

## **Focusing on biofuels**

The Directive 2009/28/EC on the promotion of energy from renewable sources establishes a 10% target of energy needs in the transport sector to be covered by renewable fuels by 2020. In 2012 Italy will reach its 4.5% share, which will almost entirely be covered by biofuels produced outside Italy.

The road to achieving this European goal, however, is clearly paved with many serious hurdles of a technological nature. In fact, under the sustainability criteria set by the EU<sup>1</sup>, all biofuels currently in use will be exiting the scene. The first victims were biodiesel produced from palm oil and soy beans. From 2017 even ethanol produced from EU cereals and biodiesel produced from rapeseed will disappear from the scene; the year after it will be ethanol from sugar beet and biodiesel from sunflower seed.

In the current scenario there are no productive chains able to meet EU commitments because there are none in the sustainable biofuels market from an economic and environmental point of view.

### **Hyst can be the tool everyone is looking for**

To achieve EU goals it will therefore be necessary to use second-generation biofuels (i.e. produced from agricultural by-products and residues), currently absent from the market because production technology still needs to be fully developed<sup>2</sup>.

Hyst technology is the solution: already developed at an industrial level it has demonstrated it can be used to produce biomethane from straw and agricultural residues exceeding performances obtained with dedicated crops. The 4 billion cubic meters Hyst can produce from straw and agricultural by-products would go to cover about 8.6% of energy needs in the Italian transport sector (*based on data processed by Unione Petrolifera*); complying with *double counting*<sup>3</sup> rules this means going well beyond the 10% renewable energy share target, which until now seemed unachievable.

### **A fuel competitive with diesel and gasoline**

The excellent results and extremely low energy consumption of Hyst pre-treatment allows significantly lower biomethane production costs compared to those of biofuels currently on the market. Hyst biomethane can even compete with costs of traditional fuels (Figure 1).

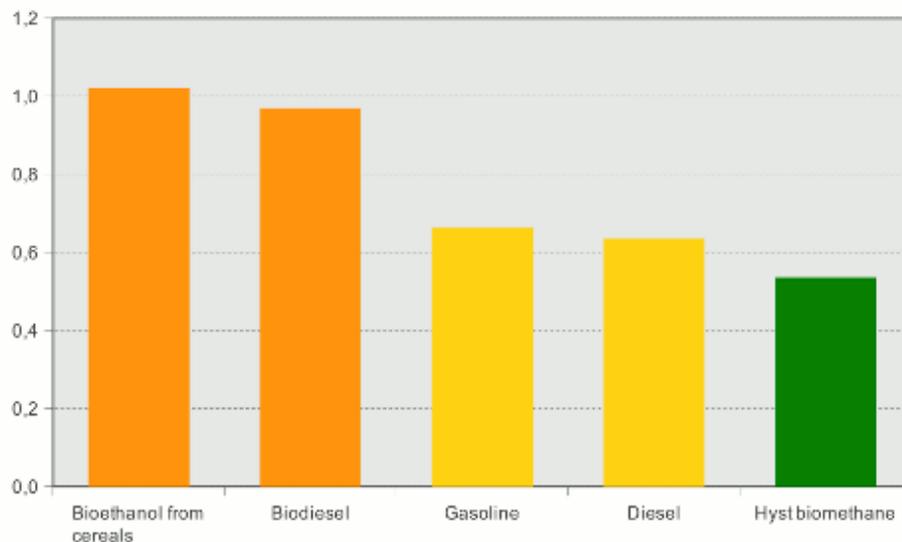
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1 Sustainability criteria are aimed at encouraging (and keeping on the market) only biofuels that ensure adequate reduction of greenhouse gas emissions compared to traditional fuels.

2 Second-generation biofuels currently on the market represent only 0.1% of the biofuels market (source: Sims et al. 2010).

3 *Double counting*, introduced with the Directive 2009/28/EC, conventionally doubles the energy content of second-generation fuels, precisely in order to encourage industry efforts in this area.

### Production costs for fuels (lge/€.)



**Figure 1:** Production costs of main fuels<sup>4</sup>.

Hyst biomethane would also benefit enormously from double counting, implemented in Italy with Legislative Decree no.28 of 3 March 2011, which would double its energy value for targeted requirements. Therefore, one cubic meter of biomethane placed on the market could replace 2 litres of biodiesel or 3.2 litres of bioethanol.

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<sup>4</sup> Litre per gasoline equivalent (lge): quantity of fuel with the same energy of a litre of gasoline (1 lge = 0.9 m<sup>3</sup> of methane).