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

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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.
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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.
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 m$^3$/ton$_{coal}$ 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.
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.
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ECBM-CCS Project Partnership

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<thead>
<tr>
<th>Institution</th>
<th>Research Area</th>
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<tbody>
<tr>
<td>BRGM - Orléans</td>
<td>Reservoir geology, hydrology, coal and seam gas characterisation</td>
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<tr>
<td>IFP - Paris</td>
<td>Reservoir characterisation, well test and log interpretation, coal and flow characterisation, up-scaling.</td>
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<tr>
<td>Imperial College - London</td>
<td>Reservoir characterisation, well test and log interpretation, coal and flow characterisation, performance prediction</td>
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<tr>
<td>OGS - Trieste</td>
<td>Seismic data acquisition and interpretation, reservoir geology</td>
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<tr>
<td>TNO - Utrecht</td>
<td>Seismic data interpretation, reservoir</td>
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<tr>
<td>Università la Sapienza - Roma</td>
<td>Soil gas analysis and fault detection</td>
</tr>
<tr>
<td>GEOTEC - Campobasso</td>
<td>Seismic data acquisition</td>
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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 - Gionneesa
Kick-off Meeting with all the Partners of Project
Thank you for your attention