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Poster Abstract

Cost assessment of centralizing a swine manure and corn stover co-digestion system

Iowa's livestock produces over 50 million tons of wet-basis manure each year. Biogas production from the manure can provide additional income to farmers, reduce greenhouse gas emissions, control odors, and provide a renewable energy source. Despite these benefits, biogas production is rarely deployed at swine farms. In this work, we explore the system economics to understand better the reasons for low deployment, as well as the benefits that might be realized via several additional steps, including: (1) cleaning and injection into the natural gas grid, (2) amending manure with biomass, and (3) digester centralization. Specifically, we present a static, spreadsheet-based techno-economic model that allows examining these scenarios and combinations thereof. We also present our results and the uncertainties therein. This work shows that under the model assumptions, distributed, farm-scale digesters are not competitive with natural gas prices in Iowa, while some centralized production scenarios can be competitive, providing that fertilizer value and RIN credits are sufficiently high.