UNOFFICIAL TRANSLATION

Energistyrelsen

Invitation to apply for a licence for exploration and use of the subsoil for geological storage of CO_2 at Thorning (third licensing round)

Office/department
CCS

Date
30 Sept. 2024

Case no. 2024-10554

/slkrg

The Danish Energy Agency hereby publishes the terms and conditions for applying for a licence pursuant to section 23 of the Subsoil Act for exploration and use of the subsoil for geological CO_2 storage in the Thorning structure, located at Thorning in the Municipality of Silkeborg.

Applications will be accepted from 30 September 2024 onwards and must be received by the Danish Energy Agency by no later than 12:00 midday on 11 November 2024.

The award of licences is conditional on the applicant having the necessary technical and financial capacity to explore and operate geological CO_2 storage in accordance with the Danish Subsoil Act.

The application must include a work programme with the work the applicant offers to perform during the exploration period of the licence.

A licence entitles the licensee to conduct exploration for up to six years within the licence area. The exploration must demonstrate a suitable geological structure and if the proposed work programme is satisfactorily completed, the licensee will be entitled to apply for an extension to the licence with an exclusive right to conduct storage operations for up to 30 years.

The tendered areas are shown on the maps enclosed as Appendix 2.

On 20 September 2023, the Danish government (the Social Democratic Party, Denmark's Liberal Party and the Moderates) signed an agreement on framework conditions for carbon capture and storage (CCS) in Denmark with the Green Left, Liberal Alliance, the Conservative People's Party, the Red-Green Alliance, the Danish Social-Liberal Party, the Danish People's Party and The Alternative.

The agreement states that the parties to the agreement have agreed to open a tendering procedure onshore and nearshore before the end of 2023, and that the parties to the agreement are open to new storage options and technologies that can support safe and environmentally sound storage of CO_2. The tendered area was tendered for the first time in the second Danish licensing round for CO_2

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storage, which was launched on 13 December 2023. No licence was granted in the Thorning structure in that round.

The detailed conditions of the tendering procedure are set out in this letter of invitation with appendices, which was presented to the Danish Parliament's Climate, Energy and Utilities Committee on 23 September 2024. The appendices to the letter of invitation include the model licence for geological CO_2 storage. The licence will include a condition that Nordsøfonden participate in the licence with a 20% share on behalf of the State in accordance with the CCS agreement mentioned above.

The tendering procedure will be published in the Danish Official Gazette and on the Danish Energy Agency website.

Contents:

1. Type of tendering procedure

The tendering procedure for licences to explore and use the subsoil for geological storage of CO□ is the third tendering procedure (licensing round) in Denmark, and will enable enterprises to explore a defined geographic area to evaluate whether there is a suitable geological structure to store CO_2. If the associated work programme is satisfactorily met, and a suitable structure is detected, the licensee may apply to have the licence extended with an exclusive right to carry out storage activities for up to 30 years, with a possibility for further extension.

The tendering procedure will be by Executive Order in accordance with section 23b(1), no. 2 of the Danish Subsoil Act, under which the Executive Order specifies the area under tender and period in which licence can be applied for.

The Executive Order regarding an area near Thorning that is open for the award of licences for exploration and use of the subsoil for geological CO_2 storage will enter into force on 30 September 2024. The Executive Order can be viewed via this link, and is also enclosed with this invitation as Appendix 1.

Applications for licences can then be submitted from 30 September 2024 to 12:00 midday on 11 November 2024. The Danish Energy Agency will process applications received within the deadline and it is expected that the Minister for Climate, Energy and Utilities will be able to grant a licence in the first half of 2025.

Licences will be granted following submission to the Climate, Energy and Utilities Committee set up by the Danish Parliament (Folketing).

2. Areas

It is possible to apply for a licence for exploration and use of the subsoil for geological CO_2 storage in the storage site under tender depicted on the attached map as Appendix 2, depicting both the planning area and surface designation that excludes Natura 2000 sites. Shapefiles are available on the DEA website, along with this letter of invitation and its appendices.

