

## Algorithmic Fault Location in Complex Gas Networks

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**Abstract :** With the recent increase in reliance on Gas as the primary source of energy across the world, there has been a lot of research conducted on gas distribution networks. As the complexity and size of these networks grow, so does the leakage of gas in the distribution network. One of the most crucial factors in the production and distribution of gas is UFG or Unaccounted for Gas. The presence of UFG signifies that there is a difference between the amount of gas distributed, and the amount of gas billed. Our approach is to use information that we acquire from several specified points in the network. This information will be used to calculate the loss occurring in the network using the developed algorithm. The Algorithm can also identify the leakages at any point of the pipeline so we can easily detect faults and rectify them within minimal time, minimal efforts and minimal resources.

**Keywords :** FLA, fault location analysis, GDN, gas distribution network, GIS, geographic information system, NMS, network Management system, OMS, outage management system, SSGC, Sui Southern gas company, UFG, unaccounted for gas

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