

## Section 32a: Guidelines on decommissioning plans for offshore oil and gas facilities or installations

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**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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## 1 Introduction

Section 32a of the Subsoil Act provides that any application for approval under sections 10, 17, 23 or 28 of the Act must be accompanied by a plan for the decommissioning of the installations covered by the application. For developments already approved and in operation, corresponding plans must be submitted on or before 19 July 2018.

Decommissioning plans must be submitted to and be approved by the Danish Energy Agency (the "DEA"), which will consult the relevant Danish authorities in the course of the approval procedure. The objective of these guidelines is to describe to licensees the requirements stipulated by the DEA for the contents of decommissioning plans and the framework applying to the submission and approval of the plans. The guidelines are not exhaustive, however, and must be applied in combination with other guidelines, e.g. Guidelines for Drilling (DEA 2018), Guidelines on security and insurances (DEA 2018) and Guidelines on Technical Capacity (DEA 2018).

Section 32a covers all installations having as their object the exploitation of subsoil resources and applying to onshore as well as offshore developments. The current edition of the guidelines is concerned with the decommissioning of offshore oil and gas installations, however. Corresponding guidelines adapted for onshore developments (gas storage, geothermics and other exploitation of the subsoil) are being drawn up.

## 2 Regulatory framework and roles of public authorities

The decommissioning of offshore installations is subject to IMO Resolution A.672 and OSPAR Decision 98/3. In the Danish part of the North Sea and for the existing Danish offshore installations, compliance with the OSPAR Convention will also imply that the requirements of the IMO Resolution have been satisfied.

Section 32a was added to the Subsoil Act in connection with the Offshore Safety Directive (by amending act no. 535 of 29 April 2015). Apart from describing the installations to be decommissioned, and the way in which such decommissioning is to be carried out, decommissioning plans must also provide a calculation of the expected costs of implementing the decommissioning plan and describe how and when it is to be ensured that the necessary funds for the implementation of the decommissioning plan are available.

Licensees are responsible for ensuring that the implementation of decommissioning is in compliance with the JOAs, Danish legislation and international obligations applying to the relevant activities in the relevant area, including international, national and regional legislation concerning environmental protection, disposal of waste, working environment, transportation in Danish waters or across borders, etc. These guidelines do not provide an exhaustive or accurate description of the legal framework of decommissioning activities.

Table 1 shows an example of the principal activities during a decommissioning project, with the exception of the activities affecting the onshore disposal of waste and other matter. The DEA approves all decommissioning plans subject to the involvement of (consultation with) the relevant enforcing and/or regulatory authorities. Table 1 provides simplified and inconclusive examples of the authorities to be involved prior to any approval of decommissioning plans.

Activity		Authority consulted (offshore-activity)
Decommissioning project	<b>Organisation and planning</b>	establishment of organisation and technical capacity statement of installations to be decommissioned inspections and feasibility studies selection of decommissioning methods work and time schedule procurement/tender
	<b>Costs</b>	cost estimates security provision method
	<b>Environment</b>	EIA report on decommissioning <i>Comparative assessments</i> waste disposal strategy
	<b>Well closure</b>	closure, insulation plugging, integrity test cutting of guiding pipe/well equipment remediation of drilling site
	<b>Termination of operation</b>	closure, pressure control insulation and safeguarding clean-up
	<b>Decommissioning of onshore/offshore installations</b>	clean-up dismantling/demolition and removal transport
	<b>Decommissioning of subsea installations</b>	clean-up dismantling /demolition and removal transport
	<b>Decommissioning of pipelines</b>	clean-up and closure/plugging removal of joints/valve stations covering/filling transport
	<b>Remediation of installation areas</b>	clear-up covering/filling waste disposal
	<b>Environmental monitoring of installation areas</b>	monitoring programme
	<b>Completion of decommissioning project</b>	statement of installations left in place statement of volumes of waste used statement of total costs financial decommissioning report

Table 1: Example of activities associated with planning, preparation and execution of a decommissioning project (except for onshore waste disposal) and the authorities involved in the approval procedure for decommissioning plans.

