



Carbon Storage and Waste Law

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Waste Definition EU Law



Waste Framework Directive 2008/98/EC

Art. 3 Definitions

1. 'waste' means any **substance** or **object** which the holder **discards or intends or is required to discard**;

'Substance': solid, liquid or **gaseous** with particular qualities

Art. 2 Exclusions from the scope

- (a) gaseous effluents emitted into the atmosphere



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Art. 2 Exclusions from the scope

(a) gaseous effluents emitted into the atmosphere

e.g. German waste law

§ 2 (2) exclusions:

8. Gaseous substances, not in containers

15. CO₂ captured and transported for permanent storage or for storage for research purposes

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Waste Framework Directive 2008/98/EC

Art. 4 (1) Waste hierarchy:

- (a) prevention;
- (b) preparing for re-use;
- (c) recycling;
- (d) other recovery, e.g. energy recovery; and
- (e) disposal.



Carbon Storage Requirements EU Law

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 1 Subject matter and purpose

Environmentally safe geological storage of carbon dioxide

Art. 2 Scope

In the **territory of the Member States**, their **exclusive economic zones** and on their **continental shelves**, >100 kt

Directive 1999/31/EC on the landfill of waste

Art. 1 Objective: waste hierarchy, reduction of landfilling, reduction of negative effects on environment and health, technical requirements

Art. 2(g), 3, Scope

'landfill' means a waste disposal site for the deposit of the waste **onto or into land** (i.e. underground), exceptions

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 4 Selection of storage sites

Right of Member States not to allow storage in parts of their territory

Characterisation and assessment of capacity and suitability, no significant environmental or health risks, risks of leakage

Annex I: geology, population, natural resources, (exploitation) activities, modelling, sensitivity, risk assessment, hazard characterisation,

Art. 5 Exploration permits, requirements: open, non discriminatory, sole right holder, limited volume, no conflicting uses

Directive 1999/31/EC on the landfill of waste

Annex I: technical requirements

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 6 Storage permits: only one operator, no competing uses, open and fair procedure, within the validity of the exploration permit,

Art. 7-9 Permit application, conditions, content:

- financial and technical competence, reliable
- characterisation, quantity of CO₂
- legal requirements for operation
- prevention, monitoring, corrective action plan
- post-closure plan
- notification requirements
- financial security

Art. 10 Commission review of (draft) storage permits

Art. 11 Changes, review, update and withdrawal of storage permits

Directive 1999/31/EC on the landfill of waste

Art. 7-9 Permit application, conditions, content:

- class and quantity of waste, description, methods
- legal requirements for operation
- monitoring and control plan
- plan for closure and after-care procedures
- environmental impact assessment
- accident prevention
- financial security
- annual reporting of monitoring results
- inspections by authority

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 12 CO₂ stream acceptance criteria and procedure:

No waste or other matter to be added, limiting requirements for other substances, risk assessment, register

Art. 21 Transparent, fair, open and non-discriminatory access to networks and site, taking into account capacity, technical specifications, CO₂ reduction obligations,

Directive 1999/31/EC on the landfill of waste

Art. 5 Wastes not acceptable

Art. 11 Waste acceptance procedures

Art. 10 Cost of the landfill of waste: prices shall cover all the costs

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 13, Annex II Monitoring: comparison between modelled and actual behaviour, irregularities, migration, leakage, adverse effects, effectiveness of corrective measures, updating safety assessment,

Art. 14 Reporting: to MS: monitoring results, quantities and properties of CO₂, maintenance of financial security

Art. 15 Inspections by MS: on site and records, at least once a year, three years after closure, every 5 years, additional irregularities based, keep and publish records

Art. 16 Measures in case of leakages or significant irregularities: notification and corrective measures

Directive 1999/31/EC on the landfill of waste

Art. 12, Annex III Control and monitoring procedures in the operational phase, reporting and notification of adverse effects

Carbon Storage Requirements EU Law

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Directive 2009/31/EC on the geological storage of carbon dioxide

Art. 17 Closure and post-closure obligations: operator remains responsible according to post-closure plan; in case of withdrawal of permit, authority is responsible, costs recovered from the operator

Art. 18, 20 Transfer of responsibility: min. 20 years, evidence that CO₂ permanently contained, financial obligations fulfilled, site sealed; report demonstrating long-term stability, report to the Commission, routine inspections, in case of fault, recovery of costs from operator,

Art. 19 Financial security for all obligations including closure and post-closure requirements, periodically adjusted, valid until transfer of responsibility

Art. 20 Financial contribution to the competent authority before transfer of responsibility

Art. 24 ff: Transboundary cooperation, registers, reporting, information to the public, ..

Directive 1999/31/EC on the landfill of waste

Art. 13, Annex III Closure and after-care procedures, only after final (on site) inspections, responsibility of operator for after-care phase, maintenance, monitoring and control, analysing landfill gas and leachate from the site and the groundwater regime in the vicinity of the site, notification of adverse effects,

Art. 15 MS reporting to the Commission

Art. 15a Promotion of circular economy, 15b Determination of permeability coefficient, 15c Union standard for sampling of waste



Basel Convention on Transboundary Movements of Hazardous Wastes

Art. 1 Scope 'Hazardous wastes', Annexes and domestic legislation

Art. 2, 1. 'Wastes' are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law;

'Substances': solid, liquid or **gaseous** with particular qualities



London Convention and Protocol on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter

Art. III, 4 'Wastes or other matter' means material and **substance of any kind, form or description.**

Prohibition of dumping of any wastes or other matter, exceptions

Protocol, Annex 1 (exceptions):

1.8: Carbon dioxide streams from carbon dioxide capture processes for sequestration

2.4: Carbon dioxide streams referred to in paragraph 1.8 may only be considered for dumping, if:

.1 disposal is into a sub-seabed geological formation; and

.2 they consist overwhelmingly of carbon dioxide. They may contain incidental associated substances derived from the source material and the capture and sequestration processes used; and

.3 no wastes or other matter are added for the purpose of disposing of those wastes or other matter.



OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic

Covers pollution (introduction of substances) and dumping of **'wastes and other matter'**

Annex II (exceptions):

Art. 3, 2f: **carbon dioxide streams from carbon dioxide capture processes for storage**, provided:

- i. disposal is into a sub-soil geological formation;
- ii. the streams consist overwhelmingly of carbon dioxide. They may contain incidental associated substances derived from the source material and the capture, transport and storage processes used;

Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea

Covers pollution (introduction of substances) and dumping of **'wastes and other matter'**

Annex V, exemptions,..

Conclusion



In principle, CO₂ to be captured and stored has to be regarded as waste according to European and international definitions. The exclusion from the respective waste law regimes depends on the exceptions defined.

While the EU has set up a specific regime for CO₂ storage with the Directive 2009/31/EC on the geological storage of carbon dioxide, the London and the OSPAR Conventions have explicitly excluded CO₂ for storage in sub-soil geological formations from their scope of application.

The Helsinki Convention, however, has not (yet) done so. Thus, the legality of carbon storage in the Baltic Sea would depend on its interpretation in the light of the other conventions.