

## Toward safe CO2 storage

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The following is a look at the Polish National Programme „Assessment of formations and structures for safe CO2 geological storage, including monitoring plans” undertaken by the Polish Geological Institute

In response to demands of the national economy regarding future implementation of CO2 geological sequestration technologies on an industrial scale, to be preceded by a testing phase of demonstration plants, the Polish Ministry of the Environment initiated a four-year (2008-2012) National Programme „Assessment of formations and structures for safe CO2 geological storage, including monitoring plans” as one of new tasks of the State Geological Survey – the Polish Geological Institute, leading a consortium of key institutions involved in issues of geological storage in Poland.

The strategic goal of the programme is to collect and elaborate country-wide geo-information necessary for future decisions on exploration and storage permits, to be issued by the Polish Ministry of the Environment in line with the proposed EU directive on geological storage of carbon dioxide.

Within the framework of this major project, scheduled to be accomplished within the next four years (2008-2012), cooperation with industrial partners (energy and oil companies) is planned, particularly those planning projects of demo zero-emission power plants under the EU Flagship Programme, and foreign research and development partners, especially European geological.

The project covers practically the entire territory of Poland and Poland’s Baltic offshore economic zone. It consists of ten sub-projects in the first segment (regional – see map) and five in the second one (site-oriented), all to be completed within the period 2008-2012 (48 months).

The final outcome of the first segment is recommending the location of (potential) CO2 storage sites in Poland and these results could serve as a base for the Ministry's decisions on exploration permits (but not yet storage permits).

The outcome of the second segment will be characterisation of five storage sites, including two projects of demonstration zero-emission plants proposed by Poland (PGE Bełchatów and PKE/ZAK Kędzierzyn) for the Flagship Programme. As a result, a baseline monitoring plan for the storage sites, and assumptions for operational and post-closure monitoring will be elaborated.

A large part of Poland (except the southern, eastern and NE part of the country) belongs to North-European Permian-Mesozoic basin, which extends from eastern Poland to England, covering Denmark, a large part of Germany, the entire southern and central North Sea and eastern England. Especially saline aquifers of Lower Jurassic and Triassic sandstone formations of this basin are good reservoirs for CO<sub>2</sub> storage, accompanied by a good regional seal (e.g. Toarcian shales). These formations are ideal for the storage of CO<sub>2</sub> from the planned zero-emission power plants and other industrial installations.