### 3 General framework for decommissioning plans

The following applies to all developments relating to the exploitation of the Danish subsoil which have been approved under sections 10, 17, 23 or 28 of the Subsoil Act:

- a) Decommissioning plans must at all times be in accordance with applicable Danish legislation and international obligations and must comply with the guidelines issued by the DEA.
- b) When approving decommissioning plans, the DEA may require decommissioning plans to be updated at least every 5 years so as to reflect any changes to decommissioning methods, e.g. due to changed technical, legal or financial conditions.
- c) Financial conditions in relation to decommissioning plans must be updated and submitted to the DEA once a year, see section 4, below.
- d) When approving decommissioning plans, the DEA may require an application for a section 28 approval of the final decommissioning project to be submitted no later than 2 years before the intended implementation of the decommissioning, including descriptions of the selected decommissioning methods and associated environmental assessments (environmental impact report), in time for the DEA to finalise the application (consultations and hearings) before the intended commencement of decommissioning. The DEA points out that decommissioning must begin no later than 3 years after the date of the DEA's decision to approve the decommissioning project, see section 39 of the Environmental Assessment Act (consolidation act no. 448 of 10 May 2017).
- e) Derogations from legislation and international obligations (e.g. the OSPAR Decision 98/3) will be considered from 5 years before the expected commencement of decommissioning at the earliest, corresponding to the period when the decommissioning plans are finalised and agreed by the licensees. Until that point, decommissioning plans cannot assume or be based on derogations from section 3c of the OSPAR Convention but may be based on an upcoming consideration of derogations for installations listed in Annex I to the OSPAR Convention.
- f) Wells must generally be decommissioned within 3 years from termination of operations, and subsea installations within 5 years of termination of operations. If the decommissioning plans present other timeframes for decommissioning, e.g. due to a campaign-based decommissioning of wells, pipelines and installations, the plan must account for and justify that strategy on technical grounds.
- g) If a few wells, pipelines or parts of processing plant are withdrawn from operation, but the primary function is continued in the remaining part of the development, a programme for the relevant partial decommissioning must be

submitted. The partial decommissioning must be in accordance with the overall decommissioning plan for the whole development.

- h) A decommissioning project will be deemed to be completed when all decommissioning activities and subsequent monitoring programmes have been completed, and when a full financial account of the costs of the decommissioning project is available.
- i) A decommissioning project must always be implemented within the framework of a licence and must generally be completed within 50 years from the grant of the licence as provided by section 5 of the Subsoil Act, unless otherwise directed by special circumstances.
- j) Generally, the DEA may require the licensee or a participant to take necessary measures designed to prevent risk or inconvenience caused by installations etc., see section 37 of the Model Licence. Any expiry, relinquishment, lapsing or revocation of the licence will not relieve the licensee of its obligations pursuant to legislation, the licence or any other provisions, conditions or orders laid down, see section 36 of the Model Licence. Any such requirement by the DEA must be in compliance with the administrative principles of reasonableness and proportionality, etc.

## 4 Economic aspects of decommissioning plans

Decommissioning plans must provide some information on economic aspects, including

- estimates of decommissioning costs;
- estimate of the value of the remaining production under the licence;
- the trigger mechanism indicating how to determine the point at which provision of security is to commence;
- types of security to be provided; and
- relations to former participants in the licences.

**Decommissioning costs:** Once a year, the licensee must prepare the latest estimates of the decommissioning costs for installations covered by the licence. The total estimated costs must be allocated to relevant cost categories (see the section below) facilitating benchmarking of costs across licences. The licensee must account for the assumptions on which the calculations are based.

**The value of the remaining production under the licence.** Once a year, the licensee must report the expected value of an expected remaining production. The licensee must account for the assumptions on which the calculations are based, e.g. by indicating the source included in the oil price assumptions and other assumptions relevant to the calculation of the value of the remaining production.

