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ENeRG Position Paper to promote a CO₂ Geological Storage Atlas of Europe

ENeRG (European Network for Research in Geo-Energy) has recently published a position paper "The Need for a CO₂ Geological Storage European Atlas." The key goal of this paper is to put it to the attention that Europe is far behind the for-runners, USA, Canada, Mexico, Norway, Australia and ... in having a CO₂ storage atlas. The atlas is needed for the public as well as policymakers for answers to questions like, "How much CO₂ storage capacity can be relied on at a range of different prices? – Where is this storage capacity? – When will it be available?" It is beyond the scope of this position paper to describe the budget needed to produce to update the storage atlas, but ENeRG point to EGS as a key player in establishing a CO₂ Geological Storage Atlas of Europe. The position paper is also available at the following link: www.energnetwork.eu/position_paper-storage-atlas_2012.pdf.

The primary purpose of a European Atlas will be to give the CO₂ storage potential for all European states. A production of such an Atlas will be the result of cooperation and coordination among CO₂ geological storage experts from government agencies, geological surveys as well as industry and academia. The objective of the atlas will be to provide an overview over geological structures that are suitable for secure long-term storage of CO₂. Knowledge regarding reservoir properties, sealing rocks, migration paths, storage capacity and monitoring methods is crucial in order to determine whether potential storage locations are suited to store CO₂ over a long period of time. According to the EU Energy Roadmap 2050, Europe needs to apply CO₂ geological storage from around 2030 in the power sector in order to reach emission-reduction targets. A European atlas will be vital for enabling progressive commercial deployment within the right timeframe.

Published or interactive? A vital question for a European storage atlas is to publish and update it regularly as the *Carbon Sequestration Atlas of the United States and Canada*, or to make an interactive atlas accessible over the internet. The published version will, as the American atlas need updates every 2 years as new data are available and methodologies for CO₂ storage estimates improved, whereas an interactive atlas is updated currently.

Background

The USA National Energy Technology Laboratory (NETL) could proudly publish the first *Carbon Sequestration Atlas of the United States and Canada* in 2007 and in 2010 was the third version published. While not all saline formations in USA have been examined, the Atlas shows the locations of saline formations with a cautious estimated CO₂ storage capacity is 1,653 Giga tons (Gt) in saline aquifers. Further, there is a low estimate of 143 Gt in hydrocarbon fields and 60 Gt in unmineable coalfields. At current CO₂ emission rates, calculations indicate more than 450 years of storage potential in assessed saline formations.

The *CO₂ Storage Atlas Norwegian North Sea* was published 2011 describing possible subsurface storage locations for carbon dioxide in the Norwegian part of the North Sea. The atlas shows that this area has a total storage capacity of about 70 Gt of CO₂.

For Europe, the EU GeoCapacity project (involving 25 European partners) has provided GIS maps of the location of potential geological storage capacity in deep saline formations, hydrocarbon reservoirs and coalfields. The storage capacity estimates are in total 360 Gt with 326 Gt in deep saline aquifers, 32 Gt in depleted hydrocarbon fields and 2 Gt in unmineable coal beds. The onshore storage capacity is up to 116 Gt and the offshore storage capacity is up to 244 Gt.

Founded in 2011 the European Commission has started the project CO2StoP to establish a database on public available data on CO₂ storage potential in Europe (see this newsletter). The CO2StoP database may be the first step towards a European storage atlas.

Best regards / bedste hilsener
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President of ENeRG, 2012-13