

CARBOSULCIS CBM RELATED ACTIVITIES IN THE SULCIS AREA (SW SARDINIA, ITALY)

Ing. Fabrizio Pisanu
Ing. Francesco Melis

R&D – Carbosulcis S.p.A.



CARBOSULCIS S.p.A.

The Italian Coal Mining Company



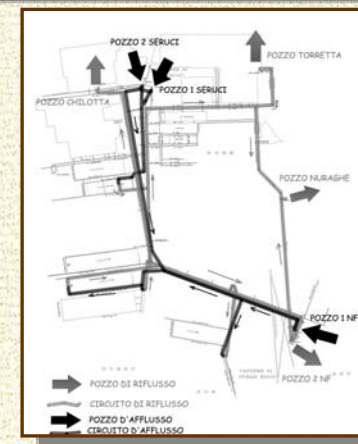
- Carbosulcis S.p.A. is a coal mining company based in SW Sardinia, Italy, managed by the Sardinian Government since 1996.
- The “Miniera Monte Sinni” Coal Mining Concession, the only active coal mine in Italy, exploits the Sulcis Eocenic Coal Basin, already mined since the end of 19th century.
- The Sulcis Coal Basin area is worth of 600 M tons of sub-bituminous coal reserves in (1400 km² of extent, in-shore and off-shore).
- The amount of underground coal reserves in the 550 km² mine concession is 60 M tons.
- The potential yearly longwall production of the mine is 1.0 M tons of salable coal.
- The Company employs 600 units in total in u/g and surface activities.
- The ENEL Power Plant of Portovesme burns the coal produced and it is located 3 km from the mine.



CARBOSULCIS S.p.A.

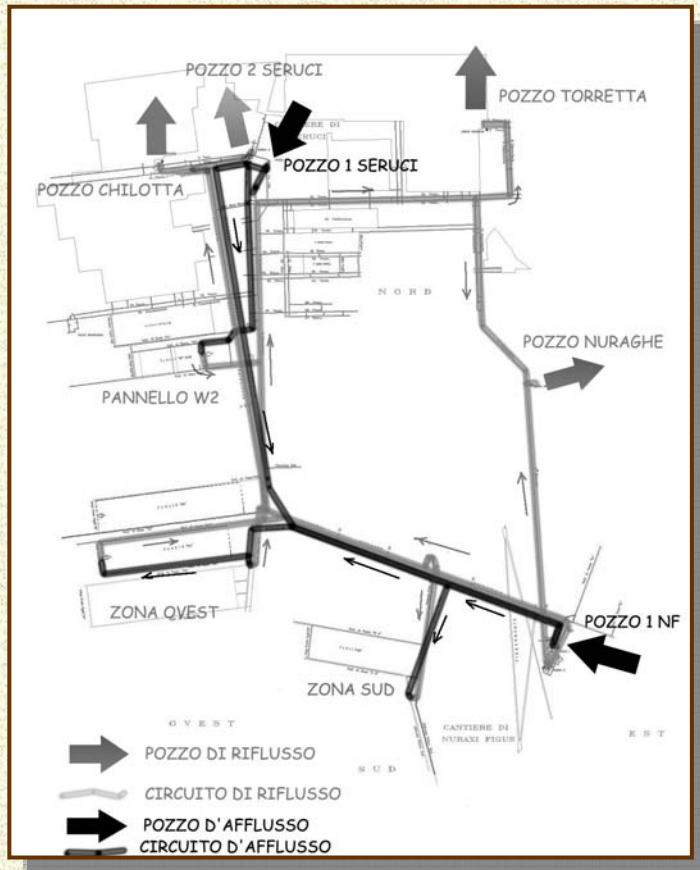
R&D Activities

- Production processes optimization: enhanced recovery of coal by a froth flotation section, production of aggregate for civil works (roads, buildings, levees etc.);
- Underground backfill deposit with byproducts from Power Plants (ashes and gypsum) grouted in the gobs;
- CBM feasibility studies in underground mined areas (VAM, AMM, CMM)
- CCS/ECBM applications in non-minable areas of the basin (deeper more than 700 m). Starting of UCG feasibility studies.



