

New models of the generalized fixed-charge network design problem

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ABSTRACT.

We consider in this paper the generalized fixed-charge network design (GFCND) problem in which we are interested to find the cheapest backbone network connecting exactly one hub from each of the given clusters. The GFCND problem belongs to the class of generalized combinatorial optimization problems.

We describe two mixed integer programming formulations of the GFCND problem. Based on one of the new proposed formulations, we solve the GFCND problem to optimality using CPLEX for problems with up to 30 clusters and 200 nodes. Computational results are reported and compared with those from the literature.

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