

# Memo

## D4.1 Status: legal/regulatory barriers for transboundary CO<sub>2</sub> ship transport

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## 1 Introduction

This memo is the first of two deliverables in the PreemCCS project WP4, which focuses on identifying actions to overcome the legal and regulatory barriers for transborder ship transport and storage of CO<sub>2</sub> from Preemraff Lysekil for storage on the Norwegian Continental Shelf. The memo summarizes two topics:

- The provisional application of the 2009 amendment to the London Protocol article 6
- The Norwegian request for clarifications related to the ETS directive and the MR regulation and the present (January 2020) unclear status, regarding 1) CO<sub>2</sub> ship transport under the EU ETS and 2) Capture of biogenic CO<sub>2</sub>. It should be noted that this Norwegian request only relates to the current ETS directive and MR regulation, that only covers CO<sub>2</sub> originating from **fossil** carbon.

The input to the memo (provided in appendix 1 and 2) has been provided by Equinor to SINTEF.

## 2 Trans-boundary CO<sub>2</sub> transport for geological storage (provisional application of the 2009 amendment to the London Protocol article 6)

The London Protocol aims to protect and preserve the marine environment from all sources of pollution by banning the unregulated dumping or incineration at sea of wastes or other matter. Annex 1 to the London Protocol provides a list of wastes and other matters which may be considered for dumping at sea by having the necessary permit. This annex did not originally include CO<sub>2</sub> and therefore the London Protocol constituted a barrier for Contracting Parties to proceed with CCS activities domestically. This was amended in 2006, whereby allowing storage of CO<sub>2</sub> under the seabed. However,

article 6 of the protocol prohibits a Contracting Party the export of wastes or other matter to other countries for dumping or incineration at sea. The prohibition applies both to other Contracting Parties and to non-Contracting Parties. This Article was not amended in 2006 when Annex 1 was amended. Although the aim of this article never was to hinder CO<sub>2</sub> capture and storage (CCS) as a means to curb CO<sub>2</sub> emissions and combat climate change, the original version unintentionally had the effect that transboundary transport of CO<sub>2</sub> for the purposes of geological storage was prohibited.

To remove this barrier to international collaboration on CCS as a measure to mitigate climate change and ocean acidification, an amendment of article 6, allowing transboundary movement of CO<sub>2</sub> for the purposes of geological storage, was adopted in 2009. For the amendment to enter into force, it must be adopted by 2/3 of the 53 contracting parties. As of July 2019, only six contracting parties had accepted the amendment.

Based on a suggestion by the Netherlands and Norway, the International Maritime Organization (IMO) on 11 October 2019 decided to allow for *a provisional application of the 2009 amendment to the article 6 of the London Protocol*<sup>1</sup>. This means that those parties who wish to use the amendment to article 6 has the right to do so, while it has no legal bearing for the parties who do not wish to export or import CO<sub>2</sub> for permanent geological storage. The amendment is included as appendix 1 to this memo.

Furthermore, the parties to the London Protocol who have not yet accepted the revision of article 6 are in the decision urged to consider the application, for permanent entry into force of this amendment for all contracting parties.

In practice, countries who wish to allow for export of CO<sub>2</sub> for injection and permanent storage under the seabed, must deposit a Unilateral Declaration on provisional application of the 2009 amendment to the London Protocol Article 6 to the Depository (Secretary-General of the IMO). This means that in the case of transporting CO<sub>2</sub> from Sweden to Norway, both Sweden and Norway must deposit such unilateral declarations. Thereafter, a bilateral agreement must be established between Sweden and Norway which shall include confirmation and allocation of permitting responsibilities between the two countries, consistent with the provisions of the London Protocol and other applicable international law, to define a stable framework for the transboundary CO<sub>2</sub> transport. This agreement should be expected to cover items such as cost sharing, monitoring of the transport, reporting and liability in addition to the mentioned permitting regimes. This bilateral agreement shall also be notified to the Depository.

It should be noted that countries can deposit unilateral declarations on the provisional application of the 2009 amendment to the London Protocol Article 6 even if they have not accepted the revision of this article.

### **3 The Norwegian request for legal clarifications related to the ETS-directive and the MR-regulation**

This section provides a summary of a request that was submitted from Norway (Norwegian representation to Brussels) to DG CLIMA. The full request is included as Appendix 2.

