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State of Technology Review – Algae Bioenergy

An IEA Bioenergy Inter - Task Strategic Project

This IEA Bioenergy report provides an international update on the status and prospects for using microalgae and macroalgae as feedstocks for producing biofuels and bioenergy products. The report's scope covers algae-based options for producing liquid and gaseous biofuels, and also algae-based bioenergy in the more general context of integrated biorefineries. It describes the various technological options for the processing of algal biomass and reviews techno-economic analyses and sustainability assessments of algae bioenergy. IEA Bioenergy Task 39 took the lead on this report, the IEA Bioenergy Executive Committee supported its compilation and it is co-authored by members of IEA Bioenergy Tasks 34, 37, 38, 39 and 42.

The report finds tremendous progress in understanding and demonstrating algae production, but the dramatic decline in the price of petroleum challenges cost-competitive production of algal-based bioenergy products like gaseous and liquid fuels. Also, there is a clear and urgent need for open data sharing and harmonization of analytical approaches along the processing pathway, from cultivation to product isolation, and for techno-economic analysis and LCA modeling.

Source: IEA Bioenergy

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