Modeling of Multimodal Transportation Problem Considering Carbon Emission

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Abstract

The effects of global warming are threatening the earth's ecosystem sustainability. Countries and companies need to get appropriate measures to maintain sustainability. One of the joint commitments made is about carbon emissions reductions. Practically, this commitment defines a different capacity of carbon limit for each country or company. Firms are expected to find the best solution to reduce the amount of carbon emissions while minimizing the total cost, including by optimizing transportation. This research is about modeling the combination of multimodal land transportation (truck and rail) from the origin (supplier) to the destination (manufacturer) with considering carbon emission emitted. Our objective is to find a tradeoff between transportation costs and emissions. We show how the parameters associated with carbon emissions affect transportation cost from the supplier to the manufacturer. The method used in this article is Mixed Integer Linear Programming.

Keywords
Multimodal Transportation, Carbon Emission and Mixed Integer Linear Programming

Biographies

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