Abstract

To ensure a permanent high level of quality of supply in the field of gas distribution network, it requires technically useful rehabilitation strategies. A renunciation of such technically wise replacement activities does not have an effect immediately, but in the medium to long term, it has a negative impact on the state of the network and hence on the quality of supply.

Since the 01.01.2009 an incentive regulation for gas network operators in Germany has been carried out. This increases the pressure of cost on inefficient network operators, as they align the rendering of performance with an efficient and structurally comparable network operator. A negative development of the quality of supply should be countered with the introduction of a quality regulation for gas distribution network operators within the second regulatory period (2013-2017). This has however not yet been implemented.

An examination is initiated to find out if the implementation of a technically useful rehabilitation strategy under conditions of an incentive regulation is economically advantageous or whether there is a risk that required replacement investments are failed to be given causing the state of the network infrastructure to evolve negatively. In order to do this a model is developed which includes all relevant technical and commercial regulatory aspects. Future development trends and also the behavior of all network operators which are individually different is taken into consideration based on a coupled analysis using scenario technology and Monte-Carlo simulation. The outcome is that you receive robust results about the development of efficiency of one network operator used as example.

In general you come to the conclusion that doing without replacement investments is of advantage from an economic point of view. As a result of this, there is a risk of a medium to long-term substance deterioration of the network infrastructure. In order to prevent this from happening, a proposal for a future oriented quality regulation is being made. This specifies that a maximum quality grant of 1 % of the capital costs is granted when implementing a technically optimal rehabilitation strategy. The proposal is based on lump-sum investment allowances, which had been requested for the first 5 years of the incentive regulation and had been applied during the years 2009-2013.

Implementing the technically useful strategy to an example network operator has proven that company individually defined marginal damage rates and recommendations to sustainability figures are met and at the same time there are no disadvantages to the economic viability if the subsidy for quality is granted in the long term.

A complete generalization of the results of this work will require essential information that is only available to the regulatory authority.