



February 27, 2023

The Honourable Chrystia Freeland
Deputy Prime Minister and Minister of Finance
80 Wellington Street
Ottawa, ON K1A 0A2

Delivered via email:

Subject: Meeting the diverse needs of communities via the Investment Tax Credit for Clean Technologies

Dear Minister,

QUEST Canada commends the Government of Canada (the Government) for the important action it has taken to date to mobilize the implementation of clean technologies in Canada by proposing an investment tax credit of up to 30 percent for investments in clean technologies. **Canadian communities recognize that not only are they on the front lines of climate change impacts, but they also contribute half of Canada's emissions. Communities are eager to implement clean energy solutions that align with their unique sets of challenges and opportunities.** On that note, we have some suggestions we believe will strengthen the Government's approach to the Investment Tax Credit for Clean Technologies (ITCs).

Our recommendations are informed by our established and tested Technical Principles as well as over 15 years of work supporting communities in the development and implementation of their Community Energy and Emissions Plans and through our Net Zero Community Accelerator (NCA) program.

The Technical Principles were developed by QUEST Canada in 2008 and were endorsed by the Council of Energy Ministers and Council of the Federation in 2009. The principles start with a focus on sustainability that aims to achieve the best balance among environmental, social and economic outcomes in any community and are designed to be applied in a hierarchy. The Technical Principles are:

Technical Principles

- ① **Improve efficiency** – first, reduce the energy input required for a given level of service
- ② **Optimize exergy** – avoid using high-quality energy in low-quality applications
- ③ **Manage heat** – capture all feasible thermal energy and use it, rather than exhaust it
- ④ **Reduce waste** – use all available resources, such as land-fill gas and municipal, agricultural, industrial, and forestry wastes
- ⑤ **Use renewable energy resources** – tap into local opportunities for geexchange systems, small scale hydro, biomass, biogas, solar, wind energy, and opportunities for inter-seasonal storage
- ⑥ **Use energy delivery systems strategically** – optimize use of energy delivery systems and use them as a resource to ensure reliability and for energy storage to meet varying demands

In addition to the Technical Principles, through QUEST Canada’s long-standing engagements with communities across Canada, we have first-hand knowledge of the needs, challenges and opportunities of Canadian communities and the suite of clean technology solutions they require to contribute to reducing emissions. Our NCA Program is one mechanism that has been leveraged to build this knowledge. The program builds durable capacity that addresses the particular needs of individual communities and establishes mutual support mechanisms by developing regional communities of practice among participating communities which allow for the sharing of ideas, experiences, best practices, and tools.

The 2022 Fall Economic Statement identifies four thematic areas that a refundable tax credit equal to 30 percent of the capital cost of investments would apply - Electricity Generation Systems, Stationary Electricity Storage Systems, Low-Carbon Heat Equipment, and Industrial zero-emission vehicles and related equipment. Respectfully, **QUEST Canada recommends that the Government introduce ITCs that would apply to the broadest suite of technologies available today that reduce GHG emissions.** With reference to the Technical Principles, it is apparent that there are notably absent technology categories that are commercially available and poised to reduce GHGs in communities with the appropriate support. We offer this suite of recommended inclusions but note however that this is not an exhaustive list and there are others that likely should be included.

- Responsibly Harvested Biomass
- High efficiency Combined Heat and Power
- Energy Efficiency and Advanced Energy Management
- Hybrid Heating Systems and Controls
- Renewable Natural Gas
- Waste Heat Recovery Technologies

Below we have included a summary of each of the solutions listed above and why we believe they should be included in the Investment Tax Credit for Clean Technologies.

Responsibly Harvested Biomass

Biomass has many potential applications across the energy system, including power generation or the production of heat and transport fuels. Fitting bioenergy generation with carbon capture and storage (BECCS) offers a viable pathway to leverage Canada’s biomass resources as an energy source. Another clean technology that uses biomass is gasification, which has been put to use at university campuses as well as in pulp and paper mills, as well as gasification of municipal solid waste at wastewater treatment facilities. Predominantly accessible in communities with forestry and agriculture-based economies, biomass offers a pathway for these communities to leverage local resources as a contributor to Canada’s net-zero future.

