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Biofuels: Bonanza or Boondoggle for Saskatchewan ?

- by Edward R. Boyle

For nearly a decade now biofuels have been promoted as a panacea for stagnant rural economies, energy shortages, and climate change resulting from greenhouse gas emissions. Many governments have bought into the alleged benefits of biofuels in a big way by creating new industries through blending mandates and fueling growth with billions in subsidies.

Provincial and federal governments in Canada have been part of that trend. Saskatchewan's blending mandate has required an average 7.5% ethanol content in regular gasoline since January 2007, resulting in a provincial market for 135 million litres of ethanol a year. Other provinces already have, or are considering, biofuel content mandates. A federal government mandate for 5% renewable fuel content in gasoline and 2% in diesel will come into effect in 2010 and "guarantee a future market for 3 billion litres of biofuels in Canada."(1) Having created a market through mandates, governments are dishing out grants and other incentives to production facilities. Federal government supports include:

- the $200 million ecoAGRICULTURE Biofuels Capital Initiative program (ecoABC) which provides up to $25 million in capital grants to support construction of biofuel plants;
- the $1.5 billion EcoENERGY for Biofuels initiative which provides a 10 cent a litre subsidy for transportation biofuel producers;
- the $500 million NexGen Biofuels Fund which will pay up to 40% of the costs of cellulose and other next-generation biofuel plants; and
- the $20 million Biofuels Opportunities for Producers Initiative to assist in the development of biofuel plant proposals and business plans.(2)

The Saskatchewan Biofuels Investment Opportunity program (SaskBIO) is an $80 million fund modeled on Ottawa's ecoABC program that provides "repayable contributions" of up to $10 million for the construction or expansion of transportation biofuel plants. The province provides an additional level of support to its ethanol producers through the Saskatchewan Ethanol Grant program that pays them15 cents for every litre of ethanol they produce and sell in the province.(3) At an annual consumption of 135 million litres, that amounts to a subsidy of over $20 million a year from Saskatchewan taxpayers.

Governments have justified their biofuel subsidy programs as 'green' initiatives, touted the potential economic benefits in farm country, and patted themselves on the back for fighting global warming by promoting the production and burning of renewable fuels. But do these programs, and the ethanol industry they have helped to create, stand up to economic and environmental scrutiny? Are they good public policy?

Apparently most farmers and communities don't think renewable fuels are a good investment. When it comes to risking their own money, they are not buying in.

On February 25 Saskatchewan Enterprise and Innovation Minister, Lyle Stewart, announced major changes to the SaskBIO program:

- The definition of an 'eligible community investor' has been expanded from those living within a 100 km radius of the project to anyone living in Saskatchewan.
- The minimum farmer/community investment

required for a maximum grant from the program has been reduced from 50% to 20%.
- The minimum program contribution per litre of biofuel produced has gone from two cents to five cents.

The President of The Saskatchewan Biofuels Development Council, Judy Dyck, welcomed the loosening of requirements for access to the program, "especially given the current investment environment."(4)

These changes suggest that SaskBIO has not been a popular program. As of early March 2008, none of a number of groups attempting to raise money for farmer/community ethanol or ethanol/feedlot projects throughout the province had been able to raise enough money to gain access to the subsidies. With grain prices high and the livestock industry in the doldrums farmers are understandably focused on their core business of growing food.

The federal government is experiencing a similar lack of uptake with its ecoABC program, but has not yet changed the rules for gaining access to the fund. Federal Agriculture Minister, Gerry Ritz, appeared to be giving up on the carrot and bringing out the stick when he said recently that he "condemns" grain producers for failing to invest in ethanol plants. (5) The only project in Saskatchewn that has raised enough money from farmers and community investors to qualify for an ecoABC subsidy is a North West Terminal Ltd. (NWT) 25 million litre ethanol facility under construction near Unity. NWT got a $5 million contribution to the construction costs of its plant which will employ 16 people.(6)

The SaskBio program has four goals embodying the arguments that have been made for biofuel subsidization by governments throughout the world. They are:

- To create more jobs and economic spin-offs in rural Saskatchewan.
- To create new markets for Saskatchewan agricultural producers.
- To create increased activity in the Saskatchewan economy.
- To create the opportunity to decrease our impact on the environment.

