

Abstract

Strategies and scenarios regarding the management of the natural gas transport system from Romania

In the oil and gas industry, as well as in other areas, managerial strategies should provide solutions to the leading team for a rational and cost-effective use of resources, but also solutions to solve the problems which arise and may reduce the profits of the company.

If we refer to the domain of gas transport applied as the practical part of this thesis, it should be noted that the analysis of the factors influencing the managerial strategies must extend from a pure economic analysis to the analysis of the whole transport process based on SCADA systems and on the data processing computer platforms.

The managerial strategies will be applied in this thesis, described in the early chapters taking as starting point a natural gas transport network. The natural gas transport network is a virtual network, but the elements of the network have parameters similar to the natural gas transport networks currently operating in the country or in Europe.

Because during the operation of the network there appear different situations which generate the need for decisions in the management of the system, they will be defined through the Scenarios made available by the simulator. The most important aspect for the management of the system is represented by the management of the available capacity in real time by the national transport system operator.

In order to determine the parameters of the transport program, repeated simulations made with numerical simulators calibrated on the transport network are necessary. Hence, an optimization of the transport process is being made. As a result of the optimization, one obtains the best transport program for the next period.

When operating natural gas transport networks there can occur situations which necessitate a special management, i.e. their acquiring a status of priority, in order to eliminate any discontinuities in the transport of gas or other incidents. The time to solve the problems is determined for the financial calculation of managing the situation.

All special situations that may arise should be studied and analyzed with calibrated numerical simulators on the transmission system.

The thesis ends with a study on the real-time management of the problems arising from the operating of a natural gas transmission system, taking into account the managerial strategies of the firm, respecting the European norms and the national legislation represented by the Network Code and Gas Law.

The work method is presented under the form of outlines for the flow of information necessary for the operating of a transport system. Since the amount of information analyzed is very large, and the period is very short, everything needs to be done after a very rigorous methodology and with the help of cutting-edge simulators.