



Carbon dioxide storage possibilities in ROMANIA

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The climate change problem is an actual concern of the modern world and CO₂ emissions are mainly responsible for it, CO₂ being the most important greenhouse gas. The worldwide effort to reduce these emissions lead to the development of CCS technologies. The increasing need for energy and our dependence on fossil fuels lead to the viable solution of reducing carbon dioxide emissions using geological storage. CO₂ Capture and Storage solution was evaluated in several European projects and several European countries, including Romania. In Romania the efforts made in reducing carbon dioxide emissions lead to a general evaluation of possible geological storage sites. This evaluation resulted in calculating storage capacities in saline aquifers and hydrocarbon reservoirs.

The Romanian sedimentary basins potentially containing saline formations have been combined in 4 large zones (Moesian platform and S. Carpathians foredeep, Moldavian platform and E. Carpathians foredeep, Transilvanian basin and Pannonian basin).

Out of their total surface areas, the surface with sedimentary cover thinner than 800 m have been eliminated from calculations as such areas are not suitable for CO₂ storage. The sectors distinguished are: Energy, Refineries, Production and processing of ferrous metals, Cement, Lime, Glass, Ceramics, Pulp and paper. From 244 industrial installations with CO₂ allowances, only 63 have significant emissions (>0.1 Mt CO₂).

The CO₂ capacity in depleted or declining hydrocarbon (oil and gas) fields was calculated by a production-based equation of the form:

$$GCO_2 = URP \times B \times ,$$

where URP is the Ultimate Recoverable Oil (or Gas) based on sum of produced volumes and expected reserves.

Romania has a history of 150 years of oil industry. It is estimated that during such a long period of time, some 720 Mt of oil and 1122 Gm³ have been extracted from its underground (Gilbert, 2007). Today it may be considered a "mature" oil and gas province with 70 - 80 percent of its resources already exploited.