Biobutabol and the bioneer spirit

Jim Lane | September 11, 2013

CMEC and Green Biologics take mighty first steps towards another key hook-up between a US corn ethanol producer and a hot biobutanol technology.

In Digestville, we look at the bioneer spirit — and how this deal differs from others pursued by Gevo, Butamax, Cobalt and other lusty pursuers of four-carbon fortunes.

It's not exactly clear who first coined the term "bioneer" — could possibly be the well-known biofuels social media guru, Sean O'Hanlon, and the term has been widely applied to him and his legions of biobased Twitterati.

But it is a term that could be equally applied to a brace of companies that, this week, entered into an exclusive letter of intent — namely, Green Biologics and Central Minnesota Ethanol Co-op (usually known around the business as CMEC).. The news is just now flying around the internet that, under the LOI, Green Biologics is aiming to acquire substantially all of Central MN Ethanol Co-op's assets.

Though CMEC now, with its 23 million gallon capacity seems somewhat small compared to some of the lustrous and massive ICM and Fagen ethanol plants that have been erected by POET, ADM and others around the Midwest; in it's day, CMEC was a giant and, back in 1999, they were the first and for a long time the foremost player in their neck of the woods.

Likewise, Green Biologics' DNA reaches back into the 1990s, when one of the companies that merged into Green Biologics, Butylfuel, was a pioneer — or we should say, a bioneer — in making biobased n-butanol. Eventually they hooked up with the UK-based Green Biologics and the enterprise trades under the GB name and has a global footprint, but it has roots in the Midwest. Now, it is a global player in n-butanol, a backbone chemical used in paints, coatings, adhesives, inks, plastics, pharmaceuticals, food ingredients, household cleaners and personal care products with global markets exceeding $8 billion.

A market which some of the hottest companies around are chasing — the likes of Gevo, Butamax, and Cobalt Technologies, to name some of the exalted. Like all of them, Green Biologics has developed advanced fermentation technology to produce renewable butanol.

In this case, though — it shares a focus with Cobalt Technologies on n-butanol — highly suited to renewable chemicals. Like Cobalt, it can utilize a wide range of feedstocks, including corn and cellulosic feedstocks such as agricultural and forestry residuals and municipal solid waste.

There, the similarities broadly end — GB is using a well-known clostridium-based organism which really fits into ethanol infrastructure well, with very little modification required. And, there's a lot of history in working with clostridium at scale: in fact, it used to have the largest fermentation capacity base, in the years before the rise of yeasts.

Like Cobalt, Gevo and Butamax, the strategy for GB in the case is based on a capital-light conversion of an existing corn ethanol plant to a higher-value, higher-margin molecule. As former Cobalt CEO Rick Wilson once told the Digest, :why make a $3 fuel when you can make a $5 chemical?"

It's a strategy that Gevo has taken many steps down the road in acquiring and converting the Luverne ethanol plant to its process — another good, if smaller, ethanol operation — and rode that strategy to a celebrated IPO and nearly a billion dollars in market cap, only to see its valuation collapse when commissioning the Gevo process proved to take far longer than expected at "palnt number one" and the market got a case of the jitters.

Green Biologics hope to esacpe some of the less fortunate aspects of the rollercoaster ride that Gevo went on — partly by staying private, partly because of the afore-mentioned broad experience with brining up clostridium-based fermentation to scale — as opposed to the novel modified yeast-based bug that Gevo uses. Time will tell.

In the interim, corn purchases, ethanol and co-product production efforts will continue in full force. Employees will produce and deliver high-quality products as usual, with no interruption of ethanol and co-products deliveries to our customers."

There are several trends worth noting in this LOI.

1. C4 and n-butanol in particular. Earlier this year, we noted that C4 platforms were getting stronger and stronger. Not only are players like Green Biologics, Cobalt, Gevo and Butamax progressing towards scale — the platform may well benefit from cheap natural gas which, replacing some needs for naphtha production on the oil & gas side, may create fossil-based capacity for C4 production. We've seen companies like Genomatica also make huge strides towards commercial-scale production for products like BDO and butadiene,

2. The Biorefinery of the Future. In 2010, in our 10-part "Biorefinery of the Future" series, we started with this simple advice: "Buy a corn ethanol plant." Industry observers told us again and again that corn ethanol assets represented a strong base for activity — with running business, permitted locations with key infrastructure, established credit relationships, much in the area feedstock aggregation and logistics solved, downstream marketing relationships, cellulosic feedstocks yet to be aggregated (e.g. corn stover), potential CO2 resources, and experience in managing large-scale fermentation.

