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Written Submission for the Pre-Budget Consultations in Advance of the 2022 Federal Budget

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Recommendation 1: That the government champion the development and use of standards by making their utilization a key criterion for federally funded projects such as infrastructure and climate resilience.

Recommendation 2: That the government support standards development activities through funding and participation, and by incorporating standards by reference in federal regulations in the following areas that specifically help advance Net Zero 2050:

- Clean energy including small modular reactors (SMR), hydrogen, and renewable energy
- Innovative building practices through circular construction
- Alternative Energy Vehicles (AEV)
- Connected and Automated Vehicles (CAV)

Recommendation 3: That the government build a stronger Canada by supporting standards development activities aimed at the following:

- Enhancing the resilience and durability of built infrastructure
- The restoration of natural infrastructure
- Increasing the resilience of flood mitigation infrastructure
- Sustainable Finance and Canada's transition taxonomy

Recommendation 4: That the government continue to view and support the timely adoption of codes and standards as a driver to break down inter-provincial trade barriers.

Recommendation 5: That the government reduces barriers and improves accessibility by supporting CSA Group's work to expand its portfolio of accessibility standards, and eventually to incorporate those standards by reference, and also to support accessible building certification.



1 Overview

The Canadian Standards Association, operating as CSA Group (CSA), was established over 100 years ago and is Canada's largest accredited standards development organization. We are a member-based association serving business, government, and consumers, with over 3,000 published standards and codes in more than 54 subject areas, including health care, occupational health and safety, the environment, energy, infrastructure, and emerging technologies.

Standards developed with our 10,000 members help improve safety, health, the environment, and economic efficiency in Canada and beyond. We collaborate with federal, provincial, and territorial governments to positively impact the lives of Canadians every single day.

Enhanced trade through compatibility and interoperability, increased economic activity, reduced environmental impacts, improved safety and security, are all potential outcomes of implementing standards in wide ranging areas of our lives.

We believe that the government's support, endorsement, advocacy, and reference of our standards can help deliver a stronger, more sustainable, and resilient Canada. CSA recommends an extensive and ongoing collaboration with the Government of Canada to ensure that the road to recovery, and a stronger, more inclusive Canada, is founded on standards developed by Canada's foremost experts following a transparent and inclusive method accredited by the Standards Council of Canada (SCC).

2 Recommendations

Recommendation 1: That the government champion the use of standards by making their utilization a key criterion for federally funded projects:

Significant federal government-led national infrastructure projects necessitate the use of codes and standards that can help establish qualifiable approaches to validate the impact of such projects.

Developing program frameworks that conform to key codes and standards can provide confidence that specific program objectives are being met. For example, requiring federally funded bridge projects to be constructed to the CSA S6 *Canadian Highway Bridge Design Code* supports the achievement of numerous federal objectives, including public safety, business continuity, and resilience to climate change.

Recommendation 2: That the government support standards development activities through funding and participation, and by incorporating standards by reference in federal regulations in the following areas, that specifically help advance Net Zero 2050:



SMRs: With over 45 years of demonstrated leadership focused on safety in the nuclear sector, the CSA Nuclear Standards Program works closely with experts and stakeholders including industry, government, and general interest groups, to develop and maintain over 60 nuclear-related standards and guidelines.

CSA is proactively reviewing the role and impact of standards in supporting the deployment of SMRs in Canada, analyzing approaches for standards to support the regulatory framework and enable international harmonization, as well as identifying and addressing specific technical standards for SMR technologies.

Hydrogen CSA has an extensive hydrogen standards portfolio in support of the transportation sector that includes fuel cells, vehicle components, and fueling stations. CSA is also exploring technologies and processes across the entire value chain of the hydrogen ecosystem, such as production, power to gas using electrolysis, hydrogen distribution, hydrogen storage, carbon capture and storage, and use in appliances.

Government support can help address known gaps across the hydrogen ecosystem that include new or revised standards for the generation, transport, and eventual safe and sustainable use of hydrogen in commercial and residential applications across Canada.