Note that the planning area is different from the surface designation, as CO_2 can be stored underground under the entire planning area, while surface installations can only be located within the surface designation. The surface designation covers the entire planning area except for nature conservation sites where no physical installations can be placed. The award of a licence for exploration and use of the subsoil does not exempt the licensee from obtaining relevant approvals and permits required by law, including necessary approvals under environmental legislation.

The tendered area was selected from a larger number of areas, where GEUS has identified appropriate geological structures for CO_2 storage.

3. Operatorship

Applications may be submitted by groups of enterprises as well as individual enterprises.

Applications from groups of enterprises must state who is to be appointed as the operator. In specific cases, where the operatorship is requested to be carried out

by an enterprise not participating in the licence, the applicant companies must state as such and the enterprise concerned, and they must document that there is a written agreement in this regard.

The operator must have the necessary technical and financial capacity, cf. section 24d(1) of the Danish Subsoil Act.

In the event of disagreement between the enterprises applying for a licence on the choice of operator, the Minister for Climate, Energy and Utilities may appoint the operator based on the qualifications of the applicants, cf. section 23c(6) of the Subsoil Act.

4. Content of the application and selection criteria

The application must provide a complete description of the applicant, the area applied for and the proposed exploration work, covering all points described in Appendix 3 of the letter of invitation (documentation requirements for the application). The applicant is also requested to attach a completed version of the information forms in Appendix 8 to this letter of invitation.
In this connection, note that if a licence for exploration and use of the subsoil for geological storage of CO_2 is granted, the licence will be published on the Danish Energy Agency website in its entirety, including the full work programme.

Please submit any attachments to the application as separate files. Illustrations, including maps, diagrams and logs, must be in a resolution that ensures that text on axes, legends, contour lines, etc. is legible.

Assessment of applications

Applications will be assessed according to the criteria laid out in section 23c(1) of the Subsoil Act, i.e. the applicant's technical and financial capacity, as well as the exploration activities that the applicant offers to carry out, cf. the work programme to be included in the application, and the way in which the applicants intend to carry out storage activities in the relevant area.
Licences can only be granted to an applicant who is deemed to be financially sound and reliable and technically competent to operate and control the activities covered by the licence, cf. section 23(5) of the Subsoil Act and no. 6 below.
Furthermore, licences can only be granted to applicants who offer a work programme that is deemed to provide sufficient data to demonstrate a safe storage site for CO_2. When assessing whether the work programme can demonstrate a safe storage site, the applicant's existing knowledge in the form of the data bank mentioned in Appendix 3, section B, 1.3.k will also be considered.

Technical and financial capacity

The applicant must be able to explain how the applicant will ensure satisfactory technical and financial capacity (section 23c(1a) of the Subsoil Act). The application must include documentation that the applicant has satisfactory technical and financial capacity to meet all unconditional obligations under the work programme under application. The application must also specify how technical and financial capacity will be provided in later phases of the licence.

The applicant's documentation and description of the technical and financial capacity must be proportionate to the work programme tendered. The documentation requirements for technical and financial capacity are set out in the enclosed Appendix 3 on documentation requirements for applications.

In relation to technical capacity, see also the Danish Energy Agency's Guidelines on Technical Capacity, which can be accessed via the Danish Energy Agency website, particularly section 6 on documentation for the assessment of technical capacity. The guidelines are formally aimed at offshore hydrocarbon licences, but apply correspondingly to activities with CO_2 storage and related activities.

Required documentation of the applicant's financial capacity includes annual reports and financing plans. The applicant may include other documentation to aid the Danish Energy Agency in its assessment of the applicant's financial capacity. See the Danish Energy Agency's Guidelines on guarantees and insurance, which can be accessed via the Danish Energy Agency website.

In order to demonstrate technical capacity, it is essential that the applicant can demonstrate that, at the time the services are to be provided, the applicant will have full access to the staff and equipment required to carry out the work tendered in the work programme. The Danish Energy Agency will therefore require documentation such as agreements with suppliers, CVs of technical staff, an organisation chart, and a description of the decision-making process and steps in connection with projects, including drilling of wells, as well as an explanation of why the company assesses it has the right organisation and the right competences to perform the task.

