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GUIDELINES ON TECHNICAL CAPACITY CONCERNING THE USE AND EXPLOITATION OF THE DANISH SUBSOIL

Contents

NOTE: This translation is provided for convenience only, and in the event of any conflict between the wording of the Danish and English versions, the wording of the Danish version shall prevail in all respects.

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Introduction

These guidelines describe the rules and regulations applying to the assessment of the technical capacity of applicants for licences or approvals under the Act on the Use of the Danish Subsoil (the “Subsoil Act”) and provide detailed information on how to comply with the rules and regulations. The intention of these guidelines is to provide an overview of the information the Danish Energy Agency may request in order for the Agency to be able to assess the technical capacity of an applicant or a licensee. Decisions by the Danish Energy Agency will always be made on the basis of a specific assessment. The document is provided for guidance purposes and cannot embrace all cases. The guidelines are directed at applicants for new licences as well existing licensees.

1 Regulatory framework

The guidelines relate to the Act on the Use of the Danish Subsoil (the "Subsoil Act"), see Consolidated Act no. 960 of 13 September 2011, as amended by Act no. 535 of 29 April 2015 and Act no. 427 of 18 May 2016. The amending act no. 535 of 29 April 2015, which implemented parts of the Offshore Safety Directive, also introduced statutory requirements for financial and technical capacity etc. for licences granted under sections 3, 5, 17, 23 or of the Subsoil Act; that is, licences to carry out preliminary investigations (section 3), exclusive licences for exploration and production (section 5), licences for establishment and operation of pipelines (section 17), licences for subsoil storage (section 23) and licences to carry out scientific investigations (section 24). Article 4 of the Offshore Safety Directive provides that holders of licences for exploration and production of hydrocarbons must have their financial and technical capacity assessed in relation to each phase of offshore oil and gas operations.

The objective of the Offshore Safety Directive is to prevent major accidents in connection with offshore oil and gas operations and to limit the consequences to persons and marine environment of any such accident. The statutory requirement for financial and technical capacity of holders of licences granted under sections 3, 5, 17, 23 and 24 of the Subsoil Act was introduced in relation to holders of all licences, including onshore licences and licences for other activities than exploration and production of hydrocarbons or geothermal energy. The background is that any harmful effects of onshore activities, e.g. subsoil drilling and storage, may be just as comprehensive and serious as the harmful effects of offshore activities. It is also important to ensure that a licensee has capacity to decommission onshore as well as offshore installations.

The statutory requirement for the financial and technical capacity of holders of licences granted under sections 3, 5, 17, 23 and 24 is also intended to ensure that the activities are carried out in a manner providing as much benefit to society as possible, and that resources are used in a proper manner, see section 24a(1) and (2) of the Subsoil Act.

The Offshore Safety Directive is implemented in sections 24a – 24d of the Subsoil Act. This amendment ensured that the holder of a licence would be required to demonstrate, at certain points during the life of the licence, that it had the necessary financial and technical capacity. This includes providing documentation when moving on to a new work obligation, before approval of exploration or appraisal drilling under section 28 or a plan for production activity under sections 10 and 17, and before implementation of a decommissioning plan for production and conveyance installations under section 32a.

The Danish Energy Agency may at any time request a licensee to demonstrate that it has the requisite financial and technical capacity, see section 24c. This may be relevant, for example, in the case of changes or expected changes in terms of organisational, personnel or financial aspects for one or more participants in a licence. Aspects relating to proposed or completed activities may also give rise to a need for supplementary documentation. The licensee is responsible for providing the authorities with the relevant documentation, see section 24b.

2 When is technical capacity assessed

The requirements for the technical capacity within geology, geophysics, geochemistry, drilling technology, reservoir management, production technology, facilities, pipes, conveyance, environment, safety, health, etc., depend on the obligations under the specific licence and will differ depending on the phases of a licence. The assessment of the technical capacity must always be seen in relation to the specific activities to be carried out under the licence.

The Danish Energy Agency will assess the technical capacity as follows:

i. When granting a licence under sections 3, 5, 17, 23 or 24.
ii. Before transition to a new phase of a phased work obligations programme, see section 24 b.
iii. Before approval of exploration or appraisal drilling under section 28.
iv. Before approval of, and in the case of material changes to, a plan for production activities under sections 10 and 17.
v. Before implementation of a plan for the decommissioning of production and conveyance installations, see section 32a.
vi. Regular evaluation of licensee to establish whether it has the requisite technical capacity to carry out the licensed activities, see section 24c.
vii. When an operator is appointed under section 24d.
viii. When a licence is assigned under section 29(2).

