



Lithuanian 4th Report on Implementation of Directive 2009/31/EC on the geological storage of carbon dioxide ("CCS Directive")

OUTLINE¹

Changes, reviews and updates of national implementation legislation

- 1. Are there any changes to national legislation, permitting system or competent authorities that have taken place since the last report on implementation of the CCS Directive in your country?**

Changes to national legislation have taken place since the last reporting, namely:

1.1. The Law on Underground of the Republic of Lithuania come into the force 01-07-2020. According to Article 14(2) of the Law on Underground of the Republic of Lithuania, the injection and (or) storage of carbon dioxide in the natural cavities in the Earth's Underground and (or) in the aquifers in the territory of Lithuania is prohibited. This Article covers geological as well as artificial underground storage facilities.

1.2. The Rules of the management of the Register of the Earth's Underground have been amended 12-10-2022 by the order of the Director of Lithuanian Geological Survey under the Ministry of Environment No. 1-448 "On the approval of the Rules of the management of the Register of the Earth's Underground". Article 26.3 of The Rules of the management of the Register of the Earth's Underground provides amendments of the procedures of the registering objects to the Register of the Earth's Underground, with the objects of the Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide being included among them. Article 28 defines the provisions to inform the data providers and holders of the authorized Permit for the geological storage of carbon dioxide about the aforementioned fact of registration of the objects.

Article 33 of the Rules of the management of the Register of the Earth's Underground defines the regulations on the unregistering the objects from the Register of the Earth's Underground, with Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide being included.

¹ Please describe any changes and developments in relation to implementation of the national measures transposing Directive 2009/31/EC on the geological storage of carbon dioxide in the period after your last submission of a Member States implementation report, i.e. in April 2019.

You can consult the previous reports on the implementation of the CCS Directive here: https://climate.ec.europa.eu/eu-action/carbon-capture-use-and-storage/implementation-ccs-directive_en#reports-on-the-implementation-of-the-ccs-directive.

Please send your report to the functional mailbox: CLIMA-CCS-DIRECTIVE@ec.europa.eu.

Should you have any questions do not hesitate to contact Daniel Kitscha, Policy Officer, Unit C2 "Low Carbon Solutions (II): Research & Low Carbon Technology Deployment", Directorate C "Innovation for a Low Carbon, Resilient Economy", Directorate-General "Climate Action": 0032-2-29-56637, daniel.kitscha@ec.europa.eu.

Article 80 of the Rules of the management of the Register of the Earth's Underground defines the regulations of the formats of the spatial data to be provided for the Register of the Earth's Underground, with the Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide being included.

The other changes in the Rules of the management of the Register of the Earth's Underground do not concern the content of the articles regulating the procedures of the registration of the Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide to the Register of the Earth's Underground.

1.3. The decision of the Government of the Republic of Lithuania of 12-07-2020 No. 901 "On the amendment of the Decision of the of the Government of the Republic of Lithuania of 10-03-2020 No. 198 "On the amendment of the Implementation of the Law on Underground of the Republic of Lithuania" defined the amendments of the "Regulations of the Register of the Earth's Underground".

Article 17.4 of the amended "Regulations of the Register of the Earth's Underground" includes regulations to provide the spatial data for the Register of the Earth's Underground, with the data regarding Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide.

Article 33.1 of the amended "Regulations of the Register of the Earth's Underground" includes regulations of the procedures of the registering objects to the Register of the Earth's Underground and requirements to inform the Earth's Underground data providers about the fact of registration, with the Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide being included.

The other changes of the Regulations of the Register of the Earth's Underground do not concern the content of the articles regulating the procedures of the registration of the Geological storage of carbon dioxide and the Complex of the Geological storage of carbon dioxide to the Register of the Earth's Underground.

2. Are there processes in place for storage permit applicants to engage pro-actively with the competent permitting authorities regarding relevant applications? If yes, please provide details.

There is no information on processes in place for storage permit applicants to engage pro-actively with the competent permitting authorities regarding relevant applications in Lithuania.

3. Please provide the name, email address and telephone of the contact point at the competent authority responsible for fulfilling the duties established under the Directive.

Tomas Želvys, e-mail address: tomas.zelvys@am.lt, Mob.tel.: +370 696 74940; Ministry of Environment.

Jurga Lazauskienė, e-mail address: jurga.lazauskiene@lgt.lt, tel. No.: +370 5 233 3989; Mob. tel.: +370 6861 3057; Lithuanian Geological Survey under the Ministry of Environment.

4. Are there any issues that the competent authority would like to discuss with other competent authorities in relation to the practical implementation of the Directive and in particular the national permitting procedures in the Information Exchange Group under the auspices of Article 27(2)?

