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Modeling Framework and Computational Algorithm for Hedging Against Uncertainty in Sustainable Supply Chain Design using Functional-Unit-Based Life Cycle Optimization

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Highlights

- Integrated modeling framework addressing the life cycle optimization of supply chain under uncertainty
- An efficient tailored global optimization algorithm for solving stochastic mixed-integer linear fractional programming problem
- Reduction of scenario number by adopting a sample average approximation approach
- A case study based on spatially explicit model for the county-level hydrocarbon biofuel supply chain in Illinois, USA

Abstract

In this work, we address the life cycle economic and environmental optimization of a supply chain network considering both design and operational decisions under uncertainty. A modeling