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Ill-conceived rush to ethanol

Corn is being used as a biofuel to help ease the gas crisis.

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Price of corn doubles in three years as more of crop is diverted to satisfy questionable biofuels policy
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If you were trying to develop a less effective means of kicking the gasoline habit and coping with climate change you'd be challenged to improve on North America's misguided biofuels policy, which is centred on corn-based ethanol and is contributing to the global food crisis.

Spurred by taxpayer subsidies and government-mandated ethanol-use levels in transportation fuels, a burgeoning ethanol industry has sprung up across the Canadian Prairies and U.S. Midwest. At about $5.50 a bushel, corn has doubled in price in three years. Not coincidentally, America's vastly expanded network of ethanol plants now consumes between one-quarter and 30 per cent of U.S. corn production, up from 10 per cent in 2002.

Yet the dominant ethanol product for motorists, E85 – a blend of 85 per cent ethanol and 15 per cent ordinary gasoline – accounted for just 1 per cent of ethanol sold in the U.S. in 2006. The stuff is hard to find. Only 1,560 of America's 180,000 filling stations carry E85. Earlier this month, UPI Energy LP opened Canada's third E85 filling station, in Woodstock, Ont. (The others are in Guelph and Chatham.) And most vehicles that can use ethanol blends are out of favour. Just three of the 17 ethanol-capable vehicles available on the North American market are small or midsize cars, the vehicles currently most sought by

buyers. The others are big cars, pickups, sport-utility vehicles and vans. This at a time of record pump prices, when buyers are shunning large vehicles as never before.

But Canada and the U.S. are deeply committed to ethanol, mandating its use in fuel blends and heavily subsidizing the construction of ethanol plants. In his 2007 budget, Jim Flaherty, the federal finance minister, provided $2 billion in subsidies for biofuel plants, overriding objections from mandarins in his own ministry over biofuel efficacy. And last week, Tory legislation imposing a 5 per cent ethanol content on refiners for their gasoline was given royal assent.

The subsidies may not yet have worked their magic at your local filling station. But producers have rushed to open new ethanol plants. The U.S. boasts 156 plants. There now are 20 in Canada, nine of which are in Ontario. Eight of those 20, including most of the Ontario facilities, use corn as feedstock, while Western Canada plants use wheat, another food staple whose price has skyrocketed. Just three Canadian ethanol producers rely on non-edible feedstock – wheat straw, tallow and animal fats and yellow grease.

Why the biofuels mania? Because it's a quick fix that enabled both the Martin and Harper governments to appear to be acting decisively on the energy security and global warming fronts. In both Canada and the U.S., it was a vote-getter among farmers disproportionately represented in Parliament and Congress, and whose agribusiness lobby is one of the most powerful in Ottawa and Washington. And it was more palatable than the vastly more effective quick-fix of a carbon tax to discourage consumption.

And it doesn't work. Worse, it has contributed to the stunning increase in global food prices in the past year, estimated at 40 per cent to 55 per cent, which has sparked food riots in some 30 nations and threatens to push millions of poor people in developing countries into starvation. "With 100 million people on the brink of abject poverty, the cost of food will not be measured in the price of wheat and rice, but in the rising number of infant and child deaths across Africa," Kofi Annan, the former UN secretary general who now chairs the Africa Progress Panel, warned last week.

"Biofuels are economical nonsense, ecologically useless and ethically indefensible," Peter Brabeck-Letmathe, chairman of Nestlé SA, the world's largest food company, wrote recently in a *Wall Street Journal* essay.

"Every 10,000 litres of water produces as little as five litres of ethanol, or one to two litres of biodiesel. This year, the U.S. will use around 130 million tons of corn for biofuels. This corn was not available as human food, nor as fodder to animals. Is this the right strategy, for a product that won't satisfy even a small percentage of our energy needs?"

A consortium of renewable-fuels groups have tried to buck the growing biofuels backlash.

On June 3, the Canadian Renewable Fuels Association, the European Bioethanol Fuel Association and the Renewable Fuels Association wrote to world leaders at the UN conference on food security and climate change in Rome that "there are multiple causes for the rapid rise in world food prices." They cited an assertion by the ethanol-friendly Bush administration's Council of Economic Advisors that "the production of corn starch ethanol is responsible for just three per cent of the 43 per cent rise in world food prices, hardly the driving force that some would have everyone believe."

As noted, expert assessments of global food-price increases vary; the consortium's figure is on the low end. And the three-per-cent figure leaves out certain factors, notably the extra burden on global fuel demand placed on the agriculture system by these producers of "alternative" fuels who use conventional fuels in everything from plant construction and operation to moving their product to market.