There are no issues that the competent authority would like to discuss with other competent authorities in relation to the practical implementation of the Directive and the national permitting procedures in the Information Exchange Group under the auspices of Article 27(2).

Selection of areas for storage sites (Article 4)

5. Which areas are determined from which storage sites may be selected pursuant to Article 4(1) until April 2023?

No areas from which storage sites may be selected pursuant to Article 4(1) were determined since last reporting until April 2023.

- 6. Will additional areas be determined from which storage sites may be selected in the period until the next report at the end of 2027, if so, which geological type of areas are considered (e.g, saline aquifers, depleted or not depleted gas & oil fields, mafic rocks) from a geological point of view and what are the next steps?**

Member States are not obliged to justify any such decision, but an indication which territories are concerned, including their location², and why this has been done, would be appreciated.

No additional areas from which storage sites may be selected in the period until the next report at the end of 2027 are currently determined.

- 7. Are there information about environmental and/or health risks relating to the geological storage of CO₂ in accordance with the applicable Community legislation available to the public³?**

There is no information about environmental and/or health risks relating to the geological storage of CO₂ in accordance with the applicable Community legislation available to the public.

Exploration permits (Article 5)

- 8. Are there areas or specific sites where no exploration permits are required to generate the information necessary for the selection of storage sites, pursuant to Article 5?**

There is no areas or specific sites where no exploration permits are required to generate the information necessary for the selection of storage sites, pursuant to Article 5.

- 9. How many exploration permits have been given pursuant to Article 5 since your last reporting?**

No exploration permits have been given pursuant to Article 5 of CCS Directive since last reporting.

Storage permits applications (Article 10)

- 10. Member States shall make the permit applications available to the Commission within one month after receipt. Are there any plans of potential operators to apply for storage permits pursuant to Article 7? If yes, please provide an approximate timing.**

There is no information on plans of potential operators to apply for storage permits pursuant to Article 7 since last reporting.

Third-party fair and open access (Article 21)

- 11. What measures – if any – have been taken to ensure that potential users are able to obtain fair and open access to transport networks and to storage sites for the purposes of geological storage of the produced and captured CO₂ (Article 21).**

² Please describe any changes and developments in relation to implementation of the national measures transposing Directive 2009/31/EC on the geological storage of carbon dioxide in the period after your last submission of a Member States implementation report, i.e. in April 2019.

³ Please provide the relevant URL(s)

The question is not fully relevant, as currently there are no CO₂ storage sites in Lithuania and, according to Article 14(2) of the Law on Underground of the Republic of Lithuania, the injection and (or) storage of carbon dioxide in the natural cavities in the Earth's Underground and (or) in the aquifers in the territory of Lithuania is prohibited.

The transportation of carbon dioxide to storage locations outside of Lithuania is permitted.

12. Are you aware that prospective transport operators and/or storage operators have refused access to their facilities on the grounds of lack of capacity?

The question is not relevant, as currently there are no CO₂ storage operators in Lithuania.

13. What measures – if any – have been taken to ensure that the operator refusing access on the grounds of lack of capacity or a lack of connection makes any necessary enhancements as far as it is economic to do so or when a potential customer is willing to pay for them? (Article 21)

The question is not relevant, as currently there are no CO₂ storage operators in Lithuania.

Transboundary cooperation (Article 24)

14. Is there any experience or plans for transboundary CO₂ transport or CO₂ storage sites or storage complexes? Please provide details on the status of preparations, if any.

There is no experience or plans for transboundary CO₂ storage sites or storage complexes, as, according to Article 14(2) of the Law on Underground of the Republic of Lithuania, the storage of carbon dioxide in the Earth's underground is prohibited in Lithuania.

Currently there is no infrastructure for transboundary CO₂ transportation in Lithuania.

Transportation of carbon dioxide to storage locations outside of Lithuania is permitted, but logistical costs and geographical challenges exist, as the major emitters would need transportation for large amounts of CO₂ and the only viable option is transporting by ship.

Since the last reporting Lithuania supported two applications seeking the Project of Common Interest status within the scope of the Trans-European Networks for Energy on the establishment of the CCS transportation infrastructure in the Baltic region (Latvia, Lithuania, Poland).

