step. To truly protect Canadian citizens and promote public safety, the federal government must help to build the capacity to perform assessments and to provide sustainable government funding models to execute recommendations. By identifying the vulnerability of new and existing infrastructure to extreme weather events and service disruptions, communities will be better able to manage the dangers to life and property that they may face in the future due to Canada's changing climate.

Engineers are leaders in climate adaptation and infrastructure resilience. Our profession is ready to work collaboratively with the federal government to provide unbiased advice regarding climate change and its impact on public infrastructure.

Recommendation #3: Incorporate climate vulnerability and resilience objectives into federal and provincial environmental assessment processes

Federal and provincial environmental assessment acts need to embed climate vulnerability and risk assessments. Environmental assessments must consider all aspects of environment, including, for example, emissions levels or changing climate conditions. The project proponent should be required to review the project and advise on those features that will reduce climate risks and improve resiliency.

Consideration of climate effects in the environmental assessment of proposed projects will build resilience in the local jurisdiction or community. These considerations not only define potential risks and vulnerabilities but would also propose climate adaptation measures, and their implementation during the detailed design stage of any project. In addition, where proponents do not comply with this provision, they should be required to justify and provide evidence for such decisions.

Recommendation #4: Invest in national climate data collection

The Government of Canada has outlined that it wants to make historic new investments in infrastructure to build the cities of the 21st century and provide communities across the country with the tools they need to prosper. To support this endeavour, the government must invest in national climate data collection.

Engineers Canada welcomes the federal government's proposed investment of \$120 million over the next five years, as outlined in Budget 2018, to adapt Canada's weather and water services to climate change. However, by doing so, we must ensure that the collection of national climate data remains up-to-date, consistent, and accurate to increase public confidence in federal environmental assessments and regulatory processes, while simultaneously supporting evidence-based information to guide project planning activities. Consistent national climate data will ensure that accurate climate projections are made, enabling effective planning for both present and future projects within the *Investing in Canada Plan*.

While this investment is a great first step, Engineers Canada encourages the federal government to continue to support climate resilience and adaptation initiatives. Canadian communities, as well as Canada's economy, will be better protected with the combined federal investment of reliable, up-to-date climate data and climate resilient initiatives.

Who we are:

Engineers Canada is the national organization of the 12 provincial and territorial associations that regulate the practice of engineering in Canada and license the country's 290,000 professional engineers. Together, we work to advance the profession in the public interest.

Engineers drive much of Canada's economy. Natural resources, manufacturing, transportation infrastructure, technology, and other sectors rely on the capability of engineers. As one of the top five exporters of engineering services in the world, the expertise of Canada's engineers contributes to both the Canadian and international economies.