Indeed, the food crisis does have multiple causes. Record-high crude-oil prices have driven up the cost of everything from fertilizer to transporting food. About 40 nations have responded to higher prices by hoarding rice and other vital commodities, thereby driving up their price. (Wheat prices have abruptly dropped some 40 per cent since Ukraine, once known as the "breadbasket of Europe," was persuaded by the World Bank to lift its grain-export restrictions.) Prolonged drought in Africa, a cyclone in Myanmar, the even more recent floods in corn-rich Iowa and other natural disasters have caused a massive loss of crops, even as developing-world demand, especially from China and India, has grown significantly.

So biofuels aren't the only culprit. And there are more efficient biofuels on the horizon, such as non-edible switchgrass, various types of recyclable agricultural waste, and the sugar-cane-derived ethanol that already fuels about 40 per cent of Brazil's vehicles. For now, though, corn-based ethanol dominates biofuels production.

Corn is one of the least efficient crops to turn into fuel. It is a nitrogen-intensive crop, putting upward pressure on the natural gas from which nitrogen-based fertilizers are produced, ironically driving up our dependence on another non-renewable fossil fuel.

Given the substantial amount of energy required to produce corn-based ethanol, it is a net contributor of greenhouse-gas emissions, so it actually contributes slightly to the climate-change crisis. As for energy security, ethanol's lower energy content means it requires 1.33 gallons of E85 to travel the same distance as one gallon of gasoline.

In the first half of the decade, the U.S. Postal Service became the largest buyer of ethanol-capable vehicles, purchasing 30,000 such trucks. And its gasoline consumption has increased as a result. The new vehicles get about 29 per cent less mileage. The Postal Service is now contemplating an electric-powered fleet instead.

The backlash has seen about a score of U.S. senators, including presidential candidate John McCain, call on the Bush administration to relax its policy of mandating ethanol use in transportation in order to reduce both food prices (food-price inflation is at a 17-year high) and the billions of dollars in ethanol-related federal subsidies to farmers, ethanol-plant operators, fuel refiners like Exxon Mobil Corp. and automakers.

The anti-biofuel movement was also heard from at the UN Food Summit in Rome early this month, where Egyptian president Hosni Mubarak implored fellow delegates representing 60 countries to use "agricultural crops as food for human beings, not fuel for engines."

Wall Street already has soured on biofuel investments. Shares of ethanol suppliers BioFuel Energy Corp. and VeraSun Energy Corp. are down 72 per cent and 86 per cent, respectively, since their initial public offerings over the past two years. There's no doubting the urgency of the food crisis. Josette Sheeran, head of the UN's World Food Program, told U.S. Senate last month that the recent food riots in more than two dozen countries are "stark reminders that food insecurity threatens not only the hungry but peace and stability itself."

Feeding a global population expected to reach about 9 billion people by 2050, from 6.5 billion today, requires a total rethink of global agricultural policies and practice, not gimmicks. It means addressing:

Issues of national hoarding of food, with its catastrophic impact on food-importing countries.

The significant depletion of the world's biggest aquifers and other water sources.

The impact of climate change on growing conditions.

The growing shortage of arable land as urban centres expand, especially in rapidly industrializing nations.

The need for higher-yielding, disease- and pest-resistant crops as global food demand explodes.

A change in North American diets.

Architects of such a blueprint would, as an early step, redeploy some of the investment in the false promise of corn-based ethanol into the food-research centres in the developing world that were making significant progress until their budgets were slashed by national governments. These include the International Rice Research Institute in the Philippines and Mexico's International Maize and Wheat Improvement Center.

They might discourage a shift in developing-world diets to Westerners' love of beef, one of the least efficient and ecologically taxing sources of protein. They would ask why food production, which employs less than 5 per cent of the population, accounts for nearly one-fifth of energy use. The answer's not hard to find. It takes 2,200 calories of hydrocarbon energy to make a can of Pepsi-Cola with only 200 calories of food energy.

In his compelling analysis of the food crisis, *The End of Food* (Houghton Mifflin, 2008), author Paul Roberts quotes the plea of Frederick Kirschenmann, a sustainability expert at the Leopold Center in Ames, Iowa: "We know that climate is changing, and we know that oil could very easily be at $250 (U.S.) a barrel tomorrow if the Middle East blows up.

"So if we are really scientists, we should at least be asking ourselves what kind of agricultural system could produce the food and fibre we need in a world where oil is $250 (U.S.) and where we have twice the severe weather but only half the water that we have now.

"What kind of agriculture could we come up with? It's an entirely reasonable question to ask, and yet, no one wants to touch it, because when you get down to it, no one has a clue."