Examining these goals in the light of the current situation provides some insight into the value of biofuel subsidies as public policy.

Jobs and Economic Spin-offs In Rural Saskatchewan

The roots of biofuel policy in Saskatchewan are in the potential economic benefits for farmers and rural communities. When the former Calvert administration made its initial announcement on assisting with the birth of a new ethanol industry, the emphasis was on rural economic development. Farmers looking for a way to diversify were spun a vision of a huge new market for wheat and barley, spectacular growth in the livestock industry, and a province dotted with thriving ethanol/feedlot operations creating jobs and revitalizing rural communities.

Seven years later the price of wheat has more than doubled, the livestock industry has contracted, and corporate-owned plants located in or near cities produce more ethanol than required under the Saskatchewan gasoline-blending mandate. Poundmaker with 12 million litres of annual ethanol production continues to be the only small, rural ethanol/feedlot operation in the province and it existed before governments got into the mandate and subsidy game. A plant owned by Husky Energy near Lloydminster produces 130 million litres a year of ethanol, a smaller plant in Weyburn produces 25 million litres, and North America's largest wheat feedstock ethanol plant with annual production of 150 million litres will soon open at Belle Plaine between Moose Jaw and Regina. The relatively small number of employees required to run ethanol plants and ethanol/feedlot operations could have had a substantial impact on the employment situation in struggling rural communities, but are far less significant in cities near where the major plants are located.

With the Belle Plaine plant in production, Saskatchewan will account for about 30% of the ethanol produced in Canada. An ethanol industry

has emerged, but not in the way envisioned by government policy.

New Markets for Saskatchewan Agricultural Producers

Ethanol policies were conceived in a time of world grain surpluses and depressed prices. They have not been adjusted to fit the realities of today's grain markets. By early 2008 world grain stocks were at a

thirty-year low and wheat prices at a thirty-year high as a result of several factors including:

- multi-year droughts in Australia and other grain growing areas;
- farmers in the United States switching from growing wheat for food and livestock feed to growing corn for ethanol; and
- increasing meat and grain consumption in countries with large populations and rapidly growing economies, particularly China and India.

In 2004 when the ethanol bandwagon was still rolling and proposals were popping up all over the province the Agricultural Producers Association of Saskatchewan (APAS) conducted a feasibility study and produced a model of an ideally-sized ethanol/feedlot plant to assist community investor groups.(7) APAS said a 15 million litre ethanol plant would require 40,000 tonnes of wheat for ethanol. At 317 million litres of production, about 900,000 tonnes of wheat will soon be used annually in Saskatchewan to produce ethanol provided the plants can obtain enough feedstock from grain producers. That amounts to over 12% of an average provincial wheat crop.

Using that much wheat for fuel might make economic sense if there was slumping demand for wheat as food. But the demand is strong and will remain so for the foreseeable future as meat consumption continues to grow in the developing world, climate change leads to more droughts, and farmers' cropping decisions are affected by subsidies. Since the price of grains started rapidly rising the Husky and Poundmaker plants have not been able to buy sufficient wheat from area producers and have resorted to burning corn imported from the U.S. to keep their stills going.(8)

Increased Activity In the Saskatchewan Economy

The joint ethanol/feedlot operations making use of byproducts for animal feed which were envisioned in government policy have not materialized. A calculation of the economic impact of biofuel production in Saskatchewan is limited therefore to the impact of wheat being sold to ethanol plants rather than sold in world markets, and the impact of these plants on their communities.