If the applicant consists of a group of enterprises, documentation for the collaborative relationship between the participating enterprises must be enclosed, for example in the form of a cooperation agreement or similar. Note that, at the time of application, the applicant must be able to demonstrate that it has full access to the technical and financial resources required (stated above) to meet the obligations of the unconditional work programme tendered. Unclear cooperative relationships between companies jointly applying for a licence may hinder the applicant from being assessed as having adequate financial and technical capacity.

Assessment of work programme

The assessment of the proposed work programme includes in particular an assessment of data collection, detectability, timetable, and how the applicant intends to store CO_2 (section 23c(1)(b) of the Subsoil Act). These criteria are described in more detail in the section "Selection criteria in competitive situations" below. The assessment of whether the proposed work programme can provide sufficient data to demonstrate a safe CO_2 storage site includes the applicant's prior knowledge and data and the proposed data collection in the work programme. There will be an assessment of whether the prior knowledge and data and the proposed data collection together can identify significant uncertainties and risks of the project, and whether it is likely that, after completion of the proposed work programme, the applicant will be able to meet the requirements for characterization and assessment of the storage complex and the surrounding area for CO_2 storage, as described in Appendix 1 of the CCS Executive Order.

The assessment may also consider how the individual work tasks in the work programme support each other, for example, whether deep boreholes are drilled before a complete seismic mapping of the subsurface is available.

Finally, there will be an assessment of how the applicant intends to carry out CO_2 storage and whether these plans ensure appropriate use of the subsoil.

In connection with the assessment of the application, the Danish Energy Agency may obtain third-party assessments of the geological and exploration content of the application from GEUS, for example.

Selection criteria in competitive situations

If there are several applicants for the same area, and they all have the necessary technical and financial capacity, the Danish Energy Agency will make a selection among these applicants according to the criteria below. Applications will be assessed in particular against the criteria below, in order of priority. A qualitative assessment will be made, without the use of point systems, for example.

a. Data collection
b. (Two equal criteria):
    i. Detectability of specific storage potentials in the area applied for
    ii. Timetable
c. The way by which applicants intend to carry out storage in the area concerned.

a. Data collection

The assessment of data collection involves an evaluation of the amount and type of data and knowledge about the Danish subsoil that is collected in the exploration work under tender.

It will be an assessment of the extent to which the proposed exploration work sufficiently contributes to the realization of the CO_2 storage potentials and an increased understanding of the Danish subsoil. The assessment will include the type and scope of data collection and how the proposed work is integrated with existing data and knowledge.

Initially, collection of new data will be considered as better than processing existing data, and wells with a complete data-collection programme will generally be considered as better than new 2D seismic surveys, which in turn will be considered better than desktop studies.

Unconditional work will be weighted higher than conditional work. More wells will usually be weighted higher than fewer wells unless, for example, the number of wells is deemed inappropriate compared with fewer wells or the data collection otherwise. The order and use of data collection will also be included in the assessment.

The assessment will always be specific and depend on the quality and scope of the existing data in the area.

Baseline studies to monitor a potential storage site are not included in the assessment of data collection, regardless of whether these are planned to be conducted during the exploration phase or only after a storage licence is granted.

b. (b_i) Provability of specific storage potentials in the area applied for

The assessment of detectability includes the suitable storage sites in the area in relation to the works tendered. The assessment will include how much geological certainty and mapping of uncertainties and main risks an applicant can provide for a storage project in the area applied for.

This will be an assessment based on the extent to which the tendered work can contribute to a more thorough geological understanding of a suitable structure with a view to identifying geological risks and potential for storage. This may be carrying out 3D seismic surveys or drilling of exploration appraisal wells to prove the suitability of the storage complex, clarify any hydraulic communication with other potential storage reservoirs, or to map potential geological risks.

