

Barriers to Increased Bioenergy Use in Canada and Some Solutions

Bioenergy use is good for Canada. Its benefits include reduction of greenhouse gas and other emissions, waste management, energy cost control and energy supply stability. Yet bioenergy use in Canada currently represents only about 6 percent of the total primary energy supply. In Northern Europe, a region physically similar to Canada, the corresponding figure ranges from 12 to 20 percent. What are the barriers that keep us from expanding the use of bioenergy here?



Barriers Low energy prices

Canada has very large reserves of fossil fuels – oil, gas and coal – and a significant investment in energy production based on these non-renewable sources. As a result of this and other factors, energy prices in Canada are typically less than half of what they are in much of Europe.



Lack of capital

The capital costs of building bioenergy plants range between \$1500 and \$2500 per kW – much higher than for fossil energy plants. As a result, payback periods on bioenergy investments can be four years or longer. The Canadian forest industry, which controls much of the biomass and might be expected to lead the way in bioenergy plant investment, suffers from a lack of capital to invest in such projects.



Small, widely separated biomass sources

Although Canada's forests hold vast quantities of biomass, most of it is inaccessible, unavailable or so spread out as to be uneconomic to collect and use. The available biomass sources, on the other hand, tend to be relatively small and far from where they are needed.

Undeveloped supply chain

The development of a bioenergy market in Canada would involve many different players working together to create a workable energy supply chain. At present, they do not. They include

- biomass owners and producers (forest industry, farmers, municipalities);
- bioenergy technology producers (boiler and stove manufacturers, turbine manufacturers, advanced technology companies);
- energy producers and distributors (utility companies, power grids, transportation fuel companies);
- energy project financiers (banks, development companies, investors); and
- energy end-users (industry, governments, institutions, individuals).

Lack of knowledge

Knowledge and information about the technical aspects of creating bioenergy from woody biomass are poorly distributed. Just as important, the business models and strategies that could make bioenergy projects successful are lacking. Industry, entrepreneurs and government policy-makers all need up-to-date, reliable information to make bioenergy use a cost-effective reality.





Carbon markets undeveloped

Climate change policy and the opportunity to reduce greenhouse gas emissions by substituting sustainable, renewable energy sources, including bioenergy, for fossil fuels are key motivators for bioenergy use globally. An operational market for trade in carbon credits is still lacking.

Misinformation on environmental impacts

Concerns exist that biomass harvesting could have negative impacts on soil productivity, and that biomass combustion produces harmful emissions. Although these concerns can be addressed through the implementation of research results and technology improvements, perceptions are still based on misinformation.

Solutions

There are a number of policy initiatives that could help remove or reduce these barriers. All of them are possible if governments have the political will to make them work.

Effective government leadership and incentives

Canadian governments can lead by making funds available to encourage investment in bioenergy development. Incentives like capital subsidies, tax incentives, energy taxes, guaranteed markets, regulations and market-based instruments such as green pricing have served to expand bioenergy use in Europe. There are few such incentives in Canada.

Knowledge transfer

If the bioenergy supply chain is to be established, we need to transfer knowledge and information on bioenergy to potential users. Business needs to see the technology in use; non-governmental organizations can promote

it, governments can sponsor demonstration projects. For example, government buildings could be heated with bioenergy. And successful bioenergy project partnerships with industry would encourage even greater use of the technology.

Workable models of financing

Government incentives for start-up costs, for example, can generate private-sector interest in setting up self-financing bioenergy project models. This is not necessarily difficult: some forest industries have so much biomass byproduct that they will pay to have it hauled away. These materials can be used to create energy. Successful biomass-based energy projects using waste-wood-based financing models are now in development or operating in several regions in Canada.

A carbon credit market

An operational market for trading in carbon credits, as well as a similar mechanism for emission reduction credits, would likely boost bioenergy use. Test markets exist for carbon credit trading but need to be formally recognized by governments.

CANBIO is a national, industry-driven, non-profit organization of individuals, businesses and non-governmental organizations interested in the development, promotion and use of bioenergy. We work with both government and private-sector partners to promote biomass-based energy solutions, improve recognition of the benefits they provide to Canadians and help expand the use of renewable, sustainable, green bioenergy throughout Canada.

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