

Biofuels International explores why a US company has chosen Bosnia as the location of its recently completed biodiesel plant

# Bosnian biodiesel

**S**ystem Ecologica is the Bosnian-based subsidiary of Better Energy Solutions Today (BEST), a US biofuels company with offices in Los Angeles, New York, Nairobi, and Bosnia and Herzegovina.

The biodiesel refinery is the first of its kind in Bosnia, and is located in the Republic of Srpska, near the city of Banja Luka.

Although only just completed in February, the company has high hopes for success. It is the only operational plant near Serbia, Croatia, Slovenia and Montenegro, which totals over 20 million people.

Most vehicles in this region run on diesel – the price of which is close to €1 a litre, so the company can sell its biodiesel for less than the price of fossil diesel.

A 3% mandatory blend for biofuels was also introduced in Bosnia and Herzegovina last year, increasing the demand for biodiesel further.

But perhaps the overruling factor in choosing this eastern European location, the company says, is that a biodiesel plant in Bosnia can be built for a fraction of the price of the equivalent in

western Europe or the US.

The Bosnian plant will serve as a model for additional refineries in neighbouring eastern European countries and Kenya.

At the moment its

processing capacity is 150 tonnes a day with just one processor, but the facility is designed to handle up to 500 tonnes a day.

The plant intends to be profitable in the first month



System Ecologica's unique process technology

## System Ecologica's processing technology

**Biodiesel processor:** The high-frequency rotation turbine inside the company's processors is responsible for the reaction on molecular level. The molecules of fatty acids are split within micro seconds, resulting in less viscosity, an increase in cetane number and a considerable acceleration and improvement of the quality of esterification reaction.

The processing modules do not require preliminary feedstock preparation.

Traditional methods of biodiesel production are based on heating of oil up to 67-70°C, which requires significant electricity consumption.

System Ecologica's technology used five to seven times less electricity by eliminating the heating stage and reduces the time needed to produce the biodiesel by eight to 10 times.

### Washing and drying of

**biodiesel:** System Ecologica's methods does not require washing and drying, saving time and money.

### No need for alcohol recuperation:

One of the drawbacks for some technologies is the need to add methanol in a reactor and then recuperate it. This requires the installation of additional equipment and electric power input.

System Ecologica's method does not require extra alcohol, reducing energy consumption, cutting costs and increasing safety.

**Universal equipment:** Depressors are used for cold flow adaptation. These are the special additives, which depress the temperature of the filtration capacity and solidification. It is impossible to add them into biodiesel without special equipment and certain technology. System Ecologica's method can effectively blend biodiesel and depressors, preparing the winter biodiesel without requiring any re-adjustment of the equipment.



Rajko Kuzmanovic, President of Republika Srpska and Milorad Dodik, leader of the Alliance of Independent Social Democrats (SNSD), help to open the plant in February 2009

when it becomes fully operational in April 2009. The company then plans to produce approximately 15,000-20,000 tonnes in the first year starting in May 2009 and double production levels in 2010. By the end of 2012 the facility should be producing up to 50,000 tonnes a year.

System Ecologica will

supply its first biodiesel domestically and in the future will look to export to nearby locations such as Croatia and Serbia, due to the cost advantages of production in Bosnia.

The company is financing the project by itself, and is hoping for some outside investment to speed up its developments. 'It seems in

today's economy we need to first prove our ability to produce and create cash flow so we can then look for further capital,' explains Boro Vukadinovic, one of the company's founders.

The plant is capable of processing a variety of feedstock from virgin vegetable oils to used cooking oils to animal fat but for the time being System Ecologica is using used cooking oil that it is collecting locally

The company also has a *jatropha curcus* test site in Kenya where it is partnering with the government to develop 40,000 hectares of land suitable for farming *jatropha*. ●



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