



2900-550 Burrard St.
Vancouver, BC
V6C 0A3

P: (604) 283-1040
F: (604) 632-4910
www.chfca.ca



Pre-Budget Consultation Submission

Submitted By: The Canadian Hydrogen and Fuel Cell Association
February 10, 2023

Summary of Recommendations

Recommendation 1: That the government implement a clean hydrogen investment tax credit which offers a competitive playing field with the United States and additionally aims to provide much needed funding in the most efficient way possible.

Recommendation 2: That the government establish a Canada Hydrogen Office to focus the implementation of Canada's hydrogen strategy and provide a one-window approach for all funding and regulatory/permitting inquiries.

Recommendation 3: That the government work with provincial governments, utilities, and other energy providers to find economically efficient and effective ways to manage electricity costs and availability for hydrogen production.

About the Canadian Hydrogen and Fuel Cell Association

The Canadian Hydrogen and Fuel Cell Association (CHFCA) represents over 170 world-leading Canadian organizations that provide solutions and technologies at all stages of the hydrogen value chain from producers, distributors, and end users through to equipment manufacturers technology developers, utilities, and service providers. Our members have exported their clean technologies to 42 countries, which account for 65 per cent of the world population.

In 2021, CHFCA members reported: • Total revenues of \$527 million • \$412 million in revenues from product sales • \$98 million in revenues from the provision of services • \$17 million in revenues from research and development contracts and other sources • RD&D expenditures of \$125 million • Employment of 4,291 full-time employees.

With a 100-year legacy of industry and research expertise, Canada's hydrogen and fuel cell sector has been a global leader, but we need concerted effort to leverage this capacity into a global hydrogen manufacturing centre. The government of Canada has provided strong leadership and support through initiatives such as the development of the Canadian Hydrogen Strategy and the launch of funding programs such as the Strategic Innovation Fund (SIF), the Net Zero Accelerator, the Clean Fuels Fund (CFF), and others. But competition for global leadership has become much fiercer and Canada must respond in-kind.

Recommendations

Recommendation 1: That the government implement a clean hydrogen investment tax credit which offers a competitive playing field with the United States and additionally aims to provide much needed funding in the most efficient way possible.

Countries around the world have rolled out policies and funding for the advancement of their domestic hydrogen and fuel cell industry. Some examples include the U.S.' investment and production tax credits

under the *Inflation Reduction Act* (IRA) and the European Union’s recently unveiled *Green Deal Industrial Plan*.

The announcement of the 40 per cent Clean Hydrogen Investment Tax Credit in Budget 2023 is an important step to enabling Canada’s hydrogen sector to reach the scale needed to be globally competitive. This credit would not only provide a financial incentive for companies to invest in clean hydrogen technology, but it would also help to position Canada as a leader in this field. However, the key to the success of the clean hydrogen ITC will depend on the details. At a high-level we recommend:

1. The design and implementation of this credit must be simple and straightforward, and approval must have reasonable processing times. This will require applying tax credits comprehensively to all assets within the scope of production and ensuring a smooth transition between the proposed clean technology and hydrogen ITCs.
2. The carbon intensity thresholds established in the ITC must enable the speedy scaleup of the Canadian hydrogen sector and allow all clean hydrogen pathways – existing and emerging – to compete. This will allow each region across Canada to leverage its own strengths and resources while supporting national equity.
3. When developing the Clean Hydrogen ITC, consider in the “big picture” how the ITC interacts with other policies and funding initiatives such as the Canada Growth Fund, Canada Infrastructure Bank (CIB), Strategic Innovation Fund (SIF), future iterations of the Clean Fuel Fund (CFF), and others. Budget 2023 should provide clear guidelines in terms of boundaries, eligibility criteria, processing timing and how the ITC will interact with other programs. This will give investors and project proponents much-needed clarity as they develop projects and secure financing.
 - a. The CHFCA further recommends that these different mechanisms be stackable with the Hydrogen ITC.
4. All grid-based electrolysis projects developed in regions where the provincial government has a goal to decarbonize their grid should automatically be eligible for the minimum 30 per cent ITC, but not the upside, unless proven eligible.
5. CHFCA recommends the creation of a small task force comprised of industry associations, industry representatives and other stakeholders and rightsholders, to partner with the Government of Canada in the next steps of the deployment and optimization of the Clean Hydrogen ITC.

Hydrogen production coupled with carbon management as a clean hydrogen pathway

The Hydrogen Strategy for Canada states that one of the major pathways to produce large-scale clean hydrogen in Canada in the near-to-medium term will be using hydrocarbons (natural gas) as feedstock coupled with carbon management. This would include carbon capture and storage (CCS) but could also include natural gas pyrolysis, where the carbon by-product is not gaseous CO₂ but solid carbon in the form of carbon black or graphite.