CARBOSULCIS S.p.A.

CBM Activities



- Undertaking studies on VAM recovery from main return wells. Calculations based on underground ventilation flows and CH_4 concentrations estimate an amount between 7 and 16 $\text{m}^3/\text{ton}_{\text{coal}}$ extracted and an average concentration of 0.12% CH_4 in the main return ventilation wells.

The estimate recovery for a yearly production of 1 Mt of salable coal varies between 4800 and 10900 t of CH_4 .

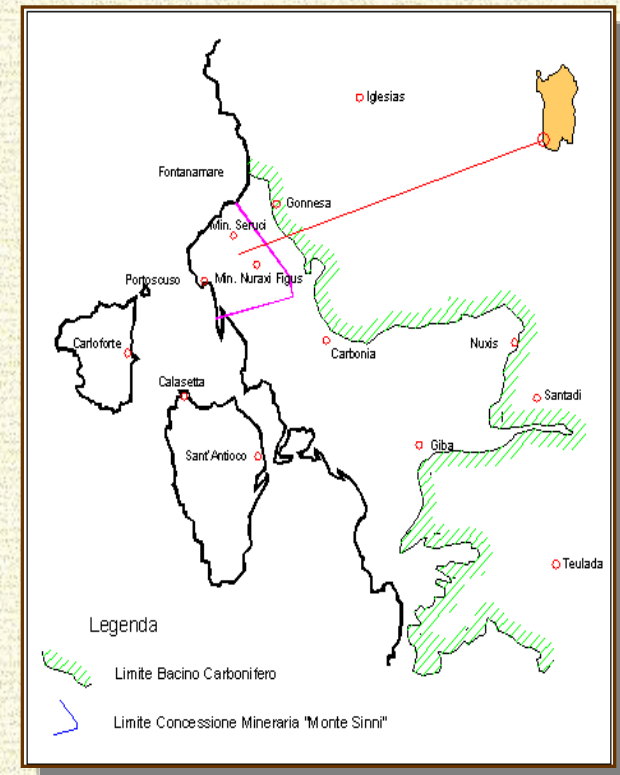
Studies in progress about optimization of underground ventilation networks in order to enhance CH_4 recovery and concentration in selected return wells.

- Preliminary studies on AMM potential in abandoned areas of the underground mine.

CARBOSULCIS S.p.A

An ECBM Project in Italy

- The most significant project in Italy about exploitation of Enhanced Coal Bed Methane is developing in the Sulcis Coal Basin.
- CARBOSULCIS is located at the heart of the Sulcis industrial area, near power stations, metallurgical and chemical plants (CO₂ potential market).
- The Productive formation bearing the coal dips SW with 10° inclination; the southern part of the basin is more than 700 m deep so it is interesting for CCS – ECBM purposes.
- Preliminary studies from INGV (2004) and TNO (2006) on coal properties are promising for ECBM purposes.
- Project totally carried out by CARBOSULCIS aiming at evaluating the Sulcis Basin potential for the deployment of the available technologies in the ECBM-CCS fields,
- Organized to be fully compliant to EU proposed directive.
- Two 1000 m - each planned core drillings.



CARBOSULCIS S.p.A.

