



Information meeting:

Process to apply for licenses for exploration and storage of CO₂ onshore in Denmark

Henrik Sulsbrück,
Head of CCS office, Danish Energy Agency

13. December 2023



Danish Energy Agency

Denmark's 2nd licensing round: first full-scale onshore licenses for exploration and storage of CO₂

First in Europe



Picture: 2nd moon landing for Danish CO₂-storage.

Content

- Intro
- License area and process
- Framework and requirements
- Contact info and relevant links
- Questions

Disclaimer:

The information presented may be subject to change and additional information, other than what is presented in this slide deck, will be required. The published material in Danish at the DEA's web-site is the official material.



The Danish CCS strategy (2021)

Supported by a broad majority in the Danish Parliament

- CCS will be used to reduce emissions from hard-to-abate sectors and contribute with negative emissions
- Support for CCS will not lead to a reduction in ambition to support energy saving policies, renewable energies and other sustainable low carbon technologies
- Storage of CO₂ in Denmark must be environmentally sound and safe – and not be used for Enhanced Oil Recovery (EOR)
- Prioritize the development of full scale CCS-value chain in Denmark
- Enable full scale CO₂-storage in Denmark and import/export of CO₂ with the aim of developing Denmark into a European hub for CO₂ storage

New political agreement September 20th 2023

Aftale om styrkede rammevilkår for CCS i Danmark

*Klimahandling - Vejen til fuld fangst og lagring af CO₂ i
2030*

20. september 2023

Aftale mellem

Regeringen (Socialdemokratiet, Venstre og Moderaterne), Socialistisk Folkeparti, Liberal Alliance, Det Konservative Folkeparti, Enhedslisten, Radikale Venstre, Dansk Folkeparti og Alternativet

Strategic environmental assessment (SEA)

- Based on GEUS' initial screening for geological CO₂-storage potential and local municipality initial support, 8 areas have undergone a strategic environmental assessment (SEA)
 - › Including Espoo convention process
- The SEA identifies risks and concludes that the plan (tender) will not lead to significant, negative impact on the environment
- However the SEA also identified a risk of significant negative impact on public mental health in regards to sense of security
- Activities in the exploration phase and the specific storage projects, drilling etc. will have to undergo either an environmental and habitat screening or a full environmental assessment (EIA)

