

A Stochastic, Multi-objective, Mixed-integer Optimization Model for Management of Wastewater Derived energy

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Abstract

We will present a stochastic multi-objective, mixed-integer optimization model for management of wastewater treatment plant that considers renewable energy investment and operational decisions under uncertainty. Examples of the uncertainty include: natural gas and electric power prices and carbon dioxide credits. These decisions involve converting uncertain amounts of biosolids into biogas and/or electricity for internal or external purposes, also considering the investment of solar power to be another renewable electricity source. Once, any type of digester will be installed onsite as the wastewater treatment facility, we consider the incremental digestion specific type of solid waste from other organizations.

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