

## **Ethanol production by corn grain: are we missing the boat?**

Seven years after been announced by Québec's former Prime Minister Bernard Landry<sup>1</sup>, Varennes' ethanol plant has begun its production. At first glance, this seems like good news: one could imagine that our cars will pollute less since they will be able to run on up to 85 % ethanol, said to be a renewable source of energy that would decrease CO<sup>2</sup> emissions from locally-grown plants. Compared to petrol, this seems to be a step in the right direction; nonetheless, the future is not so green when looking at the ethanol production from a global perspective.

Why did we build an ethanol plant in Québec? To support local agriculture by providing a local market for corn grain? To use ethanol as a replacement to MMT, a petrol additive said to be hazardous? To reduce CO<sup>2</sup> emissions? Many reasons have been stated but the possibility to attain the objectives remains to be proven.

### **Support to local farming production**

It is often said that ethanol is a renewable fuel. The term « renewable » is confusing. If cornfields can be planted again every year, thus providing a renewable source of energy, farming land areas are not renewable; they are finite in size. According to Québec's Farmer's Union, the UPA, in Québec, «*less than 2 % of the territory is good for crops...<sup>2</sup>*». The areas in the south of Québec are over-crowded with cornfields to the deficit of forest areas already too small to support biodiversity renewal levels<sup>3</sup>. Instead of improving the situation, the local supplying of corn grain for ethanol purposes will bring even more pressure on forests and farmland speculation. Increasing the corn production will thus act as a deterrent to other farm uses – specially family or organic farms – and environmental protection initiatives. The negative impact of corn grain production on the price of other grains and many animal productions in the US in 2006 is already a good indication of the perverse effect of ethanol production crops<sup>4</sup>.

In Québec, the idea of using ethanol production to help farmers' revenues was doomed from the beginning. The 2006-2015 Energy Strategy does not recommend ethanol from corn but from cellulosic waste from the forest industry, the energy output being higher and the environmental impacts lower. But if cellulosic ethanol replaces corn grain ethanol, what will happen to the support of farm revenues?

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<sup>1</sup> [www.sqfqc.com](http://www.sqfqc.com) press communiqué 2000

<sup>2</sup> <http://www.upa.qc.ca/fra/coalition/index.asp>

<sup>3</sup> Between 1992 and 1999, the Montérégie region lost almost 11 000 hectares of forest – i.e. 110 km<sup>2</sup> – and this situation is speeding up (MAPAQ 2001). <http://www.centrenature.qc.ca/pdf/foret/depliantforet.pdf>

<sup>4</sup> *How Biofuels Could Starve the Poor*. Foreign Affairs. May/June 2007 Edition. [www.foreignaffairs.org](http://www.foreignaffairs.org)

## **Replacing MMT, an additive to petrol hazardous to health**

In a radio panel discussing the opening of the Varennes plant, last June, Parti Québécois MP Stéphane Bergeron argued that ethanol could replace MMT as additive to petrol<sup>5</sup>. He added that the federal government had try to block sales of MMT in Canada because of health concerns but failed to do so because of the Free Trade Agreement with US. If replacing an additive such as the MMT by a healthier product is a responsible decision, ethanol is not the solution since corn is a genetically-modified plant that needs an important amount of pesticides and herbicides. Nothing would be gained from replacing MMT with ethanol from corn grain. Other solutions have too be found.

## **Using ethanol to decrease CO<sup>2</sup> emissions**

While the Canadian and Québec governments have recently ruled that 5 or 10 % ethanol should be added to petrol, many American cars are already available in the E85 version (85 % ethanol and 15 % petrol). But looking at the E85 vehicles listed in the 2006 Canadian Energuide from the Government of Canada, it is very obvious that the only ones available are real gas-guzzlers<sup>6</sup>. So, what's the reason behind the ethanol production as biofuel? To try to decrease the CO<sup>2</sup> emissions, support the “big engine” sector of the car industries or even worse, offer a way for SUV drivers to feel less guilty?

The argument stating that using ethanol lowers the amount of greenhouse gas emissions is a myth anyway. Even when used in a 85/15 ratio, ethanol from grain<sup>7</sup> is almost the less effective biofuel to reduce CO<sup>2</sup> emissions. Such are the results of a study done last year for the European Union comparing various modes of engine propulsion (see below). The figure clearly shows that if we want to reduce greenhouse gas emissions, it makes more sense to focus on electric hybrid cars, specially in a context where electricity production in Québec will come more and more from wind turbines. Better still, biogas from dry manure is the most efficient source of energy to reduce CO<sup>2</sup> emissions. Biogas can be used by itself; but even in a natural gas combination, it is still environmentally-friendlier than the ethanol/petrol combination. Produced locally, biogas market development as biofuel can also help farmers by getting rid of waste and getting organic fertilizers (as a biogas by-product) while reducing other environmental issues (methane capture).