Renewable energy: CSA's portfolio of more than 700 energy-related standards, many referenced in regulation, includes standards for Energy Efficiency, Renewable Energy, and the Canadian Electrical Code Parts I, II and III. These are critical resources that guide electrical safety and performance for the systems and products we use daily across the country.

Government funding and participation in developing future-facing codes and standards in the growing renewable and non-emitting energy sector, can help make Canada's electricity grids safer, more resilient, reliable and flexible.

Innovative building practices through circular construction: CSA has established internationally recognized standards addressing design for disassembly, deconstruction, and durability of buildings. CSA has also developed tools to measure and report both the environmental impact (via [Environmental Product Declarations](#)) and carbon quantification (e.g. CarbonStar®) of construction materials aimed at supporting low carbon procurement.

CSA has played a key role in setting the groundwork to advance Canada's goal of diverting at least 90% of all construction and demolition waste from landfills by 2030, with a short-term goal of reducing embodied carbon of structural materials of major construction projects by 30%.

In 2021, Circular Economy Leadership Canada produced a report indicating areas of priority to accelerate circularity, including research, policy guidance, standards, and education. Working closely with key stakeholders such as the federal government, there is significant opportunity in advancing a more robust circular construction framework.

AEVs (Alternative Energy Vehicles): Alternative fuels for transportation include electric batteries, fuel cells powered by hydrogen, and compressed natural gas which can utilize renewable natural gas.



CSA is a leader in developing codes and standards to support alternative fuel vehicles and infrastructure for hydrogen and fuel cells, compressed natural gas, liquefied natural gas, and electric vehicles. CSA standards in these areas address vehicles, maintenance facilities, workforce/personnel, and refueling and recharging infrastructure.

Through engagement and participation of stakeholders including the federal government, CSA identifies gaps and priorities in standardization to further support deployment of various alternative energy vehicles and the required infrastructure.

CAVs (Connected and Automated Vehicles): CAV deployment requires integrating the physical infrastructure such as roads, signals, lane markings and signage, with digital infrastructure such as roadside sensors, communications protocols, artificial intelligence, vehicles with advanced sensing, GPS, and high definition mapping.

Leveraging the CSA Research program and Transport Canada's program to Advance Connectivity and Automation in the Transportation System (ACATS), CSA has led stakeholder engagement through the Connected and Automated Vehicle Advisory Council, and conducted workshops examining codes and standards gaps and priorities. These activities have led to the development of a standardization roadmap, which together with other steps, identified the need for the development of physical and digital infrastructure CAV Codes.

Continued government support for the development and implementation of CAV codes and standards will be critical for widespread adoption of CAVs.

Recommendation 3: That the government build a stronger Canada by supporting standards development activities aimed at the following:

Enhancing the resilience and durability of built infrastructure: CSA's extensive work in climate change adaptation and resilience includes important updates to key documents such as the CSA S6:19 *Canadian Highway Bridge Code* and the CSA C22.1:21 *Canadian Electrical Code, Part 1*. Adopted by Canadian provinces and territories, these Codes are currently being revised to make some of Canada's most critical infrastructure more climate resilient. We are also working to enhance the resilience of buildings, and developing forward-looking standards to address issues such as durability, flooding, and impacts of climate extremes.

Government support through funding and participation is needed to ensure additional infrastructure codes and standards are updated to align with future facing climate data, and be made more resilient to extreme conditions. The resiliency and reliability of our network of dams, wastewater, water, gas, electrical, and telecommunication infrastructure requires careful evaluation and standardized solutions to ensure continued integrity for generations.

The restoration of natural infrastructure: As evidenced through the establishment of the Natural Infrastructure Fund in Budget 2021, there is growing recognition of the value of Natural Infrastructure (NI), including advancing climate change mitigation and adaptation, supporting health and well-being, protecting biodiversity, and providing critical services such as surface and groundwater management, recreation, and erosion mitigation.



