

# Implications of Biorefinery Policy Incentives and Location-Specific Economic Parameters for the Financial Viability of Biofuels

## Background/Objective

Cellulosic biofuels are part of a portfolio of solutions for addressing climate change. However, federal policy interventions have failed to spur broad construction of cellulosic biorefineries and the implications of existing state-level interventions are not well understood. This work evaluates the influence of biorefinery- and biofuel-related tax incentives on biofuel production costs across the United States and characterizes the interaction of incentives with location-specific economic parameters.

## Approach

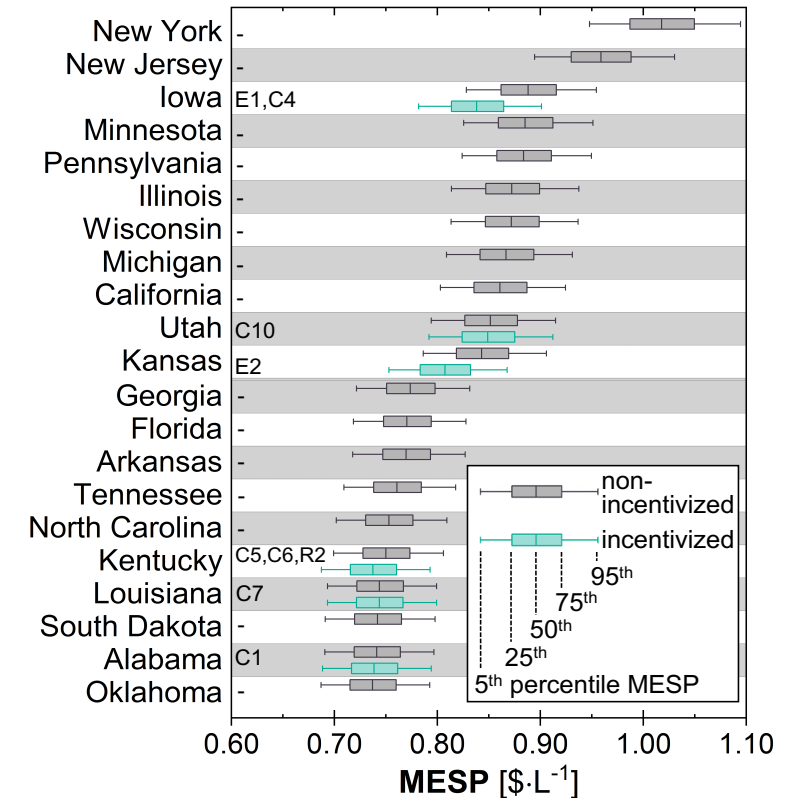
Researchers developed and leveraged the BioSTEAM Location-Specific Evaluation (BLocS) module to characterize state-specific economic implications of tax incentives on biorefineries and minimum ethanol selling prices (MESPs). They evaluated the importance of incentive specifications relative to location-specific parameters.

## Results

State-specific tax rates and material prices significantly changed the financial viability of a corn stover biorefinery. MESP ranged from 0.74  $\text{\$}\cdot\text{L}^{-1}$  (Oklahoma) to 1.02  $\text{\$}\cdot\text{L}^{-1}$  (New York). The most effective tax incentives reduced fuel production costs by approximately 6% (Iowa), but efficacy depended on incentive specifications and local tax rates.

## Significance/Impacts

Results related to economic efficacy of different tax incentive structures, identification of relevant location-specific parameters, and economically viable locations for biorefinery deployment may inform policy. The open-source BLocS software can be used to evaluate additional feedstocks and used with BioSTEAM for integrated economic and environmental sustainability evaluations.



**State-specific minimum ethanol selling prices (MESPs) for the modeled corn stover biorefinery. Numbers on the left edge of the plot identify tax incentives considered in each scenario.**