

Production Begins At Second Cellulosic Biofuel Facility

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You don't often hear Kansas and Spain mentioned in the same sentence. Yet today Spanish company [Abengoa is bringing another big cellulosic biofuel facility online in Hugoton](#), a small community in the Southwest corner of the state. This is the second big plant starting up this year, showing that after some predictable yet highly scrutinized delays, the cellulosic fuel industry is truly beginning to establish itself and making critical contributions to oil savings and climate goals.



Abengoa's plant in Hugoton Kansas will produce 25 million gallons of cellulosic biofuels and 21 MW of electricity per year – enough to power the plant and sell some back to the local Stevens County community. Photo credit: Abengoa

It wasn't long ago that cellulosic biofuels were the punchline of a joke: a phantom fuel that could not be economically produced in large volumes. Fast forward to today, and we see headlines like "[Advanced Ethanol Makers Are Trying to Give Big Oil a Run for Its Money.](#)"

I wrote recently about the [two cellulosic biofuels facilities we visited in Iowa](#), and about the use of [landfill and dairy digester gas to power compressed natural gas and electric vehicles](#). The Abengoa plant will double the production capacity on line for cellulosic ethanol, and do it without consuming a kernel of corn. The Abengoa plant is also worth noting because it represents an investment in America's clean energy future by a major international company, and it is by no means the only one.

Large companies making big investments

Major companies from all over the world have come to the US to invest in cellulosic biofuel as the result of our [smart people](#), our [abundant biomass resources](#), and a policy environment committed to steady growth in clean fuels. Yet the US is certainly not the only place that cellulosic biofuels are coming on line. There is also a [major cellulosic biofuels facility in Italy](#), and a [cellulosic biorefinery just started up in Brazil](#), which has a longstanding commitment to renewable fuels.



Beta Renewables' cellulosic ethanol facility in Crescentino, Italy opened in October of 2103, and uses enzymes made by Novozymes to produce ethanol from wheat straw and perennial grasses. Photo credit: Novozymes

The cellulosic plant that opened in Iowa in August is a collaboration of Poet, a major US ethanol company, and Royal-DSM, a company from the Netherlands (they are not kidding about the royal part either: King Willem-Alexander of the Netherlands was there for the grand opening). Another major player in cellulosic biofuels is Danish firm Novozymes, which makes enzymes to power cellulosic biofuel production and has major facilities in Nebraska and North Carolina.

It is worth pointing out that major international companies, not just Royal-DSM and Novozymes but also Beta Renewables that just started the cellulosic facility in Brazil, are investing both in Brazil and the United States. And as the U.S. policy landscape has looked less attractive, [investment is moving to Brazil](#). The question is no longer whether or not cellulosic biofuels will arrive; it's how big a part in the industry our country will play.



GranBio started up Brazil's first commercial scale cellulosic ethanol facility in Alagoas, where sugarcane straw and bagasse are made into ethanol and renewable electricity. Photo credit: GranBio

Policy instability = Lost investment

Seven years ago, we set a course to cut oil use by improving the efficiency of our vehicles and by expanding the use of renewable fuels. The Renewable Fuel Standard, which calls for increasing biofuels production

steadily over time, is central to that plan. Yet as opposition to the standard (driven largely by the oil industry) has increased, what was once a stable policy landscape has begun to shift.

I disagree with some biofuels supporters who suggest that any adjustments to the RFS will spell the end of investment in advanced biofuels. I have been arguing for a couple years that a more [flexible approach to RFS](#) is needed, and that [EPA was right to make some adjustments](#). I am less concerned about exactly what production volume target EPA sets for 2014 or 2015 than with how they reset the policy in the timeframe 2016 to 2022 and beyond. Establishing policy stability over the next 5 to 10 years is what will support the next round of investment. And strong regional policies like the California Low Carbon Fuels Standard and related clean fuels policies in Oregon and Washington can accelerate the trend further, drawing investment in clean fuels technology from around the world to the US and to these states in particular.

Steady progress on cutting oil use

Oil use has been steadily growing for about 100 years, so our half the oil plan was never going to be something we could execute overnight, but the progress to date is very encouraging: [vehicle efficiency is improving](#) and [biofuel production has doubled since the RFS was signed](#) in 2007.

The bulk of the oil savings so far have come from technology that was available and ready to scale up rapidly. But to make the deep reductions in oil use and carbon emissions we need to respond to climate change, we need to move on to more advanced technologies like electric vehicles and cleaner biofuels made from abundant and environmentally friendly sources of biomass.

The progress of the policies put in place in 2007 is encouraging, and also a reminder that it takes time to move technology from labs, to pilot plants, to full-scale production. The Abengoa plant opening is the latest evidence that these advanced technologies are making progress also.

About the author: Jeremy Martin is a scientist with expertise in the technology, lifecycle accounting, and water use of biofuels. He is working on policies to help commercialize the next generation of clean biofuels (made from waste and biomass rather than food) that can cut U.S. oil dependence and curb global warming. He holds a Ph.D. in chemistry with a minor in chemical engineering.