Economic Costs and Environmental Performance for Three Cellulosic Biofuel Pathways

By

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Abstract: This paper provides the first comprehensive economic and life cycle analysis for three major proposed cellulosic feedstocks for biofuels: corn stover, miscanthus, and switchgrass. This economic and environmental evaluation is needed to determine if (how) the emissions reduction requirement in the Renewable Fuel Standard (RFS) is (can be) satisfied and can inform decisions about the structure of policies going forward. The study provides an integrated framework for the estimation of emissions and costs associated with cellulosic biofuel production. Costs for each feedstock are estimated under a range of assumptions, and the costs of conversion via both biochemical and thermochemical pathways are estimated to provide total biofuel costs. The cost and emissions results are presented in the context of the RFS, and the economic and environmental implications of the results are analyzed through the lens of environmental and energy policy.