Hook-ups like this, the Gevo acquisition of its Luverne, MiN plant, Solazyme's acquired fermenters in Peoria, IL; Amyris' fermentation acquisitions in Brazil; LS9′s acquired fermenters in Okeechobee, FL; Aemetis' acquisition of its Keyes, CA plant – just the tip of the iceberg, we believe.

3. Industry consolidation. In the Green Biologics consolidation, we see signs of industry consolidation not experienced since a wave of mergers in 2007-09. We expect that more and more projects will follow a pattern where technologies and production capacity seek out joint ventures – allowing the former to reach scale and the latter to access higher-margin markets in a capital-light manner.

Expected closing in 2014

While both parties have reached preliminary agreement on the key terms of the proposed transaction,

Time will tell on the GB-CMEC deal – which is still at the LOI stage, with a goal of becoming a full asset purchase agreement by October with shareholder approval at the co-op level by December and a closing some time in 2014. The final terms to be documented in the Asset Purchase Agreement are currently being negotiated and all related documentation finalized.

The ultimate goal? A scaled-up commercial n-butanol facility. First of many.

Reaction from CMEC

In announcing this proposed transaction, CMEC's CEO, Dana Persson stated, "CMEC fully examined its strategic alternatives and considered other proposals prior to entering into the exclusive Letter of Intent with Green Biologics, Inc. We chose Green Biologics as we believe its proposal represents the highest value to our shareholders."

"After significant deliberation, we consider this agreement is in the best long-term interests of CMEC's shareholders, employees, corn growers and the community at large. Green Biologics brings exciting new technology and product lines

to the Little Falls facility. The Board of Directors and Management team will meet in the near future with shareholders to discuss Green Biologics' offer and the process for seeking approval of the proposed transaction by CMEC's shareholders.

Reaction from Green Biologics

Commenting upon the transaction, Joel Stone, President, Green Biologics, Inc. said, "We assessed a number of attractive acquisition alternatives prior to executing this letter of intent with CMEC. We could not be more pleased with the quality of the facility, the caliber of the workforce, and the strong support CMEC receives from its existing corn growers and the community at large. This is critically important to us as we will continue to procure locally grown corn from area producers. CMEC has been a leader and a pioneer in the U.S. ethanol industry. It is our intention that the Central MN facility will continue to carry on that tradition as a leader and a pioneer in the U.S. renewable n-butanol industry."

The Digest's Take

In the US, the butanol race has been mostly "game on" for Gevo and Butamax, which both target isobutanol and which have collectively enriched a brace of expensive law firms with a hefty slate of lawsuits against each other — a biobased version of the Aaron Burr-Alexander Hamilton drama, only played out in a series of courts instead of the customary pistols at twenty paces.

Cobalt's been very much in the mix, on a global level, but has been focused more on opportunities with sugarcane bagasse and a couple of companies down in Brazil.

With this Green Biologics-CMEC deal, we could see a third company in the race for the lead in the US — while at the same time providing ample opportunitiy for Green Biologic's potential clientele in China, where they have been scaling up, too — to see the process working at scale, and profitably.

For corn growers, it's welcome news just as a bumper crop goes into the combine harvesters — another market to be excited about and provide added up-value for corn starch — and corn stover, too.

For ethanol producers — especially the smaller ones who struggle to compete against the economics of giants like POET and their brethren — well, it brings to mind Churchill's estimation of Lord Birkenhead's gifts of logic and loquacity: "like a cool jug of spring water for a perplexed conclave". Many of them feel caught between the slow-down in corn ethanol's growth and the ruthless penny-killing larger producers. Between the proverbial rock and the hard place — or to use a classical allusion, between the crashing rocks of Scylla and the whirlpool of Charybdis that once menaced Odysseus and his wandering warriors heading home for Greece after the Trojan Wars.

CMEC may have found the key to avoiding the fate of some of its fellows — the auction block or the liquidator — as the industry focuses more and more on scale. Their answer? The Ferrari strategy — making small volumes for high-paying customers. Now, there's a pioneer who's done well. Good example for those hardy bioneers of the north.