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Update on London Protocol – Developments on Transboundary CCS and on Geoengineering

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www.ieaghg.org

London Convention and Protocol



- “ Marine Treaty - Global agreement regulating disposal of wastes and other matter at sea
- “ Convention 1972 (87 countries)
- “ Protocol 1996 . ratified March 2006 (45 countries as of Oct 2014)
- “ Annual Meeting of the Contracted Parties. Annual meeting of Scientific Group.

- “ How it works:
- “ Prohibition on dumping of all wastes, except for those listed in Annex 1, which need to be permitted under conditions in Annex 2.

- “ Annex 1: dredged material; sewage sludge; fish waste; vessels and platforms; inert, inorganic geological material; organic material of natural origin; bulky items primarily comprising unarmful materials, from small islands with no access to waste disposal options

London Convention and Protocol and CCS



- “ Prohibited some CCS project configurations
- “ CO2 Geological Storage Assessed by LC Scientific Group 2005/6
- “ 2006 - Risk Assessment Framework for CO2
- “ **To allow prohibited CCS configurations – Protocol amendment adopted at 28th Consultative Meeting (LP1), 2 Nov 2006 - came into force 10 Feb 2007 to allow disposal in geological formations**
- “ CO2 Specific Guidelines (2007)
 - “ Conditions required to issue a permit
 - CO2 stream, site characterisation, EIA, risk assessment, monitoring



London Protocol Transboundary



London Protocol Article 6

EXPORT OF WASTES OR OTHER MATTER

Contracting Parties shall not allow the export of wastes or other matter to other countries for dumping or incineration at sea.”

- “ Prohibits transboundary transport of CO₂ for geological storage
- “ 2009 LP4 (30 Oct) - **Amendment to allow CO₂ for storage was adopted by vote.**
- “ Article 6 , new para 2 : *Export of CO₂ for disposal in accordance with Annex 1 may occur, provided an agreement or arrangement has been entered into by countries concerned*
- “ Agreement shall include: permitting responsibilities; for export to non-LP Parties provisions equivalent to LPs for issuing permits.
- “ **To come into force needs ratification by two thirds all Parties**
- “ Transboundary movement of CO₂ streams after injection is not export in the sense of article 6, of the London Protocol.

London Protocol Transboundary



2014 Update

- “ 2012 - Revised ‘**CO₂ Specific Guidelines**’ approved and adopted at LC-34, Oct29, London. Covering subsurface transboundary migration.
- “ Provides definition of transboundary movement
- “ Responsibility for implementing Specific Guidelines is the Contracting Party where injection occurs. Need for cooperation and communicate with other relevant States.



London Protocol Transboundary



2014 Update

- “ 2013 - New **Guidance on Export of CO₂ Streams for Disposal** approved and adopted to cover responsibilities for arrangements or agreements for export
- “ Determines the responsibilities of Parties
- “ Allocation of responsibilities between exporting and receiving countries must be notified to the IMO in advance.
- “ A Contracting Party is responsible for the issuance of a permit for where a CO₂ stream is loaded onto a vessel in its territory, and also where a vessel flying its flag loads a CO₂ stream in the territory of a non-Contracting Party for export to another country.
- “ With exports to non-Contracting Parties, it is the full responsibility of the Contracting Party to ensure the same level of environmental protection is provided for a non-Party storing a Party's CO₂.

London Protocol Transboundary



2014 Update

- “ 2013 - New ~~Guidance on Export of CO₂ Streams for Disposal~~q (continued)
- “ The exporting country is best placed to characterize the CO₂ stream. The receiving country is best placed to select and characterize the storage site, and to assess the potential environmental effects, to verify compliance and field monitoring, and risk management arrangements, and to share that data with the exporting country.
- “ In the case of a breach of an agreement or arrangement by a non-Contracting Party, the Contracting Party should ~~engage in consultations to rectify~~+. In the case of a ~~significant ongoing breach~~+, the Contracting Party is required to terminate the export.
- “ This new Guidance was adopted for use when the export amendment comes into force.



London Protocol Transboundary



2014 Update

- “ 2012 - Revised CO₂ Specific Guidelines approved and adopted at LC-34, Oct 29, London. Covering subsurface transboundary migration.
Transboundary storage offshore now possible
- “ 2013 - New Guidance on Export of CO₂ Streams for Disposal adopted to cover responsibilities for arrangements or agreements for export
- “ **All safeguards are now in place for transboundary CCS activity in the marine environment, including export.**
- “ **But – 2009 Transboundary amendment for CO₂ export needs 30 countries to ratify in order to come into force.**
 - “ Only 2 so far - Norway, UK
 - “ 5 underway - Netherlands, Korea, Canada, Australia, Sweden
- “ **So export of CO₂ still not permitted for offshore storage**
 - “ unless for utilisation eg EOR.

IEA Report

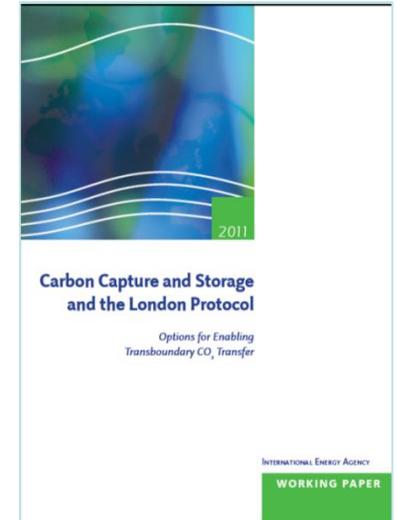


- “ **CCS and The London Protocol – Options for Enabling Transboundary CO₂ Transfer.** IEA Working Paper 2011
- “ Vienna Convention on the Law of Treaties (1969)

Options:

