

Abstract

New methods of dynamically estimating complex natural gas systems performance can prove useful not only in design and operations, but also in planning for rehabilitation and expansion. Algeria has a complex network of natural gas pipelines moving production to national and international customers. Its pipeline operators have proposed an ambitious program of rehabilitation and expansion. Performability is the association of a reliability model with a performance model. The first task is defining the mathematical nature of this association. Subsystem CS is considered separately from subsystem TC. A CS failure does not mean failure of all TC. Even if all TC of a CS are in good operating condition, however, the possibility of a compressor station breakdown remains. Gas pipelines of low or average length, such as the Algerian pipelines, are unlikely to suffer a simultaneous failure of more than two elements. Elementary probabilities that use fundamental theorems of probabilities theory calculate the probability of each event