



**APPLICATION OF THE DIJKSTRA ALGORITHM TO
THE DETERMINATION OF MINIMAL LOSS PATHS
IN ELECTRICITY NETWORKS**

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Abstract

A detailed assessment of electricity distribution shows a very high loss in the energy transported. These losses are proportional to the resistance of the conductors and the latter is proportional to the length of the lines. The network is modelled by a graph in which the power plant is the origin, the HV/MV transformation stations are the nodes and the lines constitute the arcs. The matrix of the distances between stations allows the determination of the shortest trajectory between the power plant and a station. After having presented its mode of functioning, the Dijkstra algorithm is implemented in C++ language and then used to determine the trajectory of minimum energy loss in the Cameroon electricity network. The result is a graph of trajectories of the minimal energy losses that link the various stations and the power plant of the network.

Keywords and phrases: minimal loss trajectories, Dijkstra algorithm, electricity network, transformation station, production plant, energy dissipation.