

## Vision

Process intensification and modular manufacturing innovation will enable the evolution of traditional pulp and paper, forest products and agricultural products industries into an advanced renewable bioproducts industry (including renewable fuels, power, chemicals, and materials).

## Objectives

RAPID's Renewable Bioproducts Area focuses on developing, prototyping and/or scaling and demonstrating process intensification and modular manufacturing technologies that improve energy efficiency and reduce capital and operating costs in the conversion of biorenewable resources and manufacture of biobased products.

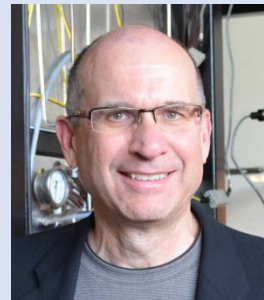
## Key Approaches

Key challenges to advancing biobased manufacturing will be defined. Promising technologies in process intensification and modular manufacturing will be identified for overcoming these challenges. Project teams of technology providers and commercialization partners will be organized to investigate the feasibility of implementing these manufacturing innovations. A wide range of process intensification technologies will be considered including combined unit operations; enhanced mixing; improved heat transfer; non-thermal process energy; increased chemical reaction rates; reductions in waste generation; waste utilization; advanced separations; chemical and heat recovery; efficient process water and solvent recycling and reuse; carbon recovery from waste water; and manufacturing process improvement and automation.

## Expected Outcomes

RAPID's Renewable Bioproducts area aims to demonstrate and deploy process intensification and modular manufacturing technologies that integrate unit operations and improve manufacturing of traditional and emerging bio-based products to achieve increased energy efficiency and energy productivity while reducing capacity costs, module production and deployment costs, pollution emissions and waste products.

## Contacts



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***Leading RAPID's mission of strengthening and transforming the renewable bioproducts industry***