About 60 people work in Saskatchewan's ethanol plants and 40 more jobs will soon be added with the TerraGrain Fuels plant at Belle Plaine scheduled to open in the spring of 2008. With the exception of employees of the Poundmaker facility, which opened in 1991, those are jobs that likely would not exist if

governments had not mandated blending of ethanol in gasoline. In addition to jobs, ethanol plants have produced spin-off economic benefits through construction employment and purchase of goods and services. To this limited extent the goal of increased economic activity has been achieved, but it is a long way from the policymaker's vision of a web of ethanol/feedlot operations revitalizing the rural economy. The fewer than 90 jobs that have been created are very expensive at an annual subsidy of over $20 million for production and millions more in capital grants.

Decreasing Our Impact On the Environment

Governments routinely justify the dubious economics of subsidizing biofuels as a means of fighting global warming. Putting wheat-based ethanol in our gas tanks might make environmental sense if it provided a significant net reduction in greenhouse gas (GHG) emissions. But as a growing body of evidence indicates, losses often outweigh gains when all the environmental costs of producing, transporting, and blending biofuels are taken into account. The Swiss Institute recently performed a full life cycle assessment of a large number of biofuels and compared their environmental footprint with those of petroleum-based fuels.(9) It concluded that tailpipe GHG emissions are reduced with the blending of biofuels, but these gains are more than offset in most cases by the environmental impacts of growing biofuel feedstock combined with biofuel production. Among the 26 types of biofuel feedstocks studied, grains had the highest aggregated environmental impacts by a considerable margin.

The Organization for Economic Cooperation and Development (OECD) conducted a thorough review of current research on the alleged environmental benefits of biofuels and produced a report entitled *Biofuels: Is The Cure Worse Than The Disease?* The report concluded:

> Even without taking into account carbon emissions through land use change, among current technologies only sugarcane-to-ethanol in Brazil, ethanol produced as a byproduct of cellulose production, and manufacture of biodiesel from animal fats and used cooking

> oil can substantially reduce GHG compared with gasoline and mineral diesel. When such impacts as soil acidification, fertilizer use, biodiversity loss, and toxicity of agricultural pesticides are taken into account, the overall
>
> environmental impacts of ethanol and biodiesel can very easily exceed those of petrol (gasoline) and mineral diesel. (10)

Time For A Hard Look

Biofuel mandates and subsidies have led to unintended consequences throughout the world ranging from the destruction of forests and grasslands, to an increase in the size of the 'dead zone' in the Gulf of Mexico caused by increased use of fertilizers in the U.S midwest, to the cost of staple food being driven out of reach for the world's poor. The gap between policy intentions and results is exceedingly wide in Saskatchewan where millions in federal capital grants and provincial production subsidies have been paid to a major foreign-owned energy company for producing ethanol made, in part, from American corn.

Saskatchewan and Canadian government policies mandating the use and supporting the production of grain-based biofuels have failed to achieve their policy objectives. They were based on faulty assumptions and derailed by changes in grain prices and markets that were apparently unforeseen when these policies were developed. Farmers have not invested in small ethanol/feedlot operations as anticipated. World grain stocks are low and demand in developing countries will continue to grow. Wheat prices have rocketed to the highest levels in a generation and farmers are focused on growing food for a lucrative export market. A growing body of research indicates that most biofuels result in a net increase in greenhouse gas emissions compared to burning fossil fuels once all the agricultural and other inputs are taken into account.

It is time for governments to take a hard look at their biofuel subsidy programs which are failing both as rural economic development and environmental protection policy. The stimulus to grain markets that biofuel policies were intended to create has come from other sources. The alleged environmental benefits have turned out to be illusory. The billions of dollars in public money committed to biofuels might be better spent on supporting public transit, other renewable energy sources such as wind and biomass, the development of carbon capture and storage technology, or a new generation of non-food based renewable fuels which can succeed without subsidies and do more good than harm in the struggle to reduce greenhouse gas emissions.

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