The Danish Energy Agency will make a specific assessment of whether the tendered work as described above is appropriate in relation to the geology of the area applied for and/or existing data and/or data quality and is sufficient for the work to be suitable to lead to use of the subsoil for geological storage of CO_2 and to avoid area reservation.

b. (b_{ii}) Timetable

The Danish Energy Agency will assess the temporal aspects in relation to when the applicant plans to carry out the work offered and the duration of the work offered. In this assessment, a shorter period of time for completion of the work tendered will be weighted higher than a longer period of time. The timetable must be realistic for the applicant in order to minimise the need to postpone deadlines in the licence as a result of an unrealistic timetable.
In general, being able to return the licence more quickly if the applicant does not consider it possible to carry out the CO_2 storage project will be weighted high.

c. The way by which applicants intend to carry out storage

There will be an assessment of the way by which applicants intend to carry out CO_2 storage in the area concerned. The assessment will cover wells for injection, including number, location, distance between wells, design, etc. in the area applied for. For example, optimising the location and distances between wells in a facility that accommodates the desired deliveries of CO_2 for storage and at the same time addresses the surrounding areas in terms of the environment and other exploitation of the subsoil will be weighted higher than distances between wells and locations that limit other use of the subsoil. This means construction plans that allow the greatest possible use of the subsoil will be weighted higher than plans with less use of the subsoil.

In a competition situation, the work programmes will be compared on the basis of the parameters described above. In this context, the type and scope of work in the data collection in individual work programmes will have significance for the assessment. In the event that applications are very equal with respect to the type and scope of the data collection, the other criteria could also be decisive in the order of priority described above.

Furthermore, the Minister for Climate, Energy and Utilities may decide not to grant a licence on the basis of applications received in the licensing round, cf. section 23b(3) of the Subsoil Act.

5. Conditions for licences for geological storage of CO_2

The conditions and regulations of licences for geological storage of CO_2 follow partly from implementation of the EU CCS Directive in the CCS Executive Order, as well as from the regulations already established in the Subsoil Act.

As follow-up to the Agreement of 20 September 2023, social clauses are included in licences for exploration and use of the subsoil for geological storage of CO_2. These are in section 7 of the model licence. The social clauses are equivalent to those applied in the tendering procedure of the CCUS pool.

There are also conditions regarding public involvement, fees for the State's expenses in connection with validating the areas put up for tender, and obtaining baseline studies from GEUS according to section 6 of the model licence.

The agreement also states that, in connection with possible transition to a storage licence, a fee must be paid to the Danish State corresponding to the State's expenses in connection with geological validation of the tendered area. The fee for the area around the Thorning structure has been set at DKK 32,850,838. The fee will be adjusted according to the EU Harmonized Index of Consumer Prices (HICP) for the year the payment is due.

Other current regulations

The rules of the Subsoil Act regarding CO_2 storage are in Parts 6 and 6a of the Act.

Latest Subsoil Act (2023)

Detailed rules implementing the CCS Directive have also been laid down in the CCS Executive Order, last amended in 2024.

Application for a licence for exploration and use of the subsoil for geological storage of CO_2. Initially, the license entitles the licensee to explore within the area of the licence according to the detailed work programme. The Subsoil Act states that licences may be granted for a term of up to six years, with the possibility of extension for up to two years at a time. The total exploration period may only exceed 10 years in exceptional cases.

If the work programme is satisfactorily implemented, and a suitable geological structure is detected, the licensee may apply for an extension to the licence in order to carry out storage activities for up to 30 years (the storage phase), with a possibility of further extension. The licence thus entails an exclusive right to store

CO_2 from the beginning, but storage cannot be commenced until more detailed conditions of the licence are met.

The licences thus basically follow the system used for hydrocarbon licences, where the licence is divided into two phases.

A standard licence (the so-called *model licence*) has been prepared, which will be used in connection with the tender of licences for exploration and use of the subsoil for geological storage of CO_2. The model licence is enclosed as Appendix 6 (model licence). This is a standardised licence, and based on the specific application, there may therefore be a need for specific adjustments in relation to the individual application. The licence states, among other things, the requirements for the transition from exploration to storage.