CO₂ capture readiness (Article 33)

15. How many combustion plants with a rated electrical output of 300 MW or more have received a permit since the last implementation report? What was the outcome of the assessment under Article 36 of Directive 2010/75/EU⁴? In case of negative assessment, have the combustion plants set aside suitable space irrespectively? Please provide detail for each permit according to Annex 2.⁵

⁴ On industrial emissions (integrated pollution prevention and control), Art. 36, *Geological storage of carbon dioxide. Member States shall ensure that operators of all combustion plants with a rated electrical output of 300 megawatts or more for which the original construction licence or, in the absence of such a procedure, the original operating licence is granted after the entry into force of Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (OJ L 140, 5.6.2009, p. 114.), have assessed whether the following conditions are met:*

(a) suitable storage sites are available, (b) transport facilities are technically and economically feasible, (c) it is technically and economically feasible to retrofit for carbon dioxide capture. 2. If the conditions laid down in paragraph 1 are met, the competent authority shall ensure that suitable space on the installation site for the equipment necessary to capture and compress carbon dioxide is set aside. The competent authority shall determine whether the conditions are met on the basis of the assessment referred to in paragraph 1 and other available information, particularly concerning the protection of the environment and human health."

⁵ A table is provided in Annex 2, which can be used to present the answer to the questions.

No development permits have been issued for combustion plants over 300 MW since last reporting.

Further questions

16. What other national programmes are in place or planned to support research, demonstration and deployment of CCS?

Where applicable Lithuania's National Energy Independence Strategy 2030, Lithuania's Climate Change Action Plan for 2021-2050, Comprehensive Plan of the Territory of the Republic of Lithuania, National energy and climate action plan of the Republic of Lithuania for 2021-2030 include aspects related to CCS Directive.

In 2021, a Project for the development of hydrogen technologies in Lithuania was launched. One of its activities is the development of the Hydrogen Guidelines and an action plan for their implementation, which includes the capabilities assessment of capturing and storing CO₂, hydrogen and other innovative technologies in Lithuanian industrial enterprises.

The measure of the Ministry of Economy and Innovation of the Republic of Lithuania "Encouraging companies to move towards a climate-neutral economy", includes activity "Assessment of the possibilities of using CO₂ capture and storage, hydrogen and other innovative technologies in Lithuanian industrial companies operating in the most negatively affected areas".

17. Are there any ongoing national or European research projects that may have relevance to the Directive?

Lithuania (Consulting company "Civitta Lithuania") participated in the international project "Building momentum for the long-term CCS deployment in the CEE region" aimed to renew the discussion on the long-term deployment of CCS in the CEE region **that may have relevance to the Directive**.

In result of the project the reports: "Assessment of current state, past experiences and potential for CCS deployment in the CEE region. Lithuania" (<https://ccs4cee.eu/wp-content/uploads/2022/04/CCS4CEE-Lithuania.pdf>); "Summary of CCS4CEE project. Lithuania" (https://ccs4cee.eu/wp-content/uploads/2023/04/Lithuania_final_summary_ENG.pdf) and "CCS National Roadmap. Lithuania" (<https://ccs4cee.eu/building-momentum-for-the-long-term-ccs-deployment-in-the-cee-region-ccs-national-roadmaps/>) have been prepared. "CCS National Roadmap. Lithuania" outlines how the future development of CCS technologies could proceed and under which enabling conditions.

Research has been carried out by Kaunas University of Technology. (Publication „Exploring the Potential of Carbon Capture, Utilization, and Storage in Baltic Sea Region Countries: A Review of CCUS Patents from 2000 to 2022“. (*Processes*, 2023, 11(2), 605; <https://doi.org/10.3390/pr11020605>)).

"ECO2CEE" project is being developed to create a CO₂ import and export terminal in Gdansk, Poland, along with related CO₂ transportation infrastructure from polluting facilities in Poland and Lithuania to the European CO₂ transportation and storage network in the North Sea basin and, potentially, the Baltic Sea basin, using road transport, railways, pipelines, and ships (in the future).

Lithuania is a member of the European CCS Demonstration Project Network (ECCSEL), a research infrastructure project aimed at developing CCS technologies and facilitating their deployment in Europe funded by the European Union's Horizon 2020 program.

18. Are there other plans to support further appraisal of CO₂ storage sites, to prepare for CO₂ transport infrastructure or for CO₂ hubs and clusters?

Currently there are no information in direct relevance to CCS Directive on plans to support further appraisal of CO₂ storage sites, as, according to Article 14(2) of the Law on Underground of the Republic of Lithuania, the injection and storage of carbon dioxide in the Earth's underground is prohibited in Lithuania.

There are plans for establishing CO₂ transportation infrastructure to go forward with CCS/CCU projects. (<https://ccs4cee.eu/wp-content/uploads/2022/04/CCS4CEE-Lithuania.pdf>).