3 Consequences of lack of technical capacity

An direct consequence of insufficient technical capacity will be that the activity in the next phase of the work obligation programme cannot be initiated, see the provisions of section 24(2) of the Subsoil Act. In that case, the licensee may upon application be granted a respite of up to 3 months to remedy the situation. In exceptional cases and upon application, the respite may be extended for a short period – by a few more months.

However, the Danish Energy Agency may grant a permission for certain activities to be carried out, see section 24b(3), where the Agency finds that the licensee has the requisite technical capacity. If the requirements for technical capacity are not satisfied, and the licence is ultimately withdrawn, see section 30 of the Subsoil Act, the licence stipulates the extent to which the licensee's obligations remain in force after such withdrawal. In this connection, see section 32 of the Subsoil Act.

Regardless of the identify or number of participants in the licence, the licensee as such is responsible for satisfying the requirement for requisite technical capacity.

4 Criteria of technical capacity for licensee, operator and participant (non-operator)

The technical capacity of a licensee must be sufficient for the activities and operations under the specific work programme of the specific licence to be carried out. The technical capacity must be sufficient for the business to be conducted in a proper manner in terms of the use of resources, and for unforeseen incidents to be handled in a safe and secure manner. This implies that the licensee must be able to prevent and reduce the risk of incidents giving rise to financial loss (loss or reduction of production) or causing harm or damage to installations with environmental consequences.

For most licences granted under the Subsoil Act, an operator will have been appointed to carry out the licensed activities on behalf of the licensee.

An operator must provide documentation of sufficient technical capacity to carry out the activities and operations under the specific work programme of the specific licence. The technical capacity must be sufficient for the business to be conducted in a proper manner in terms of the use of resources, and for unforeseen incidents to be handled in a safe and secure manner. This implies that the operator must be able to prevent and reduce the risk of incidents giving rise to financial loss (loss or reduction of production) or causing harm or damage to installations with environmental consequences.
A participant (non-operator) must provide documentation of sufficient technical capacity to follow, evaluate and act on current issues concerning the licence.

If the operator no longer has the capacity to meet all relevant requirements, and if a decision to that effect has been made, the operator's obligations will be imposed on the licensee, and the licensee must propose a new operator without delay, see section 24d(5). In case of disagreement among the companies licensed to explore and produce hydrocarbons and geothermal energy as to the choice of operator, the Danish Energy Agency reserves the right to appoint the operator according to the qualifications of the possible candidates, see sections 12a(6) and 18b(6). The supervisory authority under the Offshore Safety Act (the Danish Working Environment Authority) will be consulted before the appointment of an operator for a hydrocarbon licence.

5 Documentation for the assessment of technical capacity

In order to enable the Danish Energy Agency to assess the technical capacity of the licensee, relevant information about the licensee in relation to the specific work programme, the company's role and the current activities must be presented.

The Danish Energy Agency may request submission of documentation as listed below. The list is not exhaustive and depends on the type of licence and will be subject to a specific assessment in each case.

A. Documentation of the number – if any – of corresponding projects the licensee is carrying out and has previously carried out, and a description of the licensee's experience of such projects, including the control of emergency situations.

B. Documentation of the licensee's management structure, allocation of responsibility, organisation and management systems applied.

C. Documentation of the number of technical personnel and their organisation as well as an overview of their professional skills and experience.

D. Documentation describing the requirements for professional skills to be satisfied in order to carry out the specific work programme.

E. Documentation specifying the personnel to be deployed or proposed to be deployed for the specific work programme.

F. Documentation by way of technical procedures and manuals that are relevant in relation to the specific work programme.

G. Documentation to the effect that the licensee has the necessary technical capacity to ensure a subsequent remediation for the current activity.

The licensee must ensure and be able to demonstrate that technical capacity is available at any time in the individual functions holding the professional skills as described. External professional assistance may be used but must be described in the documentation. Arrangements should be made by documentable agreement and in reasonable time before the activity, to rely on external professional assistance with the requisite technical capacity to fill the functions, where such capacity is not available within the licensee's organisation.

All figures presented to the Danish Energy Agency must be readable and must be accompanied by an explanatory text. Detailed figures such as organograms, maps,

profiles, diagrams, tables, etc., should also be submitted in separate files, e.g. in PDF format, excel format, or the like, for optimum readability.

6 Remarks on technical capacity

7.1. Preliminary investigations

Licences for preliminary investigations are granted on the basis of section 3 of the Subsoil Act.
It is a common feature of all preliminary investigations to acquire new data from the Danish subsoil. A business applying for a licence for preliminary investigations must demonstrate sufficient technical capacity and a high professional level within the preliminary investigation applied for, for risk assessments of the preliminary investigation data, information and technical risks.
For more information, see the guidelines on preliminary investigations on the Danish Energy Agency website at https://ens.dk.

