MODELLING A LOW CARBON PROCUREMENT PROBLEM

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ABSTRACT

Growing environmental threats have concerned not only government but also business organizations globally. This has forced business organizations to restrict their carbon emissions as their operations. This leads to gain carbon credit from government which can be utilized later to increase their production to meet high demand. There are numerous ways to make operations sustainable and eco friendly. One such operation is procurement of items from suppliers. This paper attempts to model a low carbon procurement problem using cap-and-trade method by integrating suppliers and their mode of transportation. In the proposed model, carbon emissions caused while ordering and procuring items from suppliers are considered. The proposed model is illustrated using an example and several insights are drawn.

Keywords: *low-carbon Procurement, lot-sizing, supplier selection, carrier selection, MINLP (Mixed Integer Non Linear Program)*