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Title: Optimal sizing and dispatch for a community-scale potable water recycling facility

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Highlights

- A mixed-integer program for optimizing the cost of a community-scale potable water recycling facility (WRF) is proposed
- Treatment subsystems include a sequencing batch reactor and reverse osmosis unit
- Model results are most sensitive to utility service rates, water demand, and capital costs
- In a case study, the community-scale WRF increased community costs by 15% and electricity consumption by 167%
- Community water and sewer demands decreased by 50% and 74%, respectively.

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