#### **3.1 CO<sub>2</sub> transport under the ETS**

Industrial installations that are included in the EU Emission Trading System (EU-ETS) must each year surrender a number of allowances, that are equal to the total CO<sub>2</sub> emissions from that installation during the preceding calendar year (one allowance equals one tonne of CO<sub>2</sub> emitted). An obligation to surrender allowances will not arise if emissions are captured and transported for permanent storage to a facility with a CO<sub>2</sub> storage permit. Allowances which are not surrendered can be traded under the ETS-directive and thus generate an income. Part of the ETS directive is operationalised through the MR-regulation, which in Article 49 states that

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<sup>1</sup> <http://www.imo.org/en/MediaCentre/PressBriefings/Pages/22-CCS-LP-resolution-.aspx>

"The operator shall subtract from the emissions of the installation any amount of CO<sub>2</sub> originating from fossil carbon in activities covered by Annex I of the Directive 2003/87/EC, which is not emitted from the installation, but

(a) transferred out of the installation to any of the following:

i. a capture installation for the purpose of transport and long-term geological storage in a storage site permitted under Directive 2009/31/EC;

ii. a transport network with the purpose of long-term geological storage in a storage site permitted under Directive 2009/31/EC;

iii. a storage site permitted under Directive 2009/31/EC for the purpose of long-term geological storage;"

CO<sub>2</sub> transport is in the MR-regulations defined as "the transport of CO<sub>2</sub> by **pipelines** for geological storage in a storage site", and similarly in the ETS-Directive transport network is defined as "network of pipelines ... for the transport of CO<sub>2</sub> to the storage site". The document from Norway to DG CLIMA presents an argumentation related to this, that concludes with that *transfer of captured CO<sub>2</sub> to a ship or a truck does not prevent the right to subtract the CO<sub>2</sub> when it later on is transferred from the ship or the truck to a pipeline transport network or directly to a storage site*. When that transfer from the ship or truck to the network or storage site is completed, Norway's understanding is that the capture installation can subtract the CO<sub>2</sub> from its emissions.

The Commission has been asked to clarify if it agrees with this conclusion, and have not yet (January 2020) come with a final response to the Norwegian request for clarification.

A noteworthy consequence of the above Norwegian interpretation is the delay in subtraction of CO<sub>2</sub> emissions for the capture installation – this subtraction must wait until the captured CO<sub>2</sub> is delivered from a truck or ship to the pipeline transport network. This should mean that the capture operator (Preem in our case) will be liable for any leakages of captured CO<sub>2</sub>, until the CO<sub>2</sub> is transferred to the storage operator (Northern Lights in our case) at the receiving terminal, as illustrated in Figure 1.

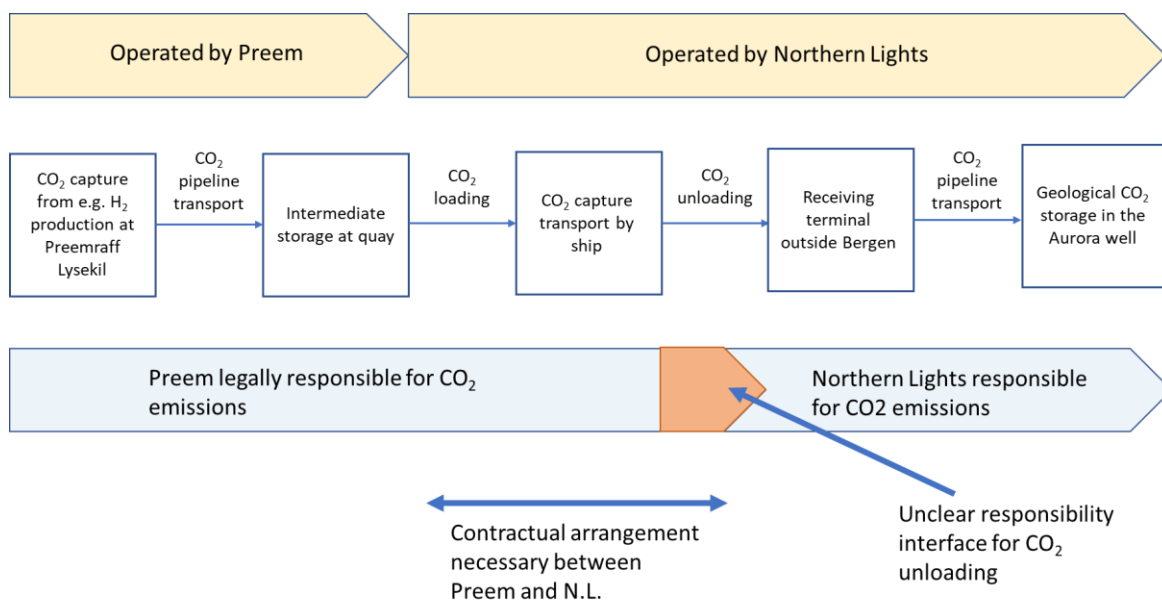


Figure 1. Operators and liability along a CCS chain from Preemraff Lysekil to the Northern Lights Aurora well.

