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BUILDING CANADA'S HIGH-SPEED BROADBAND THROUGH A SUSTAINABLE DIGITAL INFRASTRUCTURE

THE ENGINEERING PROFESSION'S POSITION

- Engineers Canada believes that broadband connectivity must be reliable, sustainable, secure, protected, and accessible to all Canadians, particularly for those residing in rural, remote, and northern communities. The viability of many of these communities will in some measure be dependent on this access and thereby their ability to contribute to Canada's overall success.
- The unbiased and expert advice of engineers skilled in this area is essential in supporting and implementing a national sustainable broadband strategy, as well as maintaining Canada's digital infrastructure.
- Incorporating engineers' accountability into federal legislation related to broadband infrastructure weaves the engineering regulatory process into the fabric of government and thereby keeps Canadians and their data safe, secure, and protected.

The challenge(s)

Canadians from all communities, both urban and rural, need access to reliable, affordable, high-speed internet and mobile connectivity. This access is essential for personal and professional communications, for business sustainability and growth, and for access to government services. However, Canada currently faces a national connectivity gap as Canadians living in rural, remote, or Northern communities face daily challenges of slower and unreliable internet access when compared to their urban counterparts. Equitable and affordable access to sustainable digital infrastructure helps create equal opportunity for Canadians and is a vital component of an inclusive and progressive economy. These remote communities have identified that unreliable broadband connectivity has been the number one issue impeding their economic growth.[1] At the end of 2019, 63 per cent of rural and remote households in Canada did not have access to speeds that are considered standard. This large divide prevents individuals residing in these communities from participating in the digital economy.[2]

The spread of COVID-19 demonstrates an increased need for reliable high-speed broadband connectivity in these communities. Many industries have shifted their employees to virtual work, and many continue with virtual work, making reliable internet access imperative for continued productivity, while simultaneously helping to spur economic recovery. Broadband connectivity continues to be critical in the delivery of essential services across Canada, such as telemedicine, online government services, and banking to name a few. Wireless technology, including 5G and higher frequency spectrums, have the potential to massively change the way industry and businesses will function in the future. Despite the strong progress that has been made, such as the federal government's development of the Universal Broadband Fund, investing in sustainable broadband infrastructure must remain a top priority for the federal government.

[1] Innovation, Science and Economic Development Canada (2019). "High-speed access for all: Canada's connectivity strategy." Retrieved August 10, 2020 from: https://www.ic.gc.ca/eic/site/139.nsf/vwapj/ISEDC_19-170_Connectivity_Strategy_E_Web.pdf/$file/ISEDC_19-170_Connectivity_Strategy_E_Web.pdf

[2] Policy Option (2019)."All Canadians deserve reliable high-speed internet." Retrieved August 14, 2020 from: https://policyoptions.irpp.org/magazines/october-2019/all-canadians-deserve-reliable-high-speed-internet/#:~:text=It's%20almost%202020%2C%20and%20everyone,Period.&text=The%20government%20must%20follow%20through,service%20in%20EVERY%20Canadian%20household

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How Engineers Canada has contributed

Engineers are essential in the planning, design, implementation, and maintenance of physical broadband infrastructure, making the engineering profession essential in connecting rural and remote communities to broadband internet in Canada. They provide innovative and practical solutions to complex problems and support the building of Canada's high-speed broadband by providing professional and unbiased expertise. Ensuring that engineers are included in the consultation process, as well as consulted in the development of all wireless technology, specifically 5G, is critical. The lack of technical guidance may result in the federal government making wrong or very restrictive decisions which could greatly hamper how the technology is deployed and in the long run result in technological disadvantages to all Canadians.

Engineers Canada actively participates in federal consultations regarding legislation and regulations that impact the work of engineers and that address initiatives requiring the expertise of engineers. In August 2020, our organization submitted its comments to the House of Commons Standing Committee on Finance regarding the need to continue to support efforts to build Canada's high-speed broadband connectivity through sustainable digital infrastructure, while ensuring public safety.

Recommendations to the federal government

With the uncertainty that COVID-19 brings, sustainable broadband connectivity is important in creating economic productivity, while simultaneously building an inclusive, equitable, and progressive economy. Engineers Canada was encouraged by the federal government's commitment towards supporting high-speed internet access for all Canadians, particularly in rural and remote communities, through the *High Speed Access for All: Canada's Connectivity Strategy*. Additionally, Engineers Canada was pleased by the government's commitment to accelerate the connectivity timelines and ambitions of the Universal Broadband Fund to ensure that all Canadians, no matter where they live, have access to high-speed internet.

As broadband comes within telecommunications, the federal government has a particular responsibility for broadband as telecommunications is a federally regulated activity. This gives the federal government both the incentive and the legislative tools to make this access available to all. In addition, Indigenous peoples should not be put in the position where they would need to move elsewhere because of the lack of basic infrastructure and services to pursue education or find employment. The federal government must continue to work with Indigenous communities to implement connectivity projects to meet their unique needs.

To further support high-speed access and broadband connectivity across Canada, the federal government should:

- Ensure that engineers in Canada are used in all aspects of making this access available, especially in the planning, development, maintenance, rehabilitation, and commissioning of sustainable broadband infrastructure.
- Encourage the integration of broadband deployment within all infrastructure renewal programs.
- Incentivize the use of all available technologies to connect rural Canada on an expedited timeline including 5G technology, fibre and copper, fixed wireless, and low earth orbit satellites (LEOs).

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- Create the conditions for increased private sector investment through:
    - Robust deployment conditions on new spectrum licenses, and stricter enforcement of existing spectrum license deployment conditions
    - Expediting auctions for critical spectrum needed to deploy rural 5G technology, fixed wireless, and LEOs
    - Maximizing the amount of contiguous spectrum available to improve efficiency, range, and cost associated with building rural wireless and LEO technology on an expedited timeline
- Look for opportunities to partner with provincial and municipal funding programs to maximize the efficacy of federal funding programs
- Continue to engage with Canadians, the provinces and territories, and Indigenous communities to support connectivity and broadband investments.

How Engineers Canada will contribute

Engineers Canada will continue to:

- Monitor the government agenda, legislative initiatives, and proposed broadband connectivity regulations and activities to bring recommendations on demand-side legislation to the attention of the government.
- Advocate for decision-makers to ensure that broadband legislation retains explicit references to the inclusion of engineers licensed with provincial regulators, in the interest of public safety across Canada.
- Provide input from engineers on federal legislation and regulations where engineering work would be in the public interest.
- Support the work of the engineering regulators to enforce the provincial and territorial engineering acts as they pertain to the practice of engineering disciplines impacting broadband infrastructure.