

# Computational complexity of finding Pareto efficient outcomes for biobjective lot-sizing models

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## Abstract

Nowadays companies try to reduce their carbon footprint. Bearing in mind this environmental awareness, the choice of a production plan can be modeled as a Bi-Objective Economic Lot-Sizing problem, in which we aim to minimize the total lot-sizing costs, as well as minimizing the maximum emission across blocks of given length. In this talk, we first show that finding a single Pareto efficient outcome is, in general, an  $\mathcal{NP}$ -hard task. We then identify non-trivial classes of problem instances for which this problem is polynomially solvable. We end by showing how our results can be used to approximate the Pareto frontier.

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