If the *transport to the receiving terminal* is operated by a different legal entity than Preem as capture operator (Northern Lights in our case, as shown in Figure 1), Preem will, nevertheless, be liable for any leakages during the transport. CO<sub>2</sub> that is leaked (i.e. emitted to the atmosphere) during the transport cannot be subtracted from Preem's emissions. Thus, Preem will be liable for CO<sub>2</sub> emissions that it does not have direct control over. This could, however, be solved by contractual arrangements, including for instance an obligation for Northern Lights to compensate Preem for economic losses due to leakages during the transport.

Our current understanding is that that Preem's permit and monitoring plan must cover the capture installation, transport by pipeline and/or trucks to the intermediate storage at their harbour, and the transport by ship to the receiving terminal on the Norwegian Western coast, at Øygarden outside Bergen for Northern Lights. The receiving terminal will be part of the storage operator's permit. The storage operator must have a permit and monitoring plan covering both the receiving terminal, the transport by pipeline and the storage activity. It should be noted that it currently is not fully resolved whether the CO<sub>2</sub> offloading, and CO<sub>2</sub> emissions during offloading to the receiving terminal would have to be included in Preem's permit and monitoring plan, or by the Northern Lights permit and monitoring plan.

The Commission has been asked to come forward with any comments on the scope of the permits and monitoring plans for the capture operator and the storage operator which is exemplified for Preem and Northern Lights above. No response has been received so far (January 2020).

### **3.2 Capture of CO<sub>2</sub> from biogenic carbon**

The MR-regulation Article 49 (see above) states that

*"The operator shall subtract from the emissions of the installation any amount of CO<sub>2</sub> originating from fossil carbon"*

This can constitute a serious disincentive to capture biogenic CO<sub>2</sub>. The costs related to capture, transport and storage of biogenic CO<sub>2</sub> are the same as for fossil CO<sub>2</sub>, yet the capture operator would not receive any credit or compensation for investments made in CCS relating to CO<sub>2</sub> from biomass (so-called BECCS).

In order to enable the capture operator to subtract at least *parts* of captured bio-CO<sub>2</sub> for CCS purposes, the Norwegian request to DG CLIMA contains a proposal to interpret the MRR article 49 (1) as follows: The captured CO<sub>2</sub> may – regardless of its origin (fossil or bio) – be subtracted as long as it does not exceed the operator's total amount of produced fossil CO<sub>2</sub> from the relevant installation. If the operator captures more CO<sub>2</sub> than the total production of fossil CO<sub>2</sub>, the captured CO<sub>2</sub> exceeding this number cannot be subtracted. A longer explanation of this interpretation, with examples, is included in Appendix 2.

Remark: net removal of CO<sub>2</sub> from the atmosphere through BECCS has been identified as a "climate positive" solution that is included in the IPCC Special Report on Global Warming of 1.5°C that was published in 2018 (<https://www.ipcc.ch/sr15/>). This measure to combat increased CO<sub>2</sub> emissions to the atmosphere through BECCS is seen as important in many countries and for many industrial installations, but is currently not covered by the ETS. It is beyond the scope of the present memo to develop a suggestion or a method for accounting for avoided CO<sub>2</sub> emissions through BECCS.

## **4 Way forward/actions for CO<sub>2</sub> transport from Preem to Northern Lights**

Regarding the London Protocol, both Norway and Sweden must deposit Unilateral Declarations with the Depository of the IMO on the provisional application of the 2009 amendment to the London protocol

article 6. Thereafter a bilateral agreement must be established between Sweden and Norway to define a stable framework for the transboundary CO<sub>2</sub> transport, as mentioned above.

Regarding the interpretation of the ETS, the response to the request from Norway to the Commission must be delivered. In case of a positive response, the responsibility for CO<sub>2</sub> emissions during offloading at the terminal at Øygarden must be clarified. Also, Preem and Northern Lights must be aware of the need for and at some point begin to elaborate the contractual arrangements for CO<sub>2</sub> emissions during CO<sub>2</sub> transport between Lysekil and Øygarden.

Furthermore, the interpretation of the ETS regarding capture of biogenic carbon will have an impact on the elaboration of business models that incorporate the use of biofuels for CO<sub>2</sub> capture at Preemraff Lysekil.