2020-2021 Regulatory Cooperation Council (RCC) Work Plan: Codes & Standards for Low Carbon Transportation Technologies and Infrastructure

Canadian Department: Natural Resources Canada (NRCan)

U.S. Department/Agency: U.S. Department of Energy (DOE)

Regulatory Cooperation Statement: The objective of this work is to facilitate the use of alternative fuel technologies (hydrogen, electric, natural gas, and propane) into the Canada/U.S. transportation system by supporting the alignment of existing codes and standards, where feasible; and co-developing new binational codes and standards, where applicable.

Initiative A: The objective is to provide information and foster collaboration that facilitates the revision of existing codes, and enables the development of new binational codes for low carbon alternative fuel infrastructure use in transportation, to address gaps in code coverage as identified and prioritized by stakeholders.

Initiative B: To foster the development of a comprehensive suite of voluntary performance-based component standards, pertaining to the use of low carbon alternative fuels for all modes of transportation.

Initiative C: To have comprehensive consultation with industry stakeholders in both Canada and the United States, in order the identify priority gaps and misalignments in the codes and standards for low carbon alternative fuels currently used in transportation (e.g. hydrogen, electric natural gas, propane).

Work Plan:

Initiative	Desired outcome(s)	Activities	Reporting
A: Alignment of Codes for Low Carbon Alternative Fuel Infrastructure - Canadian Hydrogen Installation Code (CHIC) - Canadian Electric Code, Section 86 - Compressed Natural Gas (CNG) Refueling Stations Installation Code (CSA B108) - Natural Gas for Vehicles Installation Code (CSA B109) - Vehicle Maintenance Facilities Code (CSA B401) - Propane Tank Installation Code (CSA B149.1)	- improved harmonization of codes between the United States and Canada regarding alternative fuel infrastructure and technology will create a level playing field for industry when developing low carbon technologies and infrastructure. - updated codes will reflect new technologies in the marketplace. - improved clarity for industry stakeholders who are designing and installing infrastructure and technology. - increased collaboration between Canada and the United States in regards to new low carbon technologies. - maintained protections for health, safety and the environment, specifically with regards to new installations for new low carbon fuel fueling infrastructure (i.e. hydrogen, electric, natural gas, and propane).	**Canadian Hydrogen Installation Code (CHIC)** - update the CHIC with reference to new and updated standards reflecting new hydrogen technologies (ongoing). **Canadian Electric Code, Section 86** - revise the codes to account for new technologies (i.e. DC fast chargers). - harmonize CEC, Section 86 with NFPA 70, where appropriate (March 2021). **CNG Refueling Station Installation Code** - align CSA B108 with U.S. code NFPA 52. - amend to refine the coverage of the code and address liquefied-compressed natural gas (LCNG) applications. - begin work on the new 2021 edition (December 2020). **Natural Gas for Vehicles Installation Code** - harmonize CSA B109 with NFPA 52, where possible (ongoing). **Natural Gas for Vehicles Installation Code** - align Canada’s Natural Gas Vehicle Maintenance Facility Code CSA B401 with U.S. code NFPA 30A (March 2021).	

		Vehicle Maintenance Facilities Code - address larger maintenance facilities, including those for class viii trucks, and other fuel types (March 2021). **Propane Tank Installation Codes** - develop an express document of binational technical requirements for propane tank installation on vehicles, based on CSA B149.1 and NFPA 58 (March 2021).	

B: Alignment of Standards for Low Carbon Alternative Fuel Infrastructure and Technology	- improved harmonization of standards between the United States and Canada regarding alternative fuel technology will create a level playing field for industry. - updated standards will reflect new technologies in the marketplace. - improved clarity for industry stakeholders who are designing and installing technology for North America. - increased collaboration between Canada and the United States in regards to new low carbon technologies. - maintained protections for health, safety and the environment, specifically with regards to new low carbon fuel technologies (i.e. hydrogen, electric, natural gas, and propane).	**Hydrogen Infrastructure and Technology** - align standards for fuel containers (**HGV 2**), dispensers (**HGV 4.1**), hoses for stations (**HGV 4.2**), dispenser fueling test parameters (**HGV4.3**), fuel station design, installation, operation, and maintenance (**HGV 4.9**), fittings (**HGV 4.10**) (March 2021). - develop binational standards for fueling appliances (**HGV 5.1**), and testing procedures for the material compatibility for polymers standard (**CHMC 2**) (March 2021). - align Canada's standard for hydrogen vehicle fuel system components (**HGV 3.1)**, and for hydrogen pressure relief devices for vehicles **HPRD 1** with U.S. standards (March 2021). **Electric Infrastructure and Technology** - develop a new binational standard for DC fast chargers, based on CSA C22.2 No 107.1 and UL 2202 (December 2020). - adopt a new standard IEC-62660-3 which mandates safety requirements for cells used in battery packs during normal operation of vehicles (December 2020). - adopt a new standard IEC-62660-3 which mandates safety requirements for cells used in battery packs during normal operation of vehicles (December 2020). **Natural Gas Infrastructure and Technology**	

		- update Canada-U.S. binational standards for temperature compensation for refueling (**NGV 4.3**), breakaway devices (**NGV 4.4**), manual valves for stations (**NGV 4.6**), and compressors (**NGV 4.8**) based on new technology. Updated standards will reflect new technology. - update bi-nation standards for automatic valves for stations (**NGV 4.7**), LNG hoses for stations (**LNG 4.2**), and breakaway devices for LNG stations (**LNG 4.4**) to reflect new technology. - update Canada-U.S. binational standards for natural gas vehicle fuel system components (**NGV 3.1**) and pressure relief devices (**PRD1**) to reflect new technology (June 2020). **Propane Infrastructure and Technology** - develop new bi-national standards for LNG hoses for use on vehicles (**LNG 3.20**) (December 2020). - adopt a new binational standard based on ISO 19825 Road Vehicles (December 2020). - develop a new binational standard for propane vehicle fuel system components, or potentially adopting standards from the ISO 20766-x series (December 2020).	

C: Stakeholder Consultation, Work Plan Development, and Participation in Standards Development	- increased collaboration between Canada and the United States in regards to codes and standards work-plan development. - coordination and prioritization of codes and standards development will proactively reduce barriers to the introduction of low carbon infrastructure and technologies.	- develop a comprehensive list of additional activities to address codes and standards gaps and issues. Revise this work plan to include these new issues, as appropriate (ongoing). - consult with stakeholders from the various alternative fuels (e.g. propane, electricity, hydrogen, etc.) to identify the priority gaps and misalignments in the relevant codes and standards, pertaining to each fuel (ongoing). - engage in quarterly Canada/U.S. stakeholder technical teleconferences in conjunction with a new Compressed Gases working group. - continue to participate in standards development activities, as appropriate, including: ○ hydrogen international standards (participation at ISO/TC 197) (ongoing). ○ electric vehicle international standards – (participation at IEC/TC 69) (ongoing). ○ natural gas vehicle task force (participation at ISO committees) (ongoing). ○ Propane Autogas Advisory Council (ongoing).	