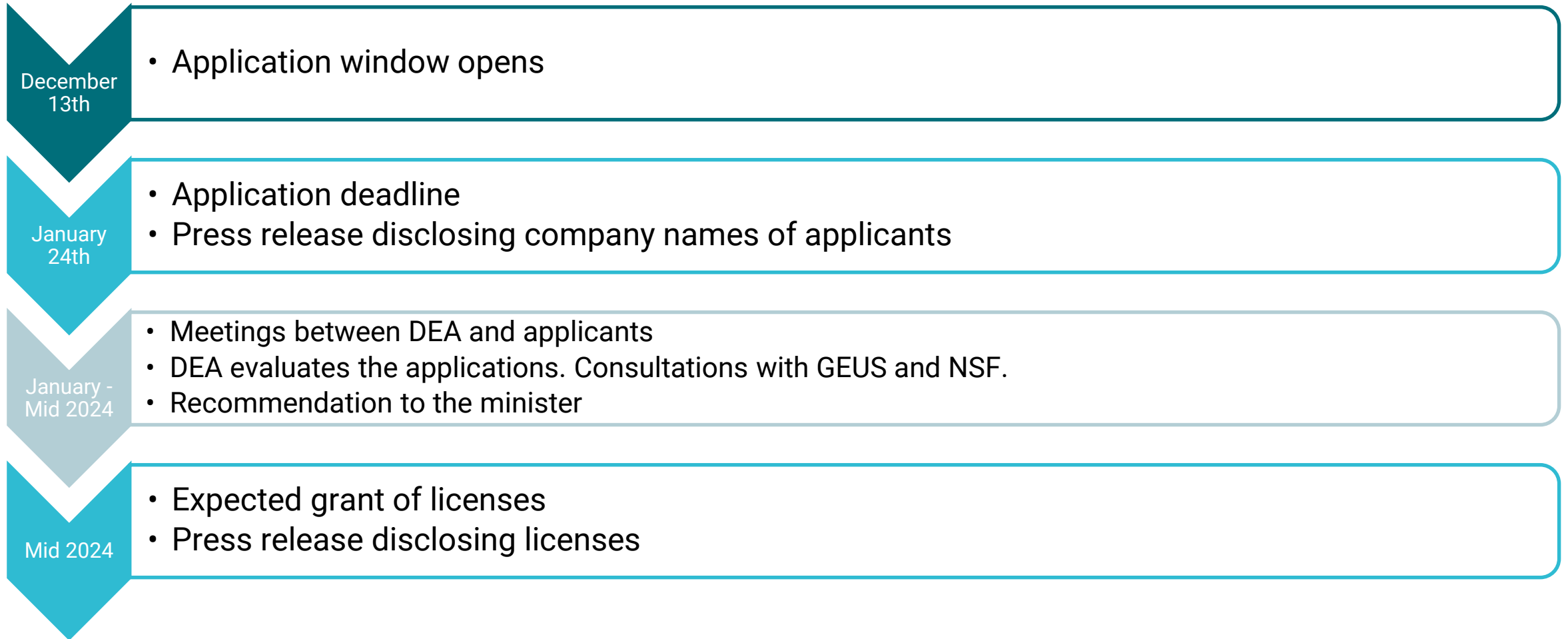


License area

- Based on the SEA process, 5 onshore areas can be licensed out for the upcoming round
- Nearshore areas awaiting the maritime spatial plan
- Havnsø area limited offshore because of HELCOM



