Editorial : A Biomass Energy Policy for Canada

Agriculture and forestry have one important thing in common: both are in desperate need of a new direction for sustainable development or they will both continue, economically and environmentally, in decline. That new direction, to be shared by both, is to develop the biomass resources of these two sectors into Canada's biggest energy industry. These are the facts to support such an initiative:

1. Biomass energy can compete with new energy megaprojects (including Hibernia and James Bay II) on a cost basis if the energy is used for space and processing heat. Space and process heat is Canada's biggest energy demand.

2. Biomass energy has strong possibilities as a domestic employment strategy. With the de-industrialization of Canada, there is an immediate need for permanent jobs to replace those lost in the manufacturing sector, as well as to improve the livelihoods of those in the economically battered agriculture and forestry sectors.

3. Biomass energy has the biggest potential of any (non-nuclear) energy source for reducing the impact of global warming.

4. Biomass energy can bring domestic energy security, preventing the risk of terrorist bombings of nuclear facilities, eliminating the need to fight oil wars and removing the necessity to flood the land of Canada's indigenous people.

First consider the forestry industry. As in many other parts of the world, Canada is rapidly consuming its best forest stands. Forestry policy in the past has been 'cut the best and leave the rest', with the result that "old growth" trees have been virtually wiped out, replaced by thick stands of "junk wood". As a consequence, there is a shortage in the supply of timber, not to speak of the environmental disaster that has followed in the wake of the logger's swath. Today, the only way to the increase supply of timber, without going after the last stands of old growth trees or starting to cut in provincial parks, is to implement a strategy of intensive forestry management in the most productive forest lands in Canada.

In other words, start farming productive forests by removing undesirable trees, chipping them for energy. This is not a pie in the sky idea, having been proven in Austria and the Scandinavian countries

over the past 10-20 years as they work towards bringing life back to their forest industries and reduce dependence on foreign oil. Woodchips can provide the same energy as natural gas, heating oil and electricity at one-third, one-fifth and one-tenth the cost respectively. While Canada currently has about 250 wood chip combustion systems hidden throughout the country, Scandinavia has approximately 25,000. This intensive forestry management strategy would not only improve the growth of desirable trees for timber, but also diversify the forestry industry currently being hard hit by lack of timber and low pulp prices.

Historically a provider of food, agriculture is now ripe to become an energy producer. One of the most promising solutions for agricultural diversification and creation of a global-scale energy source is to develop C4 perennial grasses into energy crops. C4 grasses are amongst the world's most resource-efficient plants for biomass production. No other land use will produce more biomass per hectare - for less money - than adapted types of these grasses (exclusive of the most northern agricultural regions of the world). These grasses can theoretically fuel the energy needs in both the industrialized and developing nations. All that is lacking is a concerted effort by agriculturalists and engineers to develop appropriate plant materials and conversion technologies.

On the production side of the equation, there are already initial trials with impressive results. Scientists in the United States and in Germany have obtained yields of over 30 tons per hectare from these grasses, and in tropical Africa, 60 t/ha. In North America, production costs for these grasses is under $30/tons in some locations and under $40 in most. On an energy content basis, this "green coal" source is approximately one half the cost of black coal. New advances in biomass briquetting technologies appear to hold significant promise in densifying this material at a low cost, an essential element so that the material can be transported and stored at a reasonable price and burned efficiently. With appropriate refinements, combustion of the compacted grass material in wood burning systems will enable even higher combustion efficiency levels to be achieved as the briquetted material is dryer and denser than wood .

Biomass energy holds promise for the revitalization of both the forestry and farming industries in Canada and cannot afford to abandon energy policy to only those lobbying for the latest mega-energy project. If there is a politically correct energy source, it is biomass, and there is no time to apologize for this PC thinking. It is time, however, to exploit it with the prospect of sustainable economic and environmental development, or else risk additional nuclear reactors, Hibernia's and sequels to James Bay. Canada needs a biomass energy policy. Now!