



# Carbosulcis S.p.A.

## An Italian Experience : CCS and monitoring technologies application in the Sulcis coal Basin

*Carbosulcis skills and activities in the sulcis coal basin*

The main coal basin in Italy is the Eocenic Sulcis Coal Basin, located in SW Sardinia, which at present hosts the only coal mine in activity, the Monte Sinni u/g Mine, managed by the Carbosulcis S.p.a.

The Sulcis Coal Basin, worth of 2.5 Billion tons of sub-bituminous coal reserves - 400 km<sup>2</sup> of extent in-shore and about the same off-shore -, is stretched to the SW end of Sardinia, its outcrops are near Gonnese and Bacu Abis and it dips about 10° SSW. The northern part of basin is exploited with traditional mining methods in the Monte Sinni Concession, the southern one, deeper than 800 m, is unmineable and interesting for CCS-ECBM purposes.

Carbosulcis since the mid of 2008 has carried out a campaign of drilling for geological survey and investigation for the feasibility of the Carbon Capture and Storage technologies deployment in the main Italian coal basin, which is located in the south west of Sardinia.

The underground subituminous coal beds lay on a basin surface which is about 1000 km<sup>2</sup> between on-shore and off-shore. The coal formation from north east deepens to south west up to -800 m. The mining activities are carried out in the concession area, which occupies only the northern part of the basin for just 1/10 of the whole extension, and they consist of the exploitation of coal seams in a depth of about -400m under the sea level. Further to a previous successful pre-feasibility study, Carbosulcis firstly required and gained a research permission for undertaking its studies, and then, since the mid of 2008, has started its drilling campaign consisting of the fulfilment of a borehole of -1000m deep (*eight wells are foreseen during the next four years*).

According to the collected data and to the previous studies, and because of the wide knowledge of the geology and hydrogeology of the Sulcis coal basin, fulfilled in the part for coal mining purposes, Carbosulcis expects is creating the conditions to carry out a project of Enhanced Coal Mine Methane and CO<sub>2</sub> Geological Storage.

A seismic complementary campaign was made in May 2008, while the drilling has taken place since August 2008. The project has just started up, and the seismic, with the drilling and coring data, will allow to characterize the coal basin for the CO<sub>2</sub> storage and methane recovery.

The project of CO<sub>2</sub> monitoring for safety purposes can rightly make the basic project be upgraded, allowing a deeper study on the effects of CO<sub>2</sub> leakage in the territory.

It is very important to point out the singular and unusual geology of the coal basin which lays on an aquifer, two potential geological storage reservoir.

It may be absolutely interesting to study the interaction between the two overlapped formation in increasing the safety of the geological storage of CO<sub>2</sub>.



PROGETTAZIONE ED ESPLORAZIONE MINERARIA,  
TRACCIAMENTO DELLE STRUTTURE,  
COLTIVAZIONE, TRATTAMENTO E VENDITA DI  
CARBONE E DEI SUOI DERIVATI.

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