Recently, CSA funded an NRC-conducted research initiative that identified several key barriers to broader uptake of NI, ranging from challenges in measuring performance, economic impacts, shortage of Nature Based Solutions (NbS) experts, and complex governance and regulatory environments.

Continued government support for standards development activities in the NI and NbS sectors, can address barriers to implementing NI measures and help maximize impact and return on investment.

Increasing the resilience of flood mitigation infrastructure: The current landscape for water management and flood resiliency standards, guidelines, and training is fragmented, with each municipality bearing the burden of developing their own guidelines. This approach negatively impacts resource disadvantaged small and medium municipalities, especially in light of increased flooding and flood-related damage.

CSA has published flood related national standards that are appropriate for use by small, medium, and large communities, that can be directly referenced in regulatory documents, such as CSA W204:19, *Flood resilient design for new residential communities*. CSA has also published new national standards on the *Design and Construction of Bioretention Systems, Erosion and Sediment Control*, and updated guidance on the interpretation and use of rainfall intensity-duration-frequency (IDF) information.

Government support to continue developing flood-related standards, and implement them through reference in regulation, is vital to protecting flood-prone communities across Canada.

Sustainable Finance and Canada's transition taxonomy: In June 2019, Canada's Expert Panel on Sustainable Finance recognized that there was a gap in the existing taxonomies (European Union, Climate Bonds Initiative, International Capital Market Association), and recommended the financial community support CSA's establishment of a Canadian Transition Taxonomy.

CSA has been working with numerus stakeholders on the development of the CSA SPE 12000 *Canadian Guide on Transition Finance, Principles and Taxonomy*, which is now in the final stages of review and approval. This voluntary guide is intended for use by the financial community and industry stakeholders, to mobilize capital markets toward lower carbon solutions and GHG reductions, and will be the first in Canada. It is anticipated for release in 2021.

Government support can help advance the development of a climate adaptation finance taxonomy and principles guide. This guide would help direct capital to infrastructure projects to support the sector by incorporating adaptation measures to avoid the effects of climate disasters.

Recommendation 4: That the government continue to view and support the timely adoption of codes and standards as a driver to break down inter-provincial trade barriers:

CSA has been involved with initiatives of the Reconciliation and Cooperation Table (RCT) in support of the implementation of the Canadian Free Trade Agreement. To-date, this has included supporting the following initiatives where CSA standards are referenced:

- Canadian Registration Numbers for Pressure Equipment
- Construction Codes



- Occupational Health and Safety: Head, Foot and Eye Protection; Hearing Protection; First Aid Kits

New RCT workplan initiatives where CSA is involved, or anticipates being involved, include the following:

- Personal Protective Equipment
- Canadian Electrical Codes
- Occupational Health and Safety Management Systems
- Gasfitter/Gas Technician Licensing/Certification

Continued government support for timely adoption of codes and standards, and forums such as the RCT, can ease inter-provincial trade, reduce the cost of doing business in Canada, and help meet Canada's environmental commitments under the Pan-Canadian Framework on Clean Growth and Climate Change.

Recommendation 5: That the government reduces barriers and improves accessibility by supporting CSA Group's work to expand its portfolio of accessibility standards, and eventually to incorporate those standards by reference, and also to support accessible building certification:

In collaboration with Accessibility Standards Canada, CSA is updating its standards on accessible built environment, banking and interactive devices, and creating a new standard for accessible housing. Additional work is needed to address interior and exterior barriers, such as wayfinding, to make spaces more accessible.

Federal government support for CSA's program and the reference of CSA's accessibility standards in government policy and legislation, can help advance accessibility for persons with disabilities and make Canada more inclusive.

Additionally, the federal government could provide support to building owners to participate in the Rick Hansen Foundation Accessibility Certification Program. This certification program is based on CSA standards, and aims to identify and address building accessibility for all. Successful implementation of the program in British Columbia and Ontario has resulted in over 1,000 buildings and facilities being rated and assessed for accessibility.