

Olivefield: Benefuel announces JV with Felda for Malaysian biodiesel retrofit

There's greenfield construction – new plants. There's brownfield – redeveloping disused industrial sites.

Now, there's olivefield.

Transforming existing sites with new technology that diversify the inputs, reduce the carbon scores, or broaden the product set. As a new JV between Benefuel and Felda exemplifies.



Somewhere between greenfield and brownfield, there's olivefield.

In May in “The Neodiesel revolution” we wrote: “Here comes Neo – the neodiesel companies – brimming with technologies to create cleaner alternatives to a powerhouse fuel. They have the performance, half the carbon, and a range of feedstocks to choose from.”

A trend we noted was “Diversification of feedstocks through introduction of high FFA-tolerant technologies – and one-step processing,” and we highlighted the JV between Benefuel and FHR known as Duonix.

Benefuel and Felda

That particular storyline is now extended with the news that Benefuel and Felda have formed a JV to acquire a 250,000 metric tons per year biodiesel plant in Kuantan Port, Malaysia and will retrofit the plant with Benefuel's ENSEL technology. The joint venture also includes M2 Capital Sdn. Bhd., a subsidiary of Australia's Mission NewEnergy, the current owner of the plant. The transaction is expected to close in the fourth quarter of 2014, and the plant is expected to be operational in late 2015.

Benefuel Inc. is a biodiesel process technology and production company based in Irving, Texas. The company has exclusive, global rights to next-generation technology for manufacturing biodiesel and bio-lubricants. Benefuel's patented ENSEL process allows the company to produce biodiesel at a substantially lower cost than conventional methods by using lower cost, high free fatty acid feedstocks and converting them efficiently into biodiesel and glycerin.

Benefuel's ENSEL technology is unique because it allows the use of lower cost, high free fatty acid (FFA) feedstocks such as animal tallow, unrefined oils, used vegetable oils or distillers corn oil. This is accomplished through the use of a solid catalyst that combines esterification and transesterification into a single step, which has been a long-standing goal of the biodiesel industry. The process also ensures the final product meets or exceeds all domestic and European biodiesel standards.

The Benefuel backstory

Back in May, we reported that Flint Hills Resources will begin retrofitting the Beatrice, Nebraska biodiesel plant for a planned commencement of operations during the summer of 2015. Once the Duonix Beatrice plant is operational, it will produce approximately 50 million gallons of biodiesel each year and employ about 45 people in the local community. Here, this is not the first deal between Felda and Mission New Energy — but this is the first time that Benefuel has been in the mix.

Late last year, we reported that Mission NewEnergy Limited [sold its 100,000 tpa biodiesel refinery](#) in Malaysia to Felda Global Ventures Downstream Sdn Bhd for US\$11.5 million. MBTSB said at the time it would utilize the entire proceeds from the sale to reduce loans from the holding company which in turn will be used by the holding company to reduce borrowings at the group level leaving a small amount to fund the group's general working capital. With the sale, MBTSB will cease to have any operations and become a dormant company.

Felda on the move

Felda has been on the move. We reported in December that it was in negotiations to acquire SPC Biodiesel, an idle biodiesel plant. However, industry sources indicated that FGV was not the only company looking to acquire the plant, with ballpark figures around USD \$10 million. Earlier in 2013, FGV bought a 100% stake in Pontian United Plantations, which is also close to FGV's existing plantations around the Lahad Datu region.

“We are excited to team up with FGV and Mission NewEnergy to acquire and operate the Kuantan Port plant,” said Rob Tripp, Chief Executive Officer of Benefuel. “This facility will use lower cost, high FFA feedstock, a by product of the crude palm oil milling and refining process.

Methes also on the prowl in the FFA space

In July, we reported that [Methes Energies International](#) [announced](#) a new pre-treatment process for high free fatty acid (FFA) biodiesel feedstocks, including corn oil.

At the time we noted: “In almost all cases, biodiesel feedstock oils must be pre-treated before the oils can be converted into quality biodiesel. The pre-treatment process is either performed at the biodiesel facility or at other facilities before delivery to a biodiesel facility. Current pre-treatment processes can be expensive and challenging adding to the cost of oils and facility maintenance costs such as when using sulfuric acid.”

The Methes advantage? The claim is that the company has developed a process to convert FFA oils into biodiesel, converts crude oilseeds without the need to degum, and removes all the waxes and the red color

in corn oil as well as reducing substantially the overall catalyst cost at a typical biodiesel facility. With a conversion time as low as 15 minutes to one hour this new process uses a liquid catalyst that is non corrosive and easy to handle compared to traditional sulfuric acid.

What's the big deal with High FFA feedstocks, anyway?

It comes down to cost. For example, we reported in January that soybean oil was trading at 38 cents and has peaked as high as 50 cents — it's trading at 32 cents right now. Choice white grease trades at around a 10 percent discount, and distillers corn oil at a 20-33 percent discount. Fatty acid distillates — by contrast — the FADs, trade at a 35-37 percent discount.

Tapping the lower cost feedstocks also broadens and expands supply — providing stabilized price and economies of scale to companies that can tolerate higher FFA feedstocks. It's an advantage REG has been pursuing for years. In February, [the company did a \\$13M upgrade to its Newton, IA plant](#) which has been online since 2007, and processes high and low free fatty acid feedstocks.

It's one of the advantages of enzymatic biodiesel, a technology we mentioned above. In profiling ["Novozymes's magic enzymes...and Blue Sun has been up to"](#) we wrote about Blue Sun's ambition to use advanced technology to unlock low-cost feedstocks.

As we observed at the time: "Little known fact in the corn oil revolution — where corn oil is being extracted from corn before ethanol processing and sold to biodiesel producers as a feedstock — is that corn oil generally has to be pre-processed and the high FFA oils have to be stripped off before it can be used. That residue? Becomes a feedstock for technologies like enzymatic biodiesel.

Where is this trend going?

As we observed in the "Bioenergy Project of the Future" series as far back as 2010 — the trend has been almost entirely in retrofitting first-gen ethanol and biodiesel plants to broaden feedstock options, reduce input prices, drive down carbon scores, and improve margins. We also see companies using that resultant strength to develop new technologies to broaden the product set.

In that first trend, no doubt Benefuel has become a leader, with a second JV under its belt — this one with Felda, the world's largest vegetable oil processing company. It's previous JV is with FHR, a Koch Industries unit and one of the world's largest privately-held enterprises.

In the second trend, we've seen companies like REG and Aemetis on the rise. There are more coming. Many industry leaders, speaking off-record to the Digest, are coming to the conclusion that this is the way the industry will grow for some time.