CO_2 storage will be subject to ordinary corporation tax rules (22%).

In connection with this tendering of a licence for exploration and use of geological CO_2 storage, Nordsøfonden's share of the licence will be 20%, as a result of the agreement on the framework conditions for CO_2 storage in Denmark of 21 June 2022 and later the agreement on framework conditions for carbon capture and storage (CSS) in Denmark of 20 September 2023.

Within 90 days from the award of the licence, a cooperation agreement approved by the Danish Energy Agency must be in place between the enterprises participating in the licence, including Nordsøfonden. A model for such cooperation agreement (joint operating agreement (joa)) and an accompanying accounting procedure are enclosed as Appendix 5.1 and Appendix 5.2.

Nordsøfonden will participate from the date the licence is granted by the Minister for Climate, Energy and Utilities. Nordsøfonden will therefore not pay any costs incurred before the licence has been granted.

6. Guarantees

To ensure that the licensee fulfils its obligations pursuant to the licence issued under the tendering round, no later than 30 days after the date of award of the license, each participant is to provide security of an amount and nature that can be approved by the Danish Energy Agency.

Pursuant to the Danish Subsoil Act, the Danish Energy Agency requires a guarantee from a suitable parent company in the applicant company's group in connection with the award of a licence. In general, the guarantee must be from the ultimate parent company to the company that is to take part in the licence, and this must usually be a restricted guarantee in terms of time and amount. It is

customary to provide security in the form of a parent company guarantee. This is already a standard requirement for hydrocarbon extraction and other use of the subsoil under the Subsoil Act, and there is a standard guarantee covering all obligations. Appendix 4 to this invitation is the Danish Energy Agency's model guarantee, and this may used in this connection. However, following a specific assessment, the Danish Energy Agency may accept another guarantee if it is deemed to constitute sufficient security in relation to the specific licence, cf. section 24a of the Subsoil Act.

7. Environmental assessment of the licensing round

A strategic environmental assessment has been carried out in connection with a previous licensing round. This tendering procedure (third licensing round) including the Thorning structure, which was also tendered in the second licensing round, is covered by this environmental assessment. The environmental assessment has been subject to consultation in Denmark and, pursuant to the Espoo (EIA) Convention, by the Norwegian and German authorities.

During the consultation period in Denmark, a total of 21 responses were received from *Kredsløb A/S*, *the Danish District Heating Association*, *City of Aarhus*, *Randers Municipality*, *Thy Natur*, *DN Kalundborg*, *Energinet*, *the Ministry of Defence*, *the Ministry of Transport / BaneDanmark*, *the Danish Environmental Protection Agency*, *the Danish Agency for Planning and Rural Development*, *Anne-Grethe Westergaard Hedebo*, *Municipality of Herning*, *the Danish Maritime Authority*, *the Danish Safety Technology Authority* and jointly *Nordic Folkecenter for Renewable Energy, NOAH Friends of the Earth Danmark, Miljøforeningen Ren Nekselø Bugt, Miljøforeningen Havnsø-Føllenslev, Levende Hav, Klimabevægelsen, Det Fælles Bedste, the Danish Society for Nature Conservation Kalundborg by Susanne Ladefoged* and *Bürgerinitiative gegen CO_2 Endlager e.V.*

Moreover, consultation responses were received from *the Norwegian Environment Agency* in Norway and from *Bergamt Stralsund*, *Gemeinde Ostseebad (Mayor)*, *Staatliches Amt Für Landwirtschaft und Umwelt Vorpommern*, *Bundesamt für Naturschutz*, *Schleswig-Holstein Ministerium für Energiewende, Klimaschutz, Umwelt und Natur (Ministry for Energy Transition, Climate Protection, Environment and Nature)*, *Bundesamt für Seeschifffahrt und Hydrographie (Federal Ministry for Digital and Transport)*, *Umweltbundesamt* and *Bundesamt für Infrastruktur, Umweltschutz und Dienstleistungen der Bundeswehr* in Germany.

