



## Markets

### Multiple Markets for Renmatix Sugars

There is a strong drive to dramatically reduce the use of fossil fuels, which has been the primary factor in the growth of the biochemical and biofuel markets. Renmatix understands that this is not a cyclical shift. The circular strains on the supply of oil are well documented. Geopolitical uncertainty in the supply of oil argues for a policy providing more energy security. The need to address climate change and focus on sustainability adds to the desirability of renewable sources. Pressure on global food crops already show that it is not feasible to depend on food based plant material for meaningful, large scale chemical or fuel production.

Renmatix sugars have been converted by downstream partners into a variety of materials from specialty chemicals to transportation fuels. Renmatix is continually looking for additional strategic partners who share our vision and need our sugars for testing programs, commercial use, or to license our technology. If you have a need for cellulosic sugars, or have an advantaged cellulosic feedstock that could be utilized in the Renmatix Plantrose™ process, please contact us at [businessdevelopment@renmatix.com](mailto:businessdevelopment@renmatix.com).

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### Chemicals



Numerous companies are working to respond to the call for new solutions that will shape the global biochemical markets. All of them require affordable sugars as a starting point for the replacement of traditional petrochemicals with plant based feedstocks. Right now Brazilian sugar is the closest thing we have to an answer, but even Brazil doesn't have adequate supply to serve growing international demand. Renmatix is working to provide the same kind of affordable economics everywhere. Renmatix is actively investing in the science and technology that can deliver its Plantro™ Chemicals to market.

We believe the market is best served by providing the conversion technology that allows others to produce the bio-building blocks needed to create the chemicals demanded by the market; chemicals such as polyethylene, surfactants, polypropylene, and ethylene glycol. In anticipation of this progressive shift, the investment community, corporate venture groups, and product development teams have taken notice. Internationally, government activity also helps to advance the bio-industry and is creating new jobs by accelerating growth and development opportunities. By helping companies transition away from their dependence on fossil fuels, with viable alternatives – Renmatix offers a technology swap, from the old to the new. Renmatix technology engenders a meaningful transition to truly renewable materials.

We provide chemical and fuel manufacturers, or upstream players looking to move further down the value chain, with modern choices that leverage scientific innovation from this century – to address old problems that dated technology and aging solutions could not.

## Biotechnology Penetration in the Chemical Industry

Year	Value	Penetration
2000 (actual)	\$67 billion	5.3%
2005 (actual)	\$98 billion	6.7%
2010 (forecast)	\$159 billion	9.6%
2025 (projection)	\$1000 billion	33%

Source: McKinsey and Company, 2006; MBI

## World Biobased Market Penetration 2010-2025

Chemical Sector	2010	2025
Commodity Chemicals	1-2%	6-10%
Specialty Chemicals	20-25%	45-50%
Fine Chemicals	20-25%	45-50%
Polymers	5-10%	10-20%

