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### **Overview**

In the last few years energy security became one of the top priority topics in the world energy, in particular in small countries which, historically, have strong energy dependency from foreign energy sources. Last couple years were full of “small” incidents show how fragile is gas and oil supply originating from Russian Federation and goes throw some third countries with doubtful political stability. This uncertainty in world energy markets once again stressed necessity to have strategic energy reserves, consistent not only from oil and oil products but also incorporating natural gas is rapidly gaining leading position in the primary energy consumption in and energy mix for electricity and heat production.

One of newly revived idea is to have reasonable amount of stored natural gas could be consumed in any emergency cases caused by physical supply interruption or during severe weather conditions. Historically only underground gas storages were considered as viable solution for seasonal or medium term gas storage.

### **Methods**

In this article a concept of LNG terminal is introduced the main purpose of its construction is to increase energy security in natural gas supply sector and double as gas storage facility. The idea analysed in the paper is the following: to use the tanks of LNG import terminal for strategical reservation of natural gas and to solve the problem of LNG evaporation by having big range of evaporation unit capacity. In normal case one can to utilise the amount of gas from the natural evaporation only, but in the emergency case the capacity of tank can be evaporated and supplied to the gas network during few days.

### **Results**

Article presents review of best practice of bottom-up models using for analysis of energy supply alternatives and modelling option of energy storage. The optimisation mathematical modelling tool MESSAGE was applied for this analysis with simplified representing various natural gas supply options. Using this tool number of possible gas storage options were evaluated, including: LNG import terminal working as independent gas supplier, LNG import terminal acting as gas storage, LNG import terminal in combinations with underground gas storage.

Paper includes description of model for analysis of presented idea. Lithuanian gas supply options were taken as basis for analysis carried out.

### **References**

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