# Genetic Algorithm Approach for optimizing looped gas pipeline networks

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**Abstract :** Optimization of gas pipeline networks is a crucial task that needs to be implemented in design and operation phase of pipeline networks. Optimization of pipeline networks has saved millions of dollars in the past and still a search of finding a robust technique for finding best solution remains. The present paper utilizes one of the popular techniques referred to as Genetic Algorithm for pipeline optimization. The objective is to minimize natural gas consumption in compressors. The results obtained have been compared with one of the other popular technique for optimization referred to as Generalized Reduced Gradient technique. Result shows that utilizing Genetic Algorithm technique helps in reducing fuel consumption in pipeline networks. This further helps in minimizing the cost expense in running up the compressors.

**Keywords:** Genetic Algorithm, Pipeline hydraulics, Compressor station, energy consumption minimization, Generalized Reduced Gradient Technique.

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