

## **THE ROLE OF SALT CAVERN UNDERGROUND NATURAL GAS STORAGE IN THE POLISH GAS SYSTEM – THE ECONOMIC ASPECT**

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### **Abstract**

The author of the paper underlines a very important role of cavern underground gas storages (compared to other types of gas storages) in the Polish gas system. The analysis is provided for both normal situations and crisis situations, such as e.g. the crisis situation at the beginning of January 2009. With regard to the crisis situations the author points out the necessary development directions of the Polish gas system, other than import diversification, aimed at reducing the impact of such situations, including construction of new underground gas storages, especially storages in salt caverns.

In the first section of the paper various data describing the Polish gas market have been presented, including gas consumption (the amount of gas consumed, the structure of consumption i.e. the consumption of industrial and household users, the seasonal fluctuations of consumption) and gas sources (the level of import dependency).

In the further section the author analyses the most recent Polish legislation on energy security, which i.a. defines the volume of obligatory gas reserves in Poland and necessary parameters of gas storages used to store obligatory reserves.

Furthermore, in the paper one may find a detailed analysis of the underground gas storages existing in Poland with regard to energy security and related legislation. It was indicated that in Poland only the salt cavern underground gas storages fulfill the most recent obligations implemented by the law and that only this type of storages could guarantee the adequate level of energy security for Poland (in the situation if import dependency) in crisis situations.

In the paper one may also find detailed information on the January 2009 Russia-Ukraine-European Union gas crisis, including estimated financial losses of particular economies in Europe. In addition, the author underlines the role of industrial gas users in the Polish economy and in the Polish gas sector and defines the probable economic consequences of gas supplying discontinuity for the Polish economy. Moreover, the author provides information on additional high costs of Polish depleted field gas storages, which are usually omitted in comparative analyses.

The conclusion from the general analysis of the Polish underground gas storages system is that it is and it will be necessary to develop new salt cavern underground gas storages.

**Key words:** Caverns for gas storage, Gas storage, Poland, European Union, Regulations, Strategic Petroleum Reserves