

# Factors Influencing the Greenhouse Gas Emission Reductions of Cellulosic Ethanol



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**On January 29, 2010, one of the world's first cellulosic ethanol demonstration facilities commenced production.** This DuPont Danisco Cellulosic Ethanol LLC (DDCE) joint venture facility is located in Vonore, TN and will convert corn cobs and dedicated bioenergy crops into ethanol. In 2008, DuPont and Genencor, a division of Danisco, formed the DDCE joint venture, with the mission to accelerate the development of commercial scale biorefineries, create value for the renewable fuels and agricultural industries, and lead the way toward a low-carbon economy ( [www.ddce.com](http://www.ddce.com) ). DDCE has made significant progress towards this goal and continues to use sustainability assessments as the business moves from the research and development to the commercialization phase.

Life cycle assessment (LCA) as a scientific decision support technique was integrated alongside process development early in this biofuel research and development program. Over the years, the environmental benefits and consequences of process choices have been thoroughly evaluated. As DDCE moves towards commercialization, the tool of LCA is applied in new ways. LCA and general sustainability criteria are key considerations for DDCE business planning. By continuing to use LCA, environmental implications of various biorefinery integration and business options and farming practices are better understood. Through the use of LCA, we see that cellulosic ethanol has the potential to provide a sustainable solution to the nation's growing concerns around energy security and climate change.