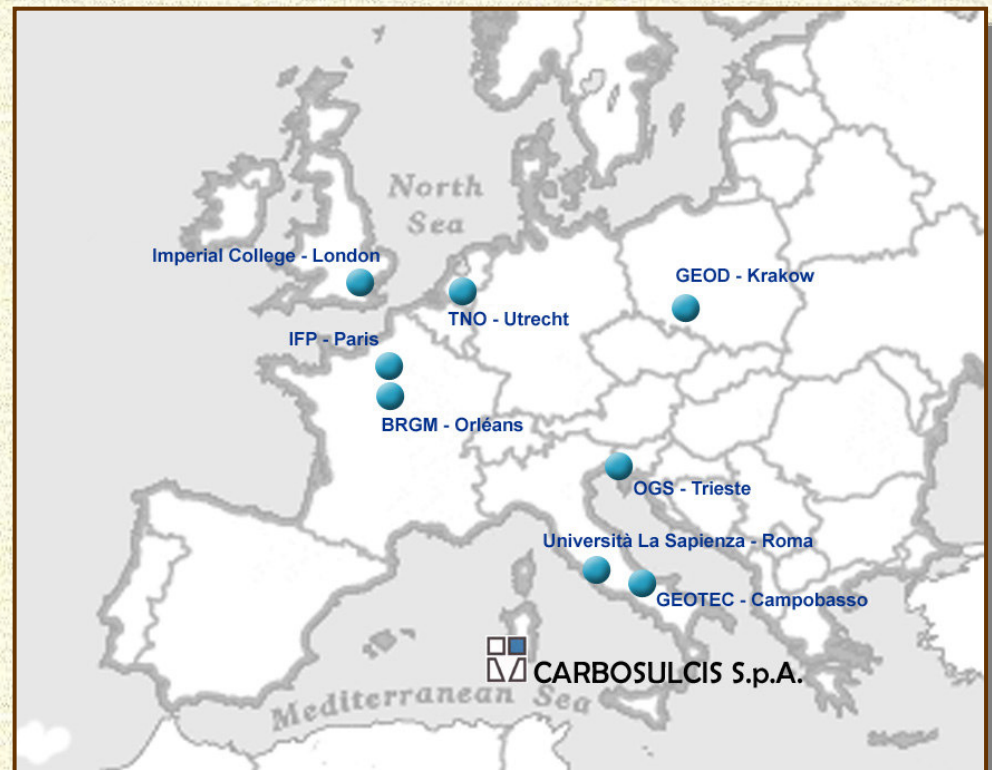
ECBM-CCS Project Partnership

Institution

- BRGM - Orléans
- IFP - Paris
- Imperial College - London
- OGS - Trieste
- TNO - Utrecht
- Università la Sapienza - Roma
- GEOTEC - Campobasso

Research Area

- Reservoir geology, hydrology, coal and seam gas characterisation
- Reservoir characterisation, well test and log interpretation, coal and flow characterisation, up-scaling.
- Reservoir characterisation, well test and log interpretation, coal and flow characterisation, performance prediction
- Seismic data acquisition and interpretation, reservoir geology
- Seismic data interpretation, reservoir
- Soil gas analysis and fault detection
- Seismic data acquisition

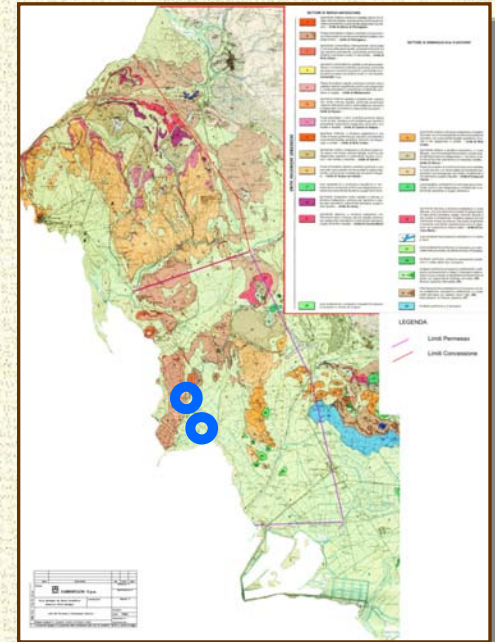


CARBOSULCIS S.p.A.

ECBM-CCS Project Work Progress



- S1 and S2 450 m pre-core drills done;
- Preparation of sites for starting of activities;
- Seismic campaign starting on May '08;
- Start of planned research activities on May '08



6th – 9th March '08 - Gonnese

Kick-off Meeting with all the Partners of Project