Companies "Klaipėdos nafta", "Larvik Shipping" and "Mitsui O.S.K. Lines" (CCS Baltic Consortium) agreed on feasibility study for a liquefied CO₂ and hydrogen project in Klaipėda, aimed to develop liquefied CO₂ loading facilities at existing infrastructure of "Klaipėdos nafta" in Klaipėda (Lithuania). The main task of the feasibility study – to identify an optimal configuration to export carbon dioxide to CO₂ sequestration facilities in Europe. The overall vision is to develop an liquefied CO₂ logistics and value chain from Lithuania and, potentially, the Baltic region, with the seaport of Klaipėda. CCS Baltic Consortium is developing a project, which would enable the capture of CO₂ emissions from cement factories in Lithuania and Latvia and transport them to the North and Baltic Sea regions for CO₂ storage sites.

Companies "Klaipėdos nafta", "Akmenės cementas" and "Orlen Lietuva" 2022-08-29 have signed Memorandums of intent for a joint feasibility study aimed to assess the potential and feasibility of liquefied carbon dioxide (CO₂) capture and its transportation by ships to the CO₂ storage sites in Europe.

Annex 1: CCS related requests as part of the Commission Notice on the Guidance to Member States for the update of the 2021-2030 national energy and climate plans – C(2022) 8263 final

2.5 Integrating long-term geological storage of CO₂

Member States are encouraged to include in their updated NECPs the efforts planned to enable their industries to capture and store their inherent process emissions permanently in geological storage sites, in accordance with Directive 2009/31/EC. Reaching the climate-neutrality objective requires that EU-wide remaining greenhouse gas emissions and removals from hard-to-abate sectors are balanced within the EU at the latest by 2050 and that the EU achieves negative emissions thereafter.

Several activities, including energy intensive industries, such as cement, iron and steel, aluminium, pulp and paper and refineries, as well as agriculture, have inherent process emissions resulting from the production processes themselves. Carbon capture and storage, or carbon capture and use can provide a key contribution to tackling these sectors' emissions.

Furthermore, it can help remove CO₂ from the atmosphere through carbon removals such as bioenergy coupled with carbon capture and storage (BECCS) and through Direct Atmospheric Carbon Capture (DACCS). BECCS deployment should be approached in the updated NECPs in full consideration of the limits and availability of sustainable biomass.

The potential of the carbon dioxide storage in the Earth underground has been assessed based on geological data, however, the injection and (or) storage of carbon dioxide in the natural cavities in the Earth Underground and (or) in the aquifers in the territory of Lithuania is currently prohibited. The National Energy and Climate Plan (NECP) of Lithuania states the necessity to develop CCS/CCU technologies further and analyse their applications within a feasibility study.

Box 6: Setting objectives, targets and contributions for carbon capture and storage.

Member States are encouraged to provide the following information:

- **the annual aggregated projection of inherent process emissions that will have to be abated through CO₂ capture;**

As currently it is illegal in the Republic of Lithuania to abate process emissions through geological storage of CO₂, it is not possible to estimate the annual aggregated projection of inherent process emissions that could be abated through this method in Lithuania.

- **the annual biogenic and direct air CO₂ that will be available for geological storage of CO₂;**

There is no information regarding the annual biogenic and direct air CO₂ that will be available for geological storage of CO₂ currently. However, it is important to note that geological storage of CO₂ is currently prohibited according to Article 14(2) of the Law on Underground of the Republic of Lithuania.

- **the geological CO₂ storage capacity that can be made operationally available annually;**

There is no sufficient reliable information and data to determine the geological CO₂ storage capacity that can be made operationally available annually.

- **annual CO₂ storage capacity that may become available at the end of exploitation of hydrocarbon reservoirs;**

Currently there is no reliable information or data about the annual CO₂ storage capacity that may become available at the end of the exploitation of hydrocarbon reservoirs. Not all depleted hydrocarbon fields might be suitable or safe for geological CO₂ storage. The detailed and thorough research and assessment of each depleted hydrocarbon field site's is required to determine its CO₂ storage capacity. Research is needed to obtain reliable information on the suitability of the depleted hydrocarbon fields for safe CO₂ storage.

- **planned CO₂ transport infrastructure;**

Companies "Klaipėdos nafta", "Larvik Shipping" and "Mitsui O.S.K. Lines" agreed on feasibility study for a liquefied CO₂ and hydrogen project in Klaipėda, aimed to develop liquefied CO₂ loading facilities at existing infrastructure of "Klaipėdos nafta" in Klaipėda (Lithuania). The main task of the feasibility study – to identify an optimal configuration to export carbon dioxide to CO₂ sequestration facilities in Europe. The overall vision is to develop an liquefied CO₂ logistics and value chain from Lithuania and, potentially, the Baltic region, with the seaport of Klaipėda. CCS Baltic Consortium is developing a project, which would enable the capture of CO₂ emissions from cement factories in Lithuania and Latvia and transport them to the North and Baltic Sea regions for CO₂ storage sites.