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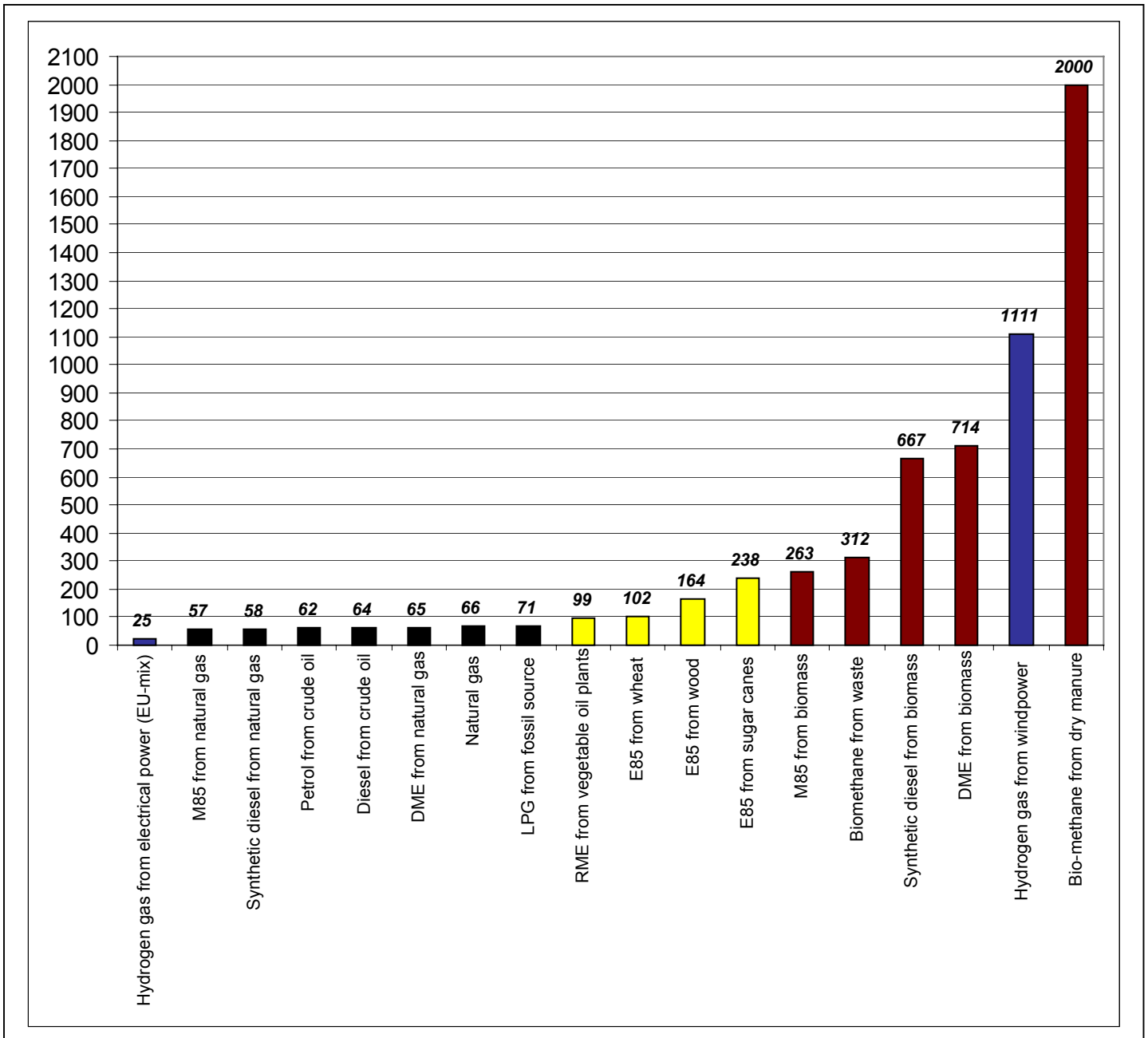
<sup>5</sup> Morning Debate Show at CHAA, 103,3 FM in Longueuil, Québec. June 22, 11 a.m.

<sup>6</sup> Energuide2006, Natural Resource Canada

<sup>7</sup> In the table, there are no corn grain but wheat.

# CO<sup>2</sup> EMISSIONS

(Amount of km driven with the same CO<sub>2</sub> emissions in a well-to-wheel analysis)



Hydrogen EL
  *Fossil*
 Ethanol
  *Biomass*

Source : Adaptation from <http://www.volvocars.com/corporation/environment/Alternativefuels/ challenge.htm>  
 Original source: EUCAR, CONWAVE JRC W2W Study 2006

## **A global concern**

Those who planned the ethanol plant in Varennes many years ago must have thought that ethanol was THE solution. But as the world of biofuels evolves at very fast speed, new technologies emerge, some bringing with them major issues to be resolved before being widely commercialized. For example, the situation of Brazil sugar cane workers for ethanol production is very problematic since they work in quasi-slavery conditions<sup>8</sup>. As the ethanol is sold without being country-labelled or eco-certified, how can we be sure that there we are not supporting slavery practices by trying to drive in a greener way? This is one of the many issues being addressed right now in Sweden, a country renowned for its avant-garde in environment but also in human rights. It's time to react: almost one third of the ethanol they consume comes from Brazil<sup>9</sup>. It would be highly unethical not to solve these problems before pushing the market forward.

Those who promoted ethanol probably believed that it was a sustainable solution to decrease environmental problems linked to fossil fuels. Research and events seem to say otherwise. In a sustainable development perspective, finding new fuels must be based on a realistic and objective global evaluation of their economic, social and environmental impacts. This way, drivers will be able to find trustworthy solutions to make their part in reducing their impact on climate change.

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<sup>8</sup> *Etanolens slavar*. Göteborg Posten. Swedish Daily. June 25 2007.  
<http://www.gp.se/gp/road/Classic/shared/printArticle.jsp?d=130&a=354317>

<sup>9</sup> Ibid.