7.2. Exploration and production of hydrocarbons

Licences for exploration and production of hydrocarbons are granted on the basis of section 5 of the Subsoil Act.

Licences under section 5 for exploration and production of hydrocarbons are granted subject to the provisions of section 12(1)(a)-(d). Licences will be granted according to selection criteria concerning

a) the applicant's financial and technical capacity
b) the exploration works proposed by the applicants, or the way in which the applicants intend to carry out production in the area in question.

Moreover, additional conditions may apply.

Licences to explore and produce hydrocarbons are often divided into phases. Various technical disciplines are expected to be represented to different degrees during the course of a licence.

- Within the areas of geology and geophysics, disciplines like research and development, understanding of Denmark's geology and research history, technical and economic project management, seismic interpretation, geological and geophysical modelling, play analysis, and uncertainty and risk assessments are cases in point.
- Within reservoir technology, disciplines like research and development, technical and economic project management, reservoir simulation, oil and gas production, production management, technology within increased recovery (IOR technology), and uncertainty and risk assessments are cases in point.
- Within the area of technology, research and development, drilling and well technology, field development and production technology, project and costing management, development of tail production, HPHT development,

development of marginal production, permanent and mobile installation technology, pipeline and transport systems and decommissioning are examples of such disciplines.

- Within health, environment and safety, disciplines like organisation of activities, management systems, overall corporate strategy and objectives concerning health, environment and safety, handling of major accidents, monitoring of activities and evaluation of environmental consequences are cases in point.

7.3. Exploration and production of geothermal energy

Licences to explore and produce geothermal energy are granted on the basis of section 5 of the Subsoil Act.

A business applying for a licence to explore and produce geothermal energy must demonstrate sufficient technical capacity within geothermal energy, for risk assessments of data, information and technical risks. If the geothermal project is divided into phases, documentation of the technical capacity is required in relation to the current phase.

In addition, reference is made to guidelines on a strategic approach to geothermal projects. The guidelines are available on the Danish Energy Agency website at https://ens.dk

7.4. Exploration and production of raw materials (exclusive of hydrocarbons)

Licences for exploration and production of raw materials (exclusive of hydrocarbons) are granted on the basis of section 5 of the Subsoil Act.
A business applying for a licence to explore and produce raw materials must demonstrate sufficient technical capacity within the type of raw material applied for, for risk assessments of data, information and technical risks. If the project is divided into phases, documentation of the technical capacity is required in relation to the current phase.

7.5. Establishment and operation of pipeline installations

Licences for the establishment and operation of pipeline installations are granted on the basis of section 17 of the Subsoil Act. The technical capacity of the business must be demonstrated before a licence is granted to establish and put into operation pipeline installations in connection with hydrocarbon production. If the project is divided into phases, documentation of the technical capacity is required in relation to the current phase.

7.6. Exploration and use of subsoil for storage or other purposes

Licences for exploration and use of subsoil for storage or other purposes are granted on the basis of section 23 of the Subsoil Act.
A business applying for a licence to use the subsoil for storage or other purposes must demonstrate sufficient technical capacity within the specific type of storage or other purpose, for risk assessments of data, information and technical risks. If the project is divided into phases, documentation of the technical capacity is required in relation to the current phase.

7.7. Scientific investigations

Licences for scientific investigations are granted on the basis of section 24 of the Subsoil Act.
A business applying for a licence for scientific investigations must demonstrate sufficient technical capacity within the specific type of scientific investigations, for risk assessments of data, information and technical risks. In order to be granted a licence, the applicant must be able to carry out the scientific investigation at a high professional level, taking into account considerations of safety as well as resources.

Annex 1 Typical phases of a work programme

A licence is often divided into phases. Here follows a list of typical examples of activities in phased licences. The work programme depends on the type of licence. Thus, the list is not exhaustive.

Phase 1: Exploration phase – processing of existing data	Processing of existing data. Typical ”desk work”, e.g. data processing and interpretation of existing data.
Phase 2: Exploration phase – seismic and other preliminary investigations	Planning, collection and evaluation of new data, e.g. seismicity, gravimetrics, magnetics, SEM, geochemical tests, etc.
Phase 3: Exploration phase – with drilling	Planning, execution and evaluation of exploration and appraisal wells.
Phase 4: Development phase – including establishment of production wells	Planning and execution of development including production wells and, if relevant, injection wells.
Phase 5: Production phase	Operation and control of production processes, establishment of production facilities and export systems, collection and interpretation of production data, reduction of waste of resources (e.g. by energy consumption and flaring) and maintenance of wells, reservoir and equipment. Planning and execution of additional production and injection wells, if relevant.
Phase 6: Decommissioning phase	Closure of production, planning and closure of wells, clean-up and removal of facilities and pipelines, subsequent monitoring and follow-up.