**The trigger mechanism:** In the decommissioning plan, the licensee must account for the trigger mechanism and the assumptions and conditions included in the mechanism.

**Determination of the trigger point:** On the basis of estimated decommissioning costs and the estimated value of the remaining production, the licensee must carry out an annual determination of the estimated trigger point.

**Security:** The decommissioning plan must provide a description of the way in which the participants in a licence may provide security. If the trigger point has been reached, the licensee must once a year account to the DEA for the type of security provided by each participant in the partnership and state the amount of security provided by the individual participant. In addition, the accumulated security provided under the licence must be accounted for together with a statement of the decommissioning costs for which security remains to be provided by the participants.

**Calculation examples:** To ensure transparency concerning the licensee's practical implementation in terms of providing security, the decommissioning plan must describe the likely progress of security provision in case of a material change of calculation assumptions after the trigger point has been reached, e.g. by the remaining production being written up/down, variations of estimated decommissioning costs, oil price, etc.

**Relations to the DEA and to former participants in the licence:** Once a year, the DEA must be provided with information about calculations and their assumptions, see above. Any changes in assumptions are usually subject to approval by the DEA, see section 32a(7).

The licensee must provide former participants in the licence with updated information about decommissioning costs and estimated trigger point as soon as such information has become available. The information must be provided in sufficient detail for former participants to calculate their potential obligation under the licence and assess when such obligation is likely to be incurred.

## 5 Required contents of decommissioning plans

Decommissioning plans must from time to time describe decommissioning options subject to considerations of best practice, based on the installations in existence at the particular time (and any planned installations), available technologies, prevailing market conditions, and applicable legislation. The plans must describe

the general decommissioning principles and concept and must as far as possible delimit the selected method, assessing the costs on the basis of this instantaneous assessment. Any changes to the decommissioning plans must be reflected in updates at least every 5 years.

However, section 32a implies that licensees must in some cases submit decommissioning plans many years before decommissioning is actually expected to be implemented. In such cases, decommissioning plans may depend on additional assessments to be carried out closer to the time of decommissioning or during the actual decommissioning phase. Therefore, a distinction is made between early decommissioning plans with decommissioning options described in as much detail as possible, and final decommissioning plans with decommissioning methods selected on the basis of completed technology and cost assessments, environmental assessments and sanctions from licensees (the partnership).

Thereby, the DEA will expect the decommissioning plans to become far more detailed during the licence period and will assess submitted decommissioning plans in relation to the current phase of the life of the development.

Table 2 shows an example of the contents of a decommissioning plan. The example is provided by way of guidance but illustrates the descriptions to be included in early decommissioning plans describing decommissioning options, and final decommissioning plans describing selected decommissioning methods, respectively.

<i>Chapter</i>	<i>Section</i>	<i>Decommissioning plan</i>	<i>Final decommissioning plan</i>
<b>1 Summary</b>	introduction and basis of decommissioning	-	X
	overview of decommissioning plan/programme	X	X
	impact of decommissioning on other installations	-	X
	licence-specific aspects (according to JOA)	X	X
<b>2 Installations to be decommissioned</b>	processing installations (topsides)	X	X
	loadbearing structures (jackets/foundations)	X	X
	pipelines, cables, joints/manifolds	X	X
	wells	X	X
	mapping of installations, pipelines, etc.	X	X
<b>3 Decommissioning options/methods</b>	wells	X	X
	topsides	X	X
	loadbearing structures (jackets, foundations, anchoring)	X	X
	pipelines/cables	X	X
	other subsea installations/elements	X	X
<b>4 Environmental assessments</b>	EIA	-	X
	Comparative Assessments	-	X
	statement of installations not removed (in-situ decommissioning)	X	X
<b>5 Decommissioning costs</b>	total decommissioning costs based on UK model	X	X
	annual operating costs during commissioning period	-	X
	determination of time for provision of security	X	-
	method of security provision	X*	X
<b>6 Planning and organisation</b>	project organisation and project control model	-	X
	decommissioning time schedule	X	X
	Interfaces to other decommissioning projects	-	X
<b>7 Approvals</b>	partners, other authorities, notices	-	X
<b>8 Annexes</b>		-	X

\*description of method and calculation model until trigger point; hereafter yearly recalculation of security provided.