Companies "Klaipėdos nafta", "Akmenės cementas" and "Orlen Lietuva" 2022-08-29 have signed Memorandums of intent for a joint feasibility study aimed to assess the potential and feasibility of liquefied carbon dioxide (CO₂) capture and its transportation by ships to the CO₂ storage sites in Europe.

- **public funding support available for investment in CO₂ capture, transport and storage;**

There is no public funding support for investment in CO₂ capture, transport, and storage currently available in Lithuania.

- **any other measures to support the deployment of long-term geological CO₂ storage opportunities.**

There are no other measures currently planned or being implemented to support the deployment of long-term geological CO₂ storage opportunities at this time, as, according to Article 14(2) of the Law on Underground of the Republic of Lithuania, the storage of carbon dioxide in the Earth's underground is prohibited in Lithuania.

Annex 2: Operating licences granted to large combustion installations in accordance with Article 33

Plant operator, name location	Status (planning/ construction /operation)	Electrical output	Type of fuel	Date of operating licence, Reference to the licence and assessment	Availability of suitable storage sites	Technical and economic feasibility of transport facilities	Technical and economic feasibility to retrofit for CO ₂ capture	Space set aside	Other measures taken or recommended to prepare for future retrofitting	Comments
Lietuvos elektrinė AB „Ignitis gamyba“ Elektrėnai Lithuania Elektrinės st. 21	Permission to operate	1055,0000 MW	Natural gas	2019-10-28 L-3700	n/a	n/a	n/a	-	-	-

DETALŪS METADUOMENYS

Dokumento sudarytojas (-ai)	Lietuvos geologijos tarnyba prie Aplinkos ministerijos 188710780, S. Konarskio g. 35, LT-03123 Vilnius
Dokumento pavadinimas (antraštė)	ON MEMBER STATES REPORTING ON IMPLEMENTATION OF DIRECTIVE 2009/31/EC ON THE GEOLOGICAL STORAGE OF CARBON DIOXIDE (CCS DIRECTIVE)
Dokumento registracijos data ir numeris	2023-05-31 Nr. (5)-1-8-4
Dokumento gavimo data ir dokumento gavimo registracijos numeris	–
Dokumento specifikacijos identifikavimo žymuo	ADOC-V1.0
Parašo paskirtis	Pasirašymas
Parašą sukūrusio asmens vardas, pavardė ir pareigos	Giedrius Giparas, Direktorius
Sertifikatas išduotas	GIEDRIUS GIPARAS LT
Parašo sukūrimo data ir laikas	2023-05-31 13:31:39 (GMT+03:00)
Parašo formatas	XAdES-T
Laiko žymoje nurodytas laikas	2023-05-31 13:32:00 (GMT+03:00)
Informacija apie sertifikavimo paslaugų teikėją	EID-SK 2016, AS Sertifitseerimiskeskus EE
Sertifikato galiojimo laikas	2019-09-23 20:41:10 – 2024-09-21 23:59:59
Informacija apie būdus, naudotus metaduomenų vientisumui užtikrinti	"Registravimas" paskirties metaduomenų vientisumas užtikrintas naudojant "RCSC IssuingCA, VI Registru centras - i.k. 124110246 LT" išduotą sertifikatą "DBSIS, Informatikos ir ryšių departamentas prie Lietuvos Respublikos vidaus reikalų ministerijos, į.k.188774822 LT", sertifikatas galioja nuo 2022-05-19 16:48:06 iki 2025-05-18 16:48:06
Pagrindinio dokumento priedų skaičius	1
Pagrindinio dokumento priedamų dokumentų skaičius	–
Priedamo dokumento sudarytojas (-ai)	–
Priedamo dokumento pavadinimas (antraštė)	–
Priedamo dokumento registracijos data ir numeris	–
Programinės įrangos, kuria naudojantis sudarytas elektroninis dokumentas, pavadinimas	DBSIS, versija 3.5.72.2
Informacija apie elektroninio dokumento ir elektroninio (-ių) parašo (-ų) tikrinimą (tikrinimo data)	Atitinka specifikacijos keliamus reikalavimus. Visi dokumente esantys elektroniniai parašai galioja (2023-05-31 14:03:55)
Paieškos nuoroda	–
Papildomi metaduomenys	Nuorašą suformavo 2023-05-31 14:03:56 DBSIS