Hydrogen produced through hydrocarbons or biomass coupled with CCS is a key production pathway and has an important role in the energy transition. Canada’s natural resource strengths include an abundance of natural gas and CCS-compatible geological formations. When paired with our strong skills and talent pool, and built infrastructure from our existing energy industry, Canada is well positioned to use this hydrogen production pathway to economically and rapidly build-up the low carbon hydrogen economy nationwide.

This will allow Canada to take full advantage of the environmental, economic, and social benefits of the energy transition.

The ability of Canada to produce CCS-optimized low carbon intensity hydrogen is a key factor to effectively scale up the hydrogen economy in Canada. The CHFCA recommends that carbon intensity thresholds be designed to ensure this pathway is also able to benefit from the hydrogen ITC.

Grid-based electrolysis as a clean hydrogen pathway

For projects to be feasible, electrolyzer-based hydrogen production will need to supplement any self-generated power (for example, from renewables) with grid electricity to meet offtake demand for reliable and constant hydrogen supply. Canada's clean electricity grids are an advantage that Canada can leverage to enable this. However, the cost of power and the cost of transmission are often prohibitive to the economics of a project.

For example, British Columbia, Manitoba, and Quebec have some of the cleanest power in the world (above 95 percent hydroelectric apiece). However, using the Government of Canada's Fuel Life Cycle Assessment Model, we have estimated that hydrogen produced from this grid power would have a carbon intensity well above the 0.45 kg CO₂/kg H₂ threshold and as high as 2.2 kg. At this carbon intensity, the suggested US IRA ITC rates of 7.5 percent to 10 percent would be immaterial to project economics.

While some provinces have more carbon intensive grids today, the federal Clean Electricity Regulations are intended to bring all grids to relative parity on carbon intensity by 2035. Grid-based electrolysis projects that are developed in provinces with less access to clean power today should still be eligible for the ITC to encourage further clean energy development. Allowing all provinces to participate in producing grid-based electrolytic hydrogen will be an important element of fairness and will contribute to developing economies of scale in the sector.

The CHFCA recommends that all grid-based electrolysis projects developed in regions where the provincial government has a goal to decarbonize their grid should automatically be eligible for the minimum 30 percent ITC, but not the upside unless proven eligible.

Recommendation 2: That the government establish a Canada Hydrogen Office to focus the implementation of Canada's Hydrogen Strategy and provide a one-window approach for all funding and regulatory/permitting inquiries.

Demand for clean Canadian hydrogen has never been higher. Our international partners in the Indo-Pacific and Europe are looking to Western and Atlantic Canadian clean hydrogen projects as safe sources of clean energy.

But there is growing concern over project and funding delays, the implementation of Canada's Hydrogen Strategy, and acceleration of the industry at the scale and pace needed to meet Canada's 2025 export target and 2030 climate strategy. These concerns have driven a demand for the creation of a "one window" approach for all regulatory permits and for regional coordination. The creation of a "Canada Hydrogen

Office” would be a practical way to move forward. Such an office could be the clearing house for all projects across governments, helping corporate clients navigate regulatory and program channels and move the needle on new projects.

The Canada Hydrogen Office would increase the efficiency of program management and delivery by the responsible departments. The Office would look at all aspects of a hydrogen project (not just production) encompassing upstream, production, and downstream elements.

The overarching goal of the Canada Hydrogen Office would be to accelerate Canada’s clean energy transition by facilitating the development hydrogen projects. These projects would be optimal from a cost per tonne of greenhouse gas reductions, and also from resiliency and energy security perspectives.

There is precedent for a Canada Hydrogen Office – the BC Hydrogen Office. The BC Hydrogen Office handles permitting and regulatory issues at a provincial level for all prospective projects in BC. Complex projects also require federal permitting. A federal Hydrogen Office would liaise with provincial bodies to expedite processes and ensure Canadian projects don’t migrate elsewhere due to delays. The Hydrogen Office would also provide a strong national lens to filling gaps across the country, consider the overarching needs for the sector to grow domestically and from an exports perspective, and consolidate funding to accelerate the growth of the entire Canadian hydrogen supply value chain while achieving our decarbonization goals.

Recommendation 3: That the government work with provincial governments, utilities, and other energy providers to find economically efficient and effective ways to manage electricity costs for hydrogen production.

Clean hydrogen can and should be produced from all energy sources, including fossil fuels with carbon management, nuclear and renewable energy and biomass. However, production from clean energy will be a vital and growing component for domestic and export opportunities.

Electricity costs are a major expense in hydrogen production through electrolysis and can disincentivize domestic industry and the scale-up of current production opportunities, let alone export opportunities. These costs are further amplified by a patchwork approach to grid management, and regulation across Canada’s provinces and territories.

Recognizing that a solution to increasing electricity costs cannot just be a one-government or entity approach, we encourage the federal government to work with provincial governments, regulatory agencies, utilities, independent power producers and other energy providers to find creative ways to manage electricity costs. This could include mirroring U.S. policy by providing financial support to provincial and municipal regulators to speed up interconnection reviews and offer lower electricity rates for hydrogen production.