

Producers must adapt to constantly changing market situations in order to survive

Welcome to the biofuels evolution

Five years ago, a biofuels revolution was born in Europe from ambitious environmental, energy security and national security policies. Starting with the EU's Biofuels for Transport initiative in 2002, this revolutionary policy ideology took root in the US in 2005 with the birth of the Renewable Fuels Standard under the Energy and Independence Security Act.

Not long thereafter, several countries, including India and China were soon following suit, and enacting policies aimed at reducing pollution, dependence on foreign oil, and producing renewable sources of transport fuels.

These revolutionary biofuels initiatives were met with great enthusiasm and government support in the form of mandates, subsidies, tax incentives, and large R&D initiatives. In the EU and the US, these initiatives and tax benefits accelerated market biofuels market growth to impressive levels in just a few years

At this time in both the EU and US markets, affordable feedstock prices, generous subsidies and favourable tax incentives spawned investment and development in hundreds of new biodiesel and ethanol refineries.

But in a short period of time, the biofuels industry moved from Woodstock to Wall Street; and from a few dozen grass roots initiatives to hundreds of

industrial-scale enterprises. As the enthusiasm grew to new heights in late 2006, the EU and the US markets witnessed the first signs of growing pains.

In early 2007, the EU Commission soon realised that the increasing aggregate capacities of the biofuels industries were growing beyond the agricultural capacities of available European arable lands to supply the booming industry.

From late 2006 through 2007, the US ethanol and biodiesel markets also entered a similar pattern, where fast-paced market growth in biofuels production capacities outpaced the capability of the US' arable land and agriculture industry to sustain these growing industries. Dozens of new first-generation biofuels enterprises arrived in the face of feedstock shortages. This challenge was exacerbated by the rising

cost of feedstock prices for biofuels producers.

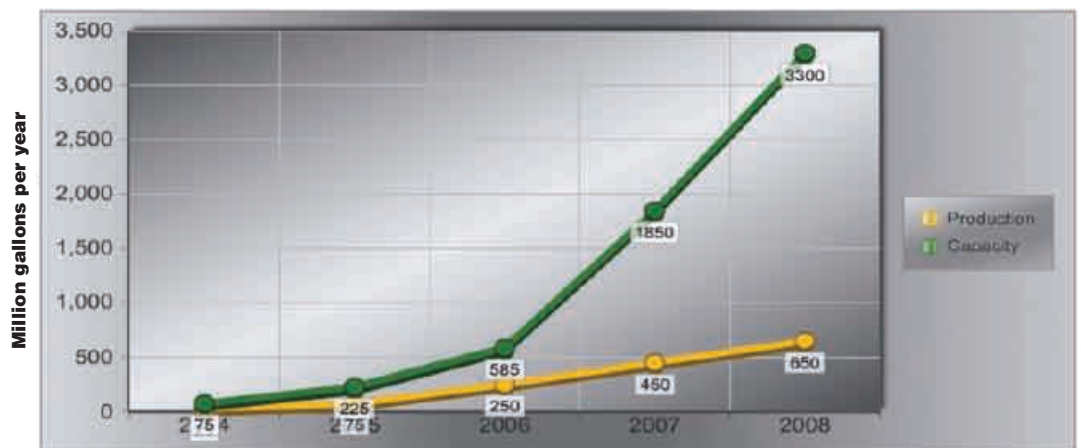
Given these new transitional challenges, biofuels markets were the first to react and adapt. Economists, commodities traders, and a few prescient government officials had the foresight to anticipate a growing gap between biofuels production levels and increasing production capacities, largely based on first generation production inefficiencies and limits to growth in arable land in both the US and the EU. In both continents, imports soon became a stop-gap measure to offset growing feedstock shortages and increasing prices.

As a reaction to rapeseed feedstock shortages in Europe, increasing volumes of imports from Asia and the Americas helped to offset some initial feedstock shortages. In the US markets, favourable tax

policies once intended to contribute to energy independence at home soon led to unfavourable consequences of increased exports via splash and dash. By the end of 2007, more than 70% of the biodiesel produced in the US was being exported to Europe, much of it originating in Asia and South America, en route to Europe via the US.

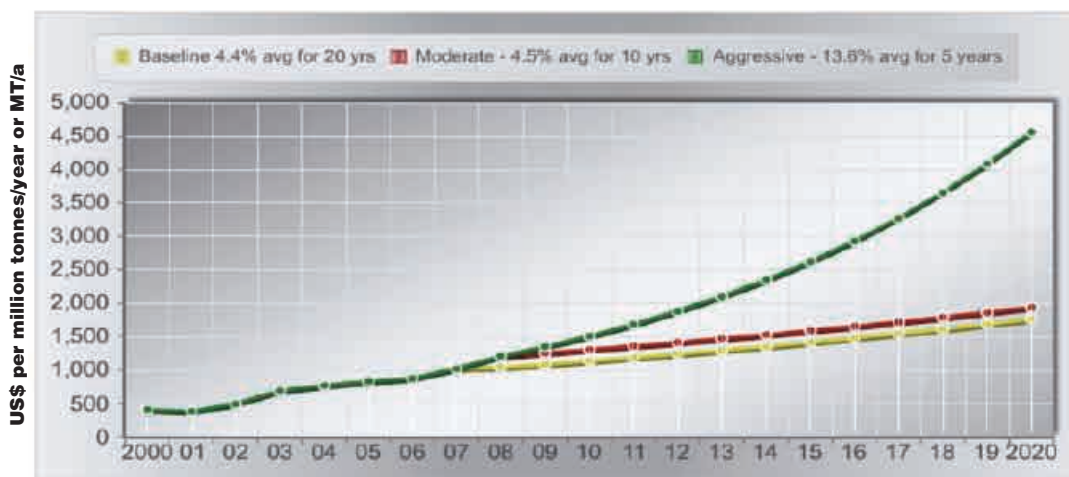
Meanwhile, two transitions emerged in response to break-neck growth in biofuels in two key transitions. The first was a transition from renewable to sustainable biofuels initiatives. Due to a confluence of factors, including humanitarian (food versus fuel), environmental (deforestation), and economic (rising prices, feedstock shortages) reasons, the focus on environmental and economic sustainability grew in the media, government