Application process

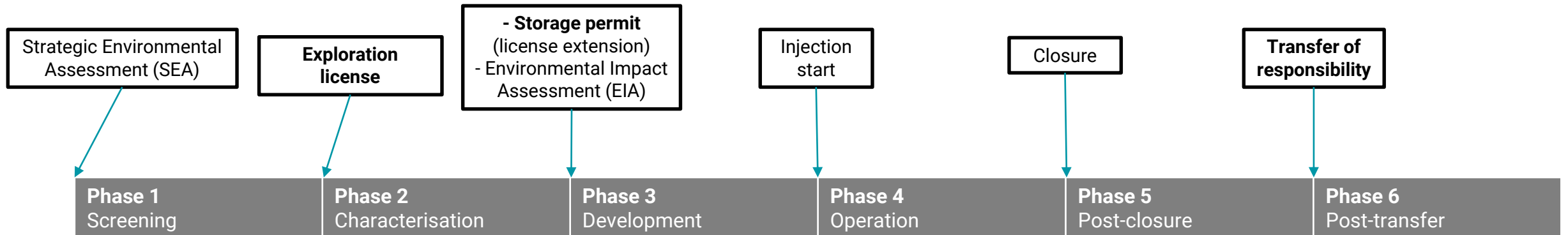


Conditions for the CO₂-storage license

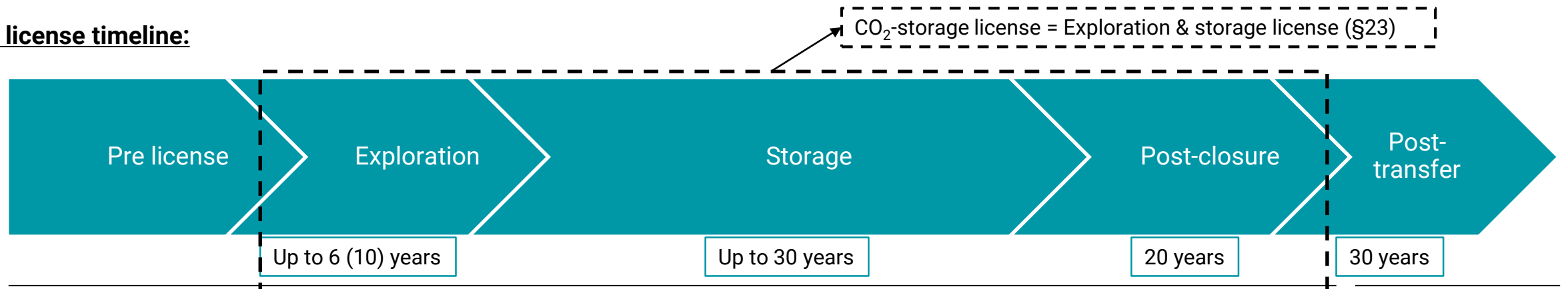
- License with exclusive right of exploration and storage for CO₂ in accordance with the Danish Subsoil Act § 23
- Implements the EU CCS directive and the Danish CCS Executive Order
- License is based on the model license and the model guarantee
- A Joint Operating Agreement (JOA) must be agreed between participating parties in a license after award. The DEA is updating the model JOA.
- Nordsøfonden will participate on behalf of the Danish state with a 20% share

CO₂-storage license roadmap & milestones

Milestones and CO₂-storage project life-cycle phases (based on ISO):



DEA license timeline:



CO₂-storage license roadmap

Overview of the three main phases for a licensee

CO₂-storage license = Exploration & storage license (§23)

1. Pre-license

Application requirements:

- Financial capacity
- Technical capacity
- Suggested work program
- Documentation requirements

2. Exploration phase

- Work program implementation
- Status reports and meetings
- Milestones and decision points of relinquishing area(s) or not
- Exploration phase concluding report → determination of suitability for CO₂-storage
- License extension → Storage permit application

3. Storage phase

- Development phase
 - Design and execution
- Operational phase
 - Injection
 - Monitoring
- Post-closure phase

Documentation requirements 1/2

- General information
- Budget and financial capacity
 - › The latest 3 annual reports from the applicant(s)
 - › Organisation chart (group)
 - › Transparent detailed budget information in regards to the phases of the project
 - › A description on how the different phases of the project will be financed
- Technical capacity
 - › Knowledge and previous CO₂-storage experience and technical expertise in regards to the activities in question
 - › A description of the geological knowledge at the time of application
 - › Existing data base and planned data acquisition

Documentation requirements 2/2

- Documentation of the area
 - › Map of the applied area
 - › Geological/geophysical maps and well data
 - › Initial screening of the CO₂-storage project
 - Preliminary:
 - Risk management of the project
 - Storage site, storage complex and hydraulic unit characterization
 - MMV plans
- Work program
 - › Clear and concise description of the exploration activities offered with milestones
 - › Clear distinction between firm and contingent activities
 - › Template work program summary

→ Documentation should follow industry standards such as EU Guidance Documents, ISO 27914 and DNV-RP-J203.

Evaluation criterias

Data collection/work program

- Amount and type of data
- Greater understanding of the Danish subsoil
- Realisation of CO₂ storage potentials
- Firm/contingent

Provability of storage potentials in the area applied for

- CO₂-storage potential
- Understanding of geological uncertainties and containment

Time table

- Duration of the exploration work and milestone
- Assessment of realistic timelines

New conditions for the onshore licenses

- Pre-defined areas
- Public involvement
- Social clauses
- Differentiated subsoil and surface designation for certain areas
- The DEA may set down requirements that GEUS will carry out some of the baseline studies
- Fees to pay for an evt. extension of license/storage permit: finance costs incurred by the State for the validation of the licensed areas
- The Danish Energy Agency will require reimbursement for processing applications

More information & contact details

Read more:

- [Danish Energy Agency CCS homepage](#) (English)

The application must be sent to ccs-lagring@ens.dk by 24th of January 2024.

For very large files, the DEA will provide a direct link to an FTP-solution ("Filkassen") upon request to ccs-lagring@ens.dk

Contact details:

DEA's CO₂-storage team
ccs-lagring@ens.dk



Thanks for coming

