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Path to commercial algal biofuels through combination of process cost reductions and identification of novel co-products

Although algal biomass is considered to be a potentially high value feedstock for biofuel production, the path to commercialization is challenged by high production costs. This is largely due to high capital and operating costs for algal cultivation based on current technologies, but improvements in other unit operations will also be needed. This presentation will highlight research activities at NREL that are aimed at development of production strains with improved biofuel production characteristics, identification of large volume co-products, and development of novel technologies for biomass conversion to reduce costs and energy inputs. These activities will be placed into a framework of techno-economic analysis to help establish a scenario for an integrated algal biofuel production process that could compete with petroleum-based fuels.

Biography

Philip T Pienkos earned his BS in Honors Biology at the University of Illinois and his PhD in Molecular Biology at the University of Wisconsin. He has nearly 30 years of biotechnology experience in the pharmaceutical, chemical and energy sectors. He is a co-founder of two companies: Celgene, an established biotech/pharma company, and Molecular Logix, a case study for technology-rich/funding-poor biotech startup. He joined NREL in 2007 as a section supervisor and now holds the title of Principal Group Manager for the Bioprocess R&D Group in the National Bioenergy Center. In addition to his line management responsibilities, he is also the Algal Biofuels Platform Lead for the National Bioenergy Center at NREL. He is part of a team of algae experts from NREL and Sandia National Laboratories who worked with the Department of Energy to organize National Algal Biofuels Technology Roadmap Workshop held in December, 2008 and was a contributor to the National Algal Biofuels Technology Roadmap document, published in May, 2010. He is a founding member of the Algae Biomass Organization and has served as a member of the board of directors for that organization from 2008 to 2013. He is currently on the board of directors of the Algae Foundation. He was named in Biofuels Digest's list of the top 100 people in biofuels for four running years.

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