



Photos: Team Biogas.se

Racing on biogas

The newly formed Biogas.se team won its first point in this year's Swedish Touring Car Championship (STCC) on June 5 by coming in 8th in Gothenburg's City Race event for touring cars. A "so-so" result, considering 22 cars from globally recognised manufacturers participated in the race. Nevertheless, driver Fredrik Eklom wrote motorsport history. His Volkswagen Scirocco is the first biogas-powered touring car in the world that has managed to win a point in a racing series. And this is just the beginning. 'Our aim, of course, is to win the STCC,' says Marcus Thomasfolk, Volkswagen's head of communications in Sweden. Even if this is still unrealistic at the moment, the agreement runs for three years and he says the possibilities are 'not bad'.

Alongside Volkswagen and Eon, the third partner in the venture is the Federation of Swedish Farmers (Lantbrukarnas Riksförbund, LRF). According to its president, Lars-Göran Pettersson, the primary aim of the farmers' involvement is to stimulate biogas consumption. For the farmers, this is just as important as food

production. LRF has set itself a target: by 2020, its members aim to be producing 9 TWh of biogas, which would meet approximately 10% of the demand for fuel. Eon and Volkswagen also see their participation in the two biogas Sciroccos at the STCC primarily as a 'market building measure'.

It might come as a surprise that they chose Sweden as a test market. Gas, especially biogas, has played a minimal role so far when it comes to the supply of fuel in Sweden. Of the 4.3 million cars registered, only 15,000 fill up with gas. Only 100 of the approximately 3,500 filling stations in Sweden provide gas. STCC owner Rickard Pålsson believes, however, that 'motorsport changes people's awareness'.

But getting things started wasn't easy. Volkswagen first had to negotiate a change in the rules with the motorsport associations. 'Without turbo charging, a high-performance racing car is not possible with biogas,' explains Marcus Thomasfolk. And turbos were previously against the rules. The word in sports circles is that

preparations are now being made for a change to international rules. The Swedish association in particular is pushing for this. The driving force behind the Biogas.se team is Eon – Sweden's leading gas supplier as well as its third largest electric utility. 'STCC provides an excellent opportunity to showcase Sweden's most environmentally friendly fuel, biogas. That's why we view the STCC as the next step in our drive to get biogas into cars,' says Håkan Buskhe, Chief Executive of Eon in Sweden. And for Claes Jerveland, chief executive of Volkswagen in Sweden, the STCC provides 'a good opportunity to improve the image of gas-powered vehicles'.

The STCC is highly respected in international motorsports. Each year, nine competitions, including one City Race, take place between May and September, with two races each. Global brands such as Audi, BMW, Peugeot, Mercedes, Volvo and Honda line up on the start line. Each day of racing attracts an average of at least 15,000 spectators and the races are broadcast by two television stations. Scirocco driver Fredrik Eklom (39) is regarded as a veteran, having already won three times. The second Scirocco is driven by talented newcomer Patrik Olsson (20), who has previously competed in Germany's Volkswagen Polo Cup, coming second in 2006. Eklom views his involvement in the biogas project as 'a big challenge – driving on fuel made from waste and cow dung'. ■

Reiner Gatermann



400-billion-euro solar plan takes off

A consortium of 20 German companies has announced that it wants to invest €400 billion in several huge concentrated solar power (CSP) plants in North Africa to supply Europe with green electricity. The program, called Desertec, harbours huge promises. It could turn around not only Europe's power mix but also the African economy. A big conference about the plan is to be held in mid-July in Munich.

If you're thinking solar energy, it makes sense to go where the sun shines most. What about the Sahara, for example? In just six hours, the world's deserts receive enough solar energy to power the entire world for one year. That's what Desertec is all about: build CSP plants in the north African desert states and export the electricity to Europe via new, direct current power grids. The idea has been around for years, but until now, no one dared to take concrete steps to realize it. Now, some of Germany's biggest companies – among them Deutsche Bank, insurance group Munich Re, technology firm Siemens and energy giant RWE – have agreed to actually form a consortium to build the plants and the grid infrastructure. The investment

sum is a staggering €400 billion until 2050. Desertec is to produce power by 2019; eventually, the CSP plants in Africa could supply 15% of Europe's electricity.