US biodiesel production and capacity



Source: Biodiesel 2020: A Global Market Survey, 2nd edition

Biodiesel forecast scenarios: European biodiesel prices to 2020



Source: Biodiesel 2020 survey of 1st generation rapeseed based biodiesel

debates, and among biofuels producers. As the media, environmentalists and governments followed a new movement towards environmentally sustainable initiatives, another form of sustainability emerged in the biofuels markets – the need for economic sustainability.

This second transition occurred over the course of mid-2007 through the beginning of 2008. In reaction to these changes, the biofuels industry was fast at work at developing next generation feedstocks and technologies to support an economically viable industry. In both cases, transitions towards alternative sources of feedstock based on, lower cost, non-food based sustainable sources emerged to set a new course for viable biofuels enterprises, and in anticipation of forthcoming government initiatives.

By March 2007, the EU's annual renewable fuels summit concluded sustainable, second-generation feedstocks and technologies would be necessary to transition the biofuels industry to meet long-term sustainability concerns. A similar debate emerged in the US as feedstock shortages, import substitution, tax-supported exports, and profit erosion in biofuels enterprises lead to a

chorus of calls for alternative and next-generation, advanced biofuels feedstocks and technologies.

By December 2007, the US congress passed a difficult but necessary revision to a previous Energy and Independence Security Act. The new revision aimed at developing more efficient means of second generation biofuels – upping the ante from a 2005 bill targeting 7 billion gallons of biofuels by 2012 to a 2007 bill targeting 36 billion gallons of biofuels by 2022. Of these 36 billion gallons, 22 billion were clearly designated for second generation and advanced biofuels.

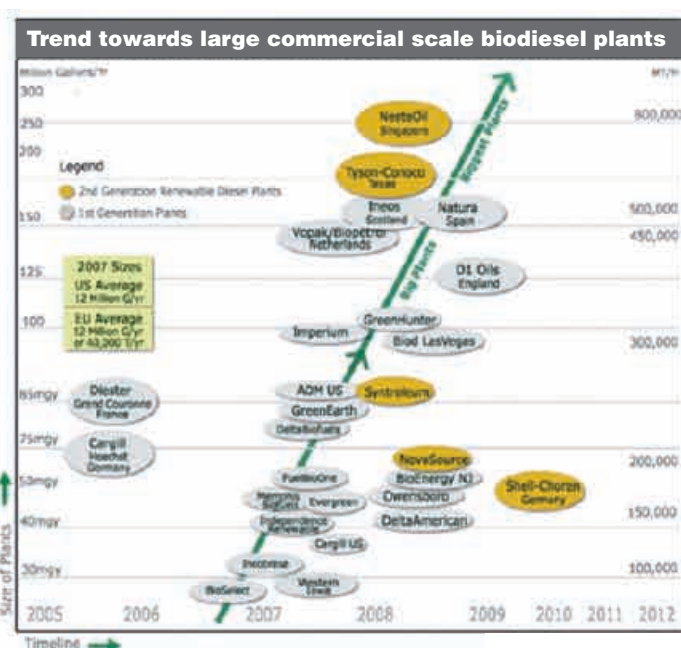
Fast forward to January 1, 2009. On this day, US biofuels tax subsidies (production and blending tax credits) for biodiesel and ethanol will expire. Splash and dash will end. How will biofuels enterprises survive? Coincidentally, sometime in the first few months of 2009 the EU is expected to pass a sustainable biofuels law, effectively prohibiting the production and importation of biofuels that do not meet EU sustainability criteria.

On 11 September 2008, the EU lowered its biofuels targets from 20% to 10% by 2010, in response to growing concerns for food-based biofuels, and in

favour of second-generation, mostly from non-food based fuels. How will biofuels enterprises survive this period of uncertainty, transition and change?

Welcome to the biofuels evolution. As Charles Darwin observed in his book *The Origin of The Species*, the species (or in this case enterprises) most likely to survive are not the ones that are the strongest, the most attractive, or the most intelligent, but those that are best able to adapt to change. This evolutionary transition is precisely what is developing now in the EU and US biofuels markets, in anticipation of regulatory and market changes in 2009. These are enterprises involved advancing innovation and commercialisation in next-generation feedstocks from algae, switchgrass, jatropha, sorghum, and wood-waste as well as next-generation technologies from cellulosic ethanol, biocrude, biobutanol, renewable diesel, and advanced thermochemical processing catalysts for BTL biomass to liquids conversion.

Based on the conclusion of the forward-looking *Biodiesel 2020* study, biofuels enterprises that are best prepared to adapt to these changes in tax subsidies, feedstocks, and technologies are the ones that are most likely to survive. These evolutionary enterprises will represent a new generation of innovators, leaders, and next-generation survivors that can adapt to and participate in both environmentally and economically sustainable markets over the long term. ●



Source: Energy Markets Online

For more information
 This article was written by Will Thurmond, a biofuels consultant, author of *Biodiesel 2020: A Global Market Survey, 2nd edition*