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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

on Implementation of Directive 2009/31/EC on the Geological Storage of Carbon Dioxide

1. INTRODUCTION

Directive 2009/31/EC of the European Parliament and of the Council on the geological storage of carbon dioxide[1] (so-called Carbon Capture and Storage Directive – hereinafter 'CCS Directive') establishes a legal framework for the environmentally safe geological storage of carbon dioxide (CO_2). The CCS Directive aims to ensure that there is no significant risk of leakage of CO_2 or damage to health or the environment, and to prevent any adverse effects on the security of the transport network or storage sites.

This report constitutes the third CCS Directive implementation report covering the period of May 2016 - April 2019. It covers the progress since the second implementation report[2]. This report is based on the reports submitted by Member States and Norway in accordance with Article 27 of the CCS Directive. Twenty two countries[3] submitted reports in time to be considered in this report.

2. SPECIFIC IMPLEMENTATION ISSUES IN THE MEMBER STATES

2.1. Assessment of storage capacity and selection of storage sites

Article 4(2) of the CCS Directive requires that those Member States that intend to allow storage on their territory have to carry out assessments of the available storage capacity. The Netherlands estimates a theoretical storage capacity of approximately 1.7Gt in the North Sea, primarily in depleted gas fields. A further, more in-depth research into the suitability of specific sites will be undertaken in the future. The NORDICCS project reported storage capacity in Denmark in saline aquifers of 22GtCO2 and of 2Gt in hydrocarbon fields. Germany has estimated a storage capacity in selected major gas fields of approximately 75Gt CO_2 and between 20 and 115Gt CO_2 in saline aquifers. 80% of the aquifers are situated in States that ban storage.

Few countries have determined new areas from which storage sites may or may not be selected pursuant Article 4(1). Norway has identified possible CO_2 storage sites on the Norwegian shelf and published a compiled atlas of these sites. Czech Republic has considered one storage site LBr-1 for a pilot CCS project located in the south-east of the country.

2.2. Exploration and storage permits applications

An application for two storage permits and one update of a permit are under preparation as part of the Dutch CCS Porthos project. Norway has awarded an exploration permit for CO2 storage on the Norwegian Continental Shelf in January 2019. One application for exploration permit has been filed in Andalucia, Spain.

2.3. Feasibility for CCS retrofitting

Article 33 of the CCS Directive requires that when applying for license, operators have to assess the technical and economic feasibility of carbon capture, transport and storage. If the

[1] Directive 2009/31/EC of the European Parliament and of the Council on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, OJ L 140, 5.6.2009, p. 114-135

[2] COM(2017)37, Report from the Commission to the European Parliament and the Council on the Implementation of Directive 2009/31/EC on the geological storage of carbon dioxide

[3] Bulgaria, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

assessment is positive, space on the installation site must be set aside for the equipment necessary to capture and compress CO_2.

Such assessments were carried out in Estonia (one), France (one), Germany (six), Romania (six) and Poland (eight). The assessments find that CCS is not economically feasible. Some further difficulties were found for some of the plants – in Estonia geological conditions are considered unfavourable, while in Germany plants do not have access to suitable storage sites.

Despite low feasibility level in the assessments, most of the power plants (e.g in Poland, Estonia, Germany) are setting aside land for the installation of CO_2 capture equipment.

In Norway, any new gas fired power plants has to have CO_2 capture and storage from the start of operation of the plant. Some of the 30 Swedish installations with an input power of over 300MW are currently investigating the possibility of CCS and are conducting preliminary studies.

2.4. National programmes and research projects with relevance to the CCS Directive

Research activities to advance the technology and knowledge of CO_2 storage are ongoing in a number of countries - Czech Republic, Denmark, France, Germany, Lithuania, Malta, Netherlands, Norway, Romania, Poland, Portugal, Spain and Sweden with national support, EU funding and Norway Grants. Some countries participate in ERA-NET ACT (Accelerating CCS Technology) that brings together different projects supported jointly by funds from Germany, Greece, France, the Netherlands, Norway, Romania, Spain, UK, as well as Switzerland, Turkey and the United States. Ireland reported that CCS Policy and Project Feasibility Steering Group has been established to work on the policy developments of CCS and assess the feasibility of future projects in the country. In addition, 9 Member States (Czech Republic, France, Germany, Hungary, Italy, the Netherlands, Spain, Sweden and the UK), Norway and Turkey have agreed to coordinate their research and innovation activities on carbon capture, utilisation and storage in the frame of the European Strategic Energy Technology Plan (SET Plan).

2.5. CO_2 transport and storage networks

The North Sea Basin Task Force with the UK, the Netherlands, Norway, Germany and Belgium and the Baltic Sea Region CCS network with Estonia, Germany, Finland, Norway and Sweden remain two main CCS regional networks that work to develop common, transboundary solutions for the transport and geological storage of CO2. These networks may facilitate the transparent and non-discriminatory access to CO_2 transport networks and CO_2 storage sites for operators in Member States where there is no possibility of underground storage. The cooperation with Member States bordering the North Sea has been reported also under the projects of common interest (PCIs). Sweden is considering future cooperation primarily with Norway on storage as there is a number of private companies interested and currently investigating such an opportunity. CO_2 hubs are under development in Fos-sur-Mer, le Havre and Dunkerque in France.

3. CONCLUSIONS

The provisions of the CCS Directive have been correctly applied across the reporting period in the EU Member States, which have submitted reports to the Commission by 30 June 2019.

Despite the continuous lack of positive assessment for technical and economic feasibility for CCS retrofitting, power plants are nevertheless setting aside land should the conditions change in the future.

A considerable number of Member States and Norway continue to support or plan to support in the near future, through their national programmes or funds, research and demonstration activities on CCS. Furthermore, many countries are involved in a number of European research and collaborative projects.