Clean Fuel Standard needs Canada's Clean Hydrogen strategy

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The global scramble to become a leading supplier of hydrogen internationally is open and notorious. From Australia to Kuwait and now the United States, many countries are positioning themselves to be an exporter of hydrogen into regions (currently EU and East Asia) without sufficient domestic resources to develop their "hydrogen economies" alone. Canada certainly has not lacked ambition here, as it aims to be a top three hydrogen producer worldwide and is committing billions of dollars to achieve this.

Scrutiny of domestic hydrogen practices

But hydrogen is not an undifferentiated international commodity. Instead, the value of hydrogen lies in its carbon intensity (CI) through its production and transport to the point of consumption – where it serves as a versatile energy without further carbon emissions.

It is that CI attribute, which is mainly what importing countries will be buying. Labels such as "green" (made from electrolysis or gasification of biomass) and "blue" (fossil fuel originated), are used for ease of reference and not determinative of the product value. Instead, the hydrogen CI value is realized when quantified as part of national Paris Agreement commitments, as well as regional obligations such as carbon neutrality under the new European Climate Law.

Just as green hydrogen provides no assurance of low CI, blue hydrogen is not necessarily saddled with high CI. It is production-specific and all exporters, including Canada, will need to account for the CI value of the specific hydrogen to be supplied.

Canada's clean hydrogen strategy feedstock agnostic

For its part, Canada has wisely positioned itself as a producer and hopeful exporter of "clean hydrogen" meaning low CI processes and transportation of hydrogen, regardless of whether its feedstock is fossil or non-fossil. In the production of hydrogen from natural gas, Canada's National Strategy on Hydrogen (the National Strategy) groups it as clean, along with products from renewable energy and biomass sources:

Clean hydrogen can be produced from fossil fuels *when combined with Carbon Capture Utilization, and Storage (CCUS) or the carbon can alternatively be sequestered in the form of solid carbon.*

CFS CI values will be relevant internationally

In addition to export aspirations, the National Strategy also proposes the robust development of a domestic "hydrogen transition", including under the Clean Fuel Standard (CFS), which will place obligations upon producers and importers of fuels to reduce their CI, including through alternatives such as hydrogen.

The CFS does not, however, use the language of clean hydrogen. Instead, clear regulatory distinctions are drawn between fossil-based hydrogen and all others, even though both blue hydrogen and green hydrogen from organic material use steam methane reforming (SMR) to produce hydrogen. The low CI opportunities for blue hydrogen under the CFS methodology are less clear, more fraught with uncertainty and ultimately diminished compared with green hydrogen, regardless of CI values.

CFS could undermine National Strategy

And this is not just about regional politics. The CI values attributed to Canada's hydrogen products under the CFS will, no doubt, be relevant to export markets, as well as under domestic hydrogen policy, including the various provincial programs.

In other words, Canada's valuation of hydrogen through its CFS could undermine the National Strategy.

As importers of hydrogen from Canada will be looking very closely at Canada's domestic production and transportation practices, harmonization of Canada's hydrogen programs promoting an indivisible clean hydrogen (whatever the CI) is imperative if Canada hopes to realize its domestic and international hydrogen ambitions.

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