- “ Interpretive resolution
- “ Provisional application
- “ Additional treaty
- “ Modification of aspects of LP between 2 Parties
- “ Suspension of aspects of LP between 2 Parties
- “ Do CCS through non-Parties

- “ Presented at LC/LP 2011 . not well received





- “ Mr. Koji Sekimizu, the IMO Secretary-General in his opening speech to the 2013 LP meeting.
- “*The London Protocol currently is also the only global framework to regulate carbon capture and sequestration in sub-seabed geological formations.....*
- “*However, it remains a **serious concern** that, to date, only two of the 43 London Protocol Parties have accepted the 2009 amendment, which is a long way from satisfying the entry-into-force requirements. The importance of securing its entry into force cannot be over-emphasized, if the threat of acidification of the oceans from climate change is to be minimized.*”



Ocean Fertilisation and other Geo-engineering in the London Convention and Protocol



- “ Ocean fertilization: any activity with the intention of stimulating primary productivity. Does not include conventional aquaculture.
- “ Eg the intentional introduction of nutrients such as iron to the ocean to stimulate phytoplankton. Iron is often the limiting nutrient for their growth. Phytoplankton growth results in increased CO₂ removal from the atmosphere for their photosynthesis.
- “ Geo-engineering: Marine geo-engineering means a deliberate intervention in the marine environment with the purpose of manipulating natural processes, including to counteract anthropogenic climate change and/or its impacts, and that has the potential for widespread, long-lasting or severe effects.



Ocean Fertilisation and other Geo-engineering in the London Convention and Protocol



- “ 2007. Consideration by the LC Scientific Group . statement of concern *“knowledge about the effectiveness and potential environmental impactswas insufficient to justify large-scale operations+”*
- “ 2008 Ocean Fertilisation Resolution *“given the present state of knowledge, ocean fertilization activities other than legitimate scientific research should not be allowed”*
- “ 2010. Developed an ~~Assessment Framework~~q(2010) under which scientific research could be permitted
- “ 2012. *“The Parties... express grave concern regarding the deliberate ocean fertilization activity that was recently reported to have been carried out in July of 2012 in waters off the Canadian west coast. This activity, involved the deliberate introduction into surface waters of 100 metric tonnes of iron sulfate. The Parties recognize the actions of the Government of Canada in investigating this incident.+”*
- “ 2012. Considered expanding to regulation of all marine geo-engineering activities

Ocean Fertilisation and other Geo-engineering in the London Convention and Protocol



- “ 2013. Proposal adopted to add Article 6bis to prohibit marine geoengineering unless listed in Annex 4 and permitted using generic Assessment Framework (to prevent pollution or reduce to a minimum).
- “ Annex 4 lists one activity . Ocean Fertilization
- “ Only for research purposes.
- “ Requires permit which uses Ocean Fertilization Assessment Framework
- “ Allows for the addition of other marine geoengineering activities in the future. Which will need specific assessment frameworks.
- “ Provides for a global, transparent and effective regulatory and control mechanism for marine geoengineering activities which have potential to cause harm to the marine environment.



Useful information sources and references



- “ IEA Regulatory Network <http://www.iea.org/ccs/legal/index.asp>
- “ London Convention and Protocol www.imo.org

- [1] Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (London Convention 1972). www.imo.org
- [2] Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (London Convention 1972). London Protocol (1996) . protocol thereto. www.imo.org
- [3] Specific Guidelines for the Assessment of Carbon Dioxide for Disposal into Sub-seabed Geological Formations. LC 29/17 2007
- [4] Dixon T, Greaves A, Thomson J, Christophersen O, Vivian C. International Marine Regulation of CO₂ Geological Storage. Developments and Implications of London and OSPAR. GHGT-9. Energy Procedia 1 (2009) 4503-4510.
- [5] On the Amendment of Article 6 of the London Protocol [CO₂ export amendment]. Resolution LP.3(4). 2009
- [6] 2012 Specific Guidelines for the Assessment of Carbon Dioxide for Disposal into Sub-seabed Geological Formations.LP.7. LC 34/15, Annex 8. 2012 [aka Revised CO₂ Specific Guidelines or Revised CO₂ Sequestration Guidelines]
- [7] Guidance on the Implementation of Article 6.2 on the Export of CO₂ Streams for Disposal in Sub-seabed Geological Formations for the Purpose of Sequestration. LC 35/15 Annex 6. 2013
- [8] Sekimizu K. Address of the IMO Secretary-General at the opening of the thirty-fifth meeting of Contracting Parties to the London Convention and the eighth meeting of Contracting Parties to the London Protocol . London, 14 October 2013. <http://www.imo.org/MediaCentre/SecretaryGeneral/Secretary-GeneralsSpeechesToMeetings/Pages/LC35LP8.aspx>
- [9] Scientific Group of the London Convention. Iron Fertilization of the Oceans to Sequester CO₂. LC/SG 30/14 pp9-11. 2007.
- [10] Resolution LC-LP.1 (2008) on the Regulation of Ocean Fertilization. LC 30/16. Annex 6. 2008
- [11] Assessment Framework for Scientific Research Involving Ocean Fertilization. LC 32/15. Annex 6. 2010
- [12] Statement of Concern Regarding the Iron Fertilization on Ocean Waters West of Canada. LP 7. LC 34/15, Annex 7. 2012
- [13] Resolution LP.4(8) on the Amendment to the London Protocol to Regulate the Placement of Matter for Ocean Fertilization and Other Marine Geoengineering Activities LP.8. LC 35/15. Annex 4. Annex 5. 2013
- [14] Dixon T, Garrett J, Kleverlaan E. Update on the London Protocol . Developments on Transboundary CCS and on Geoengineering. GHGT-12. Energy Procedia (2014)



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Thank you

Any Questions?

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