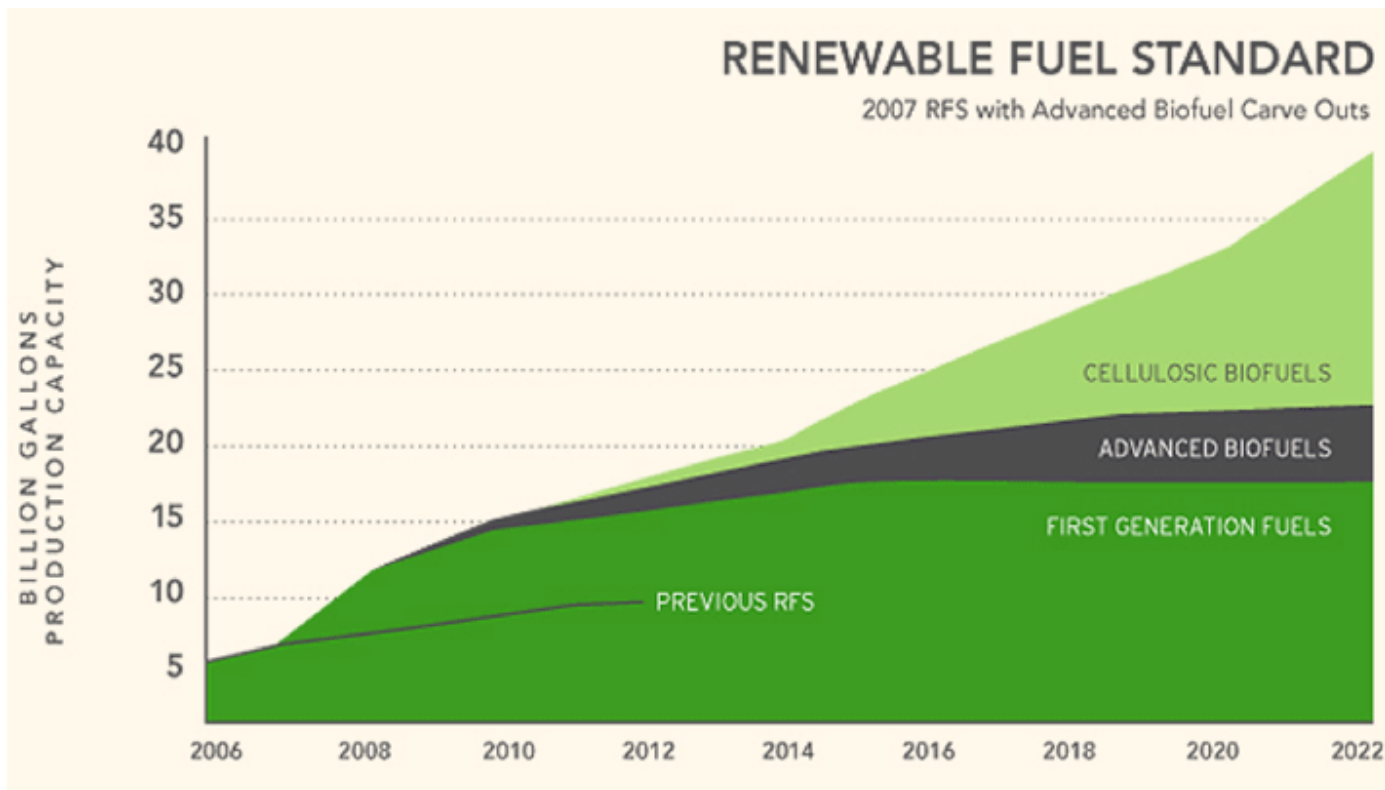
Source: USDA, U.S. Biobased Products Market Potential and Projections Through 2025

## Fuels



In the U.S., the EPA originally proposed a mandate for 22 billion gallons of cellulosic biofuels, in the United States alone, by 2022. Today the market suffers from severe capacity constraints. Under existing technologies, even with rebates and incentives, the economics just don't work. As a result, near term mandates were unrealistic and have been reduced accordingly. This emphasizes the pronounced need for cellulosic sugars that can be fermented into advanced biofuels at an affordable price. Renmatix has overcome the major obstacle to the most desirable path forward by demonstrating conversion, at competitive cost, of hardwood cellulosic feedstock into the Plantro™ sugars that lead to ethanol, butanol, and other biofuels.

Renmatix's breakthrough achievements could not come at a better time. To satisfy the 2022 RFS mandates for cellulosic biofuels in America – industry will require 140 million tons of cellulosic sugars. And Renmatix is moving beyond hardwood – to satisfy large future demands we offer a solution that adapts for locally available biomass feedstocks, such as corn cobs and stover or switchgrass. Moving beyond the rural context, Renmatix technology has also been applied successfully to cellulosic containing municipal solid waste streams that accumulate in urban settings. Renmatix is working today to address future demand for biochemicals and biofuels by leveraging our adaptable technology to support the incorporation of additional non-food biomass feedstocks.



Source: [Energy Independence and Security Act of 2007](#)

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