High Efficiency Combined Heat and Power Solutions

Combined Heat and Power (CHP), also known as cogeneration, refers to the simultaneous production of electricity and thermal energy from a single energy source, often resulting in a decrease in GHGs. Offering unparalleled flexibility and reliability benefits, CHP systems can operate using biogas, landfill gas, or hydrogen in addition to their known use of natural gas. The use of CHP with alternative fuel sources such as biogas generated at wastewater facilities or landfill gas captured at solid waste landfills to help achieve local economic, environmental, and social benefits associated with reduced use of fossil fuels. In addition, because CHP systems require less fuel to produce the same output as conventional separate heat and power systems, the use of CHP in community facilities helps increase energy efficiency and energy supply reliability while reducing costs.

Energy Efficiency and Advanced Energy Management

Energy efficiency, using less energy to get the same job done, is one of the easiest ways to eliminate energy waste and lower energy costs. Similarly, Advanced energy management includes implementing solutions like mechanical equipment upgrades, HVAC management controls, fuel switching, and utilizing information gathered from energy audits.

Solutions that help optimize energy use and cut down on emissions and energy bills can have a significant impact on the industrial sector, in municipal buildings, on university campuses and in local

hospitals across the country. Additionally, it is also one of the most cost-effective ways to combat climate change, clean the air we breathe, help families meet their budgets, and help businesses improve their bottom lines.

Hybrid Heating Systems

Hybrid or dual-energy heating systems benefit from being able to leverage two energy sources, leveraging low-carbon electricity about 70 percent of the time and an alternative fuel when there is a need to level out the demand for electricity. Hybrid heating solutions offer flexibility enabling the use of the right energy source at the right time, eliminating the constant need for fuel-based heating thereby significantly reducing emissions. Additionally, hybrid heating solutions provide Canadians with increased energy reliability, resilience and security, while keeping energy costs more affordable for Canadians.

Renewable Natural Gas

The International Energy Agency has expressed the importance of maintaining investment in current energy systems while we build out the systems that will be needed in a net-zero economy. Communities have a means to also help reduce the emissions from our current systems in the near term. Renewable Natural Gas is the outcome of cleaning up or upgrading the raw biogas that is generated from the biological breakdown of organic-based waste materials such as anaerobic digestion processing of green-bin waste, wastewater treatment plants, and landfills. Renewable Natural Gas is an underutilized emission reduction solution that is deployable today within the infrastructure that Canadians have already invested in that will provide needed energy reliability as Canada progresses its energy transition to a net zero economy.

Waste Heat Recovery Technologies

Living in a cold climate and a country that has a large amount of industrial processing, leveraging otherwise wasted heat just makes sense. There are a significant number of opportunities for communities across Canada to capitalize on waste heat, which can be recovered to directly heat water, for space heating, or in industrial heating applications. There are sources of waste heat throughout our communities, including local industrial facilities, and even in local wastewater systems.

In the case of wastewater heat recovery, heat pumps and exchangers are used to extract and transfer heat from the wastewater that can heat apartment complexes, hotels and commercial uses. The same process can be leveraged for larger projects such as district energy systems and large commercial and industrial uses. And in the summer, wastewater can be used as a heat sink, improving the efficiency of heat pumps used to provide cooling. Several other technologies make use of waste heat to provide cooling, providing benefits year round. Leveraging waste heat reduces capital and operating costs, increases efficiency and reduces emissions and waste.

In Summary, Communities will ultimately enable Canada to achieve its net-zero objective. Enabling communities to match their needs and opportunities with a broader set of clean technology solutions that are eligible for a tax credit will expedite the process of implementation. We therefore highly recommend the Government of Canada include the above low-carbon solutions and others that are commercially available with the ability to reduce emissions today under the Investment Tax Credit for Clean Technology.

Sincerely,



Tonja Leach
Executive Director, QUEST Canada

Cc: Leslie Church, Chief of Staff, Office of the Deputy Prime Minister and Minister of Finance

Supporting Organizations

Apex Utilities Inc.	Enwave Energy Corporation	PACEAlberta
Big Marble Farms Inc.	HCE - Hamilton Community Enterprises	PACECanada
Biothermic Wood Energy Systems Inc.	Laszlo Energy Services	Sundara Energy
Canadian Biogas Association	Markham District Energy Inc.	QUEST Canada
		Vergent Power Solutions