'This is no longer a distant vision but technologically fascinating and also achievable,' Torsten Jeworrek, a Munich Re board member, says. 'Desertec is clearly banking on the right incentives in the long term, namely climate protection and a low-carbon energy sector.' Europe's growing dependence on oil and gas imports and the rising prices for fossil fuels would help make the project economical within 10 to 15 years after its start, Jeworrek said.

Of course realizing such a project isn't that simple. The companies won't be able to furnish the €400 billion alone. They need additional industrial partners from all over Europe. And if Desertec is to fly, then governments will have to fund it as well – most likely by financing a feed-in tariff for the power generated in North Africa. In the current financial situation, this is an arduous task. But it's not impossible. Companies in Spain have positive experiences with CSP plants. And the likes of RWE and Deutsche Bank wouldn't take part in the project if they didn't think they could make money with it.

There are more obstacles to be circumvented. The potential government partners in Africa – Tunisia, Egypt, Algeria, Morocco and Libya – aren't exactly model states. Critics point to the region's political instability and the threat of plants being targeted by terrorists. The latter threat can't be completely averted. But the former could. The consortium should make sure that the CSP plants are located in several countries, in order not to hand a single government a political pressure tool.

There are many potential benefits as well. Europe would get massive amounts of green energy for a reasonable price; nations in North Africa would get access to technology to produce their own growing power demand in a more sustainable manner. The searing sun could even be used to produce much-needed drinking water. North African states could also export home-produced electricity to revive their economies. And prosperity might, eventually, stabilize these countries not only economically, but also politically. To be continued. ■

Stefan Nicola





Photo: Shell

Berlin-Moscow on a single tank

Imagine driving from Berlin to Moscow without having to fill up along the way. Oh, and imagine doing that with just 1 litre of petrol. This may sound like straight out of science fiction, but vehicles that manage this do exist. In fact, in May they competed on the EuroSpeedway Lausitz circuit near Dresden for the Shell Eco-marathon Europe 2009. This competition dates back to 1939, when two Shell engineers quarrelled over whose car gave the better fuel mileage. Held for the 25th time this year, the Eco-marathon has since developed into a prestigious energy efficiency event for students from all over the globe. Its rules have not changed much since the late 1930s. It is still about driving as far as possible on the least amount of fuel.

Over 200 teams took part this year, and for them, 'sustainable mobility' is more than just a buzzword. 'These are the engineers of the future who are helping to turn it into reality,' said Shell's ceo Jeroen van der Veer. 'Society needs a new generation of talented problem-solvers to address the world's energy challenges.' The vehicles at this year's Eco-marathon ranged from

makeshift wooden cars to sleek carbon-fibre bullets perfected in the wind tunnel. They all had to complete eight laps of the EuroSpeedway circuit – in total around 25 km – within 51 minutes. Vehicles were allowed to run on regular fuels, but also on hydrogen fuel cells or solar panels. (Those cars measured their consumption in kilojoules, which was then converted to fuel-equivalents).

This year's overall winner in the "Prototype" category came from France. The Microjoule entry from Lycee la Joliverie managed to rack up 3,771 km on 1 litre of fuel – a new record. Of course the 30-kg vehicle will not see the open road; it would not meet the safety standards. But Shell has also introduced an "UrbanConcept" category, which awards vehicles that look and feel like day-to-day cars – but are much more fuel-efficient. The entry from the Luleå University of Technology in Sweden, for example, was a serial hybrid running on 100% ethanol. Its small internal combustion engine powers an electric generator that drives the left rear wheel, which helps maximise fuel efficiency. The car is practically fit for the open road,



having passed most of the roadworthiness test conditions set by Swedish authorities.

The team from the Technical University of Denmark set a new record at the EuroSpeedway for an internal combustion engine in the UrbanConcept category. Its diesel car running on Dimethylethylene, a liquid petroleum gas, achieved the equivalent of an impressive 589 km on one litre of the fuel. Such designs impress even José Manuel Barroso, president of the European commission, who in a video message told participants of the Eco-marathon that innovations in transport would be central to meeting the continent's climate goals.

'Transport accounts for almost a quarter of Europe's CO₂ emissions and a third of our total energy consumption. We need to concentrate minds and efforts on helping reduce emissions and improve energy efficiency in the only sector in which emissions have increased since 1990. The Shell Eco-marathon is a key educational platform that encourages students to focus their minds on the challenge of maximising fuel efficiency, whether using traditional or alternative fuel sources.' ■

Stefan Nicola