The overall result of the strategic environmental assessment and consideration of the responses to the consultation are laid out in the consultation note containing the summary report of 17 November 2023, which is enclosed as Appendix 7.

8. Application

Written applications in Danish or English should be submitted electronically by uploading to the public service Filkassen. A private link to the upload is available by contacting ccs-lagring@ens.dk.

The Danish Energy Agency will require reimbursement for processing applications, cf. Executive Order no. 844 of 26 June 2024 on reimbursement of expenses for case processing by authorities in connection with subsoil activities etc.
This is a fee calculated on the basis of a statement of the number of hours the Danish Energy Agency spends on processing the individual application.

Further information can be obtained from the Danish Energy Agency. Write to: ccs-lagring@ens.dk or jbr@ens.dk or hesu@ens.dk.

The full package of materials relating to the licensing round can also be found on the Danish Energy Agency website.

9. Procedure for processing applications

The Danish Energy Agency will accept applications in the period 30 September 2024 up to and including 12:00 midday on 11 November 2024.

Immediately after the application deadline, the Danish Energy Agency may publish the number of applications and which enterprises or associations of enterprises have applied.

After the application deadline, the Danish Energy Agency will start processing the application material received. In order to maintain the confidentiality associated with the committee process under the Subsoil Act, the Danish Energy Agency deems that the Agency's case processing should also be subject to confidentiality. Processing by the Danish Energy Agency will only be based on the application material received within the application period. However, the Danish Energy Agency may, to the extent necessary, request an applicant to provide further documentation of the applicant's financial and technical capacity. The Danish Energy Agency may invite all applicants to individual introductory meetings at which the applicants will have an opportunity to present the submitted application material. Applicants will not be able to add additional content or change content in the proposed work programme during these meetings. The

Danish Energy Agency may, confidentially, conduct a consultation on all or parts of applications received, before deciding on awarding a licence. For example, consultation with Nordsøfonden and the Geological Survey of Denmark and Greenland (GEUS).

When the Danish Energy Agency has completed processing all applicants, a confidential successful tender letter with specified conditions will be sent to the applicant whose application is recommended for award of a licence. The applicant will subsequently have 10 working days to either accept or decline the licence offered. An application is not binding until the applicant accepts the licence as offered. If the offer is rejected, the licence may be offered to a competing applicant, provided that this applicant's proposed work programme is also considered suitable for award of a licence.
The Danish Energy Agency may also deem that no licence should be granted on the basis of the applications received.

If the recipient of the successful tender letter accepts the licence as offered, the Danish Energy Agency will recommend to the Minister for Climate, Energy and Utilities which applicant should be granted a licence. After submitting the recommendation to the Minister, the matter will be presented to the Danish Parliament's Climate, Energy and Utilities Committee, cf. section 23(8) of the Subsoil Act, which will have an opportunity to comment on the recommendation. The Minister will present the recommendation. The committee's deliberations are subject to confidentiality pursuant to the Subsoil Act.

After the deadline for comments from the Climate, Energy and Utilities Committee, the Minister will officially grant a licence to the winning applicant. The licence is expected to be awarded in the first half of 2025. At the same time, any other applicants will be notified that they will not be granted a licence. This notification of rejection of an application for a licence is considered a decision, and for this reason it is covered by the appeal provisions of the Subsoil Act, cf. sections 37a and 37b of the Subsoil Act.

10. Appendices

- Appendix 1 – Executive Order no. 1067 of 27/09/2024 regarding an area near Thorning that is open for the award of a licence for the exploration and storage of carbon dioxide
- Appendix 2 – Map of the tendered area
- Appendix 3 – Documentation requirements for the application
- Appendix 4 – Model guarantee
- Appendix 5.1 – CO_2 storage model Joint Operating Agreement

- Appendix 5.2 – Model accounting procedure for the Joint Operating Agreement
- Appendix 6 – Model Licence for CO_2 storage
- Appendix 7 – Consultation note for the strategic environmental assessment of the plan for the tendering of licences for CO_2 storage
- Appendix 8 - Information forms