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May 6, 2021

Senator Paul J. Massicotte, Committee Chair
Standing Committee on Energy, the Environment and Natural Resources
The Senate of Canada
Ottawa, Ontario
K1A 0A4

Dear Senator Massicotte:

The Canadian Energy Pipeline Association (CEPA) is pleased to provide its perspective on the development of Canada's Hydrogen Economy. CEPA consists of transmission pipeline companies responsible for transporting the majority of Canada's oil and gas to markets across North America.

Canadians need oil and natural gas and will need them long into the future to fuel life and prosperity, however, the energy mix is changing, and part of that change is establishing and growing a hydrogen economy. We believe this offers a significant opportunity for Canada as a responsible producer of energy, a source to meet growing demand for energy across Canada and a potential avenue to displace other higher greenhouse gas (GHG) emissions intensive energy sources in foreign markets. As the most environmentally responsible and least GHG intensive means of transporting today's fuels and tomorrow's renewable energy, transmission pipelines are an essential part of meeting domestic and international energy demand.

As governments across Canada look to develop and implement hydrogen strategies, we encourage policy makers to consider near- and long-term opportunities and the essential role pipelines will play in realizing them. In the near term, blending hydrogen into the existing natural gas network can lower the carbon intensity of energy delivered to consumers and enable the development of initial production facilities. Utilizing the extensive natural gas network to connect emergent hydrogen markets will help minimize the impact to landowners and the environment, while ensuring the most efficient and economic transportation to end markets. Over the long term, hydrogen and other forms of renewable energy have the potential to decarbonize sectors of the economy that have limited low carbon energy alternatives and are difficult to electrify.

CEPA's members continue to evaluate the potential application for hydrogen blending in existing natural gas systems and our members are prepared to expand the pipeline transmission system which can affordably provide energy for the foreseeable future. We are encouraged by the results of research and development programs that are exploring the potential to deliver hydrogen through existing, repurposed, or new pipeline networks. We encourage all levels of government to support further research and development into new technologies that will support the hydrogen economy.

Notwithstanding the above comments, the opportunity to utilize Canada's pipeline infrastructure to transport hydrogen across North America and to export market overseas has associated challenges



that should be considered in the Standing Committee's study. Some of these considerations are outlined below:

- Blending hydrogen, or other renewable fuels, into the existing natural gas pipeline network can change the composition of the product delivered to end users.¹ Composition changes can impact the end use of the product which, due to the interconnected nature of North America's pipeline network, is delivered to residential, commercial and industrial customers across the continent.
- Blending hydrogen with natural gas for transportation in current transmission pipeline systems may be possible up to certain concentrations, however, several technical hurdles arise as that concentration increases.² It is anticipated that many of these challenges can be addressed through equipment retrofits, adjustments to operations and maintenance programs, and instrumentation upgrades.
- Refurbishing and retrofitting elements of the natural gas network to ensure the safe transportation of growing volumes of hydrogen is important, but new infrastructure will also be required. Where this investment is necessary, it is critical that capital invested in this nascent industry receives an appropriate return relative to its risk profile.
- Ultimately, there is the potential to build new transmission pipelines that can deliver 100% hydrogen. While this may be a long way off, it is critical to begin to develop the technology today.

In addition to the above, it is important the pipeline network Canada relies on to move today's energy is supported so that it can continue to be utilized and expanded on to move hydrogen and other low carbon fuels. In order to do so, industry must be able to operate efficiently, adapt to market changes and attract investment that enables innovation in a capital-intensive industry. This will require governments across Canada to develop and implement adequate policy in a manner that is efficient, effective and economically viable while helping to drive clarity, certainty and predictability in the regulatory system. This must include clarity regarding future regulatory and compliance obligations, so industry understands how and where investment is needed to ensure future energy needs continue to be met safely and reliably.

CEPA strongly believes the development of Canada's hydrogen economy can be a step forward in meeting the dual objectives of reducing GHG emissions while also ensuring people and businesses around the world have access to reliable and affordable sources of energy. The Standing Committee's study is an important step towards expanding our country's collective knowledge in this area and CEPA

¹ For example: Hydrogen has roughly one third the heating value by volume as compared to natural gas (12 MJ/m³ hydrogen vs 40 MJ/m³ methane). At 20%vol hydrogen flow rate and/or capacity must be increased by 15% to provide the same energy to the customer. With pure hydrogen, the flow rate/capacity requirements triple.

² For example: gas turbine challenges (e.g. risk of flashback and increased NO_x emissions), hydrogen embrittlement and accelerated crack growth in steels, leakage through non-metallic components and elastomeric seals, ability to accurately measure the hydrogen, and increased fire and explosion risk at higher hydrogen concentrations.



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and its members look forward to more opportunities to work with federal, provincial, and Indigenous governments, industry partners and other stakeholders over the coming months and years.

Sincerely,

Chris Bloomer
President & CEO