Table 2: Example of the contents of a decommissioning plan/programme required for obtaining approval.

## Re 1 – Summary:

Final decommissioning plans must describe the basis of either the expected or the agreed time of decommissioning. The time may be determined by the expiry of the licence period, lack of potential for further production or exploitation, limitations of the structural life of the installations, changes to the revenue basis, etc.

The plans must also describe the current or former interfaces between the installations affected and other relevant developments. The interfaces may include process capacity used by contiguous installations (e.g. export/import of injection water, lifting gas, power) etc. The description of interfaces must be provided in relation to both history and current status.

In addition, decommissioning plans must account for the licensees' obligations under JOAs, Danish legislation and international obligations.

## **Re 2 – Installations to be decommissioned:**

### *Lists of wells, pipelines and installations to be decommissioned*

Lists of installations to be decommissioned must include all installations previously or currently forming part of the development in question, meaning that previously decommissioned installations are to be included in the overall decommissioning plan. Lists must specify the (parts of) installations to be removed, the (parts of) installations being converted to another use or continuing operations as part of another development, and the (parts of) installations to be decommissioned in situ (left in place).

Apart from stating the type of installation and material, surface treatments, weight, dimensions and positions, all lists must also indicate time of installation, operating status until the date of decommissioning, and any previous decommissioning method. The decommissioning plan must include a layout plan showing all installation positions.

### *Lists of materials and chemicals*

Lists of materials for re-use, recycling, depositing, etc., must be quantified and categorised in accordance with the Environmental Protection Agency's instructions for waste management. In addition, the waste management strategy applied throughout the decommissioning project must be accounted for.

## **Re 3 – Decommissioning options/methods:**

The DEA requires all offshore in-situ decommissioning, that is where all or parts of installations are left on the seabed, to be justified by a Comparative Assessment of the selected and the alternative decommissioning methods. This is required for pipelines as well as for the types of installation listed in Annex I to the OSPAR Convention. Methodology and evaluation criteria of a Comparative Assessment are described in Annex II to the OSPAR Convention.

### *Concerning well closures*

Methods of decommissioning of wells are described in the DEA Guidelines for Drilling. The Guidelines require wells closed permanently to be decommissioned within 3 years from closure. If this is not the case, e.g. if a campaign-based closure of several wells is more expedient, a reason for the postponement must be submitted to the DEA.

### *Cutting levels for installations below seabed*

The DEA requires foundations, framework poles or wells to be removed to and/or cut at a level below the seabed. There are no specific requirements as to the depth to which installations must be removed. However, decommissioning plans must state the depth to which installations are removed, and such depths must take into

account specific conditions of the relevant seabed area (such as current conditions, erosion risk and free spans) as well as any other use of the sea territory (fishing industry, other development, etc.).

#### *Decommissioning of pipelines*

Pipelines are not covered by the OSPAR Convention, and a case-by-case evaluation of the decommissioning plan will therefore be carried out for the relevant pipeline and the impact if left in place (in-situ decommissioning) on the environment and/or other use of the area. The DEA requires any in-situ decommissioning of pipelines to be justified by a Comparative Assessment. Subsequently, the DEA may require pipelines to be removed if so warranted by societal, environmental or economic considerations.

#### **Re 4 – Environmental assessments:**

##### *Environmental impact assessment*

An environmental impact report must be approved with the final and detailed decommissioning plan. Until that point, decommissioning plans may be based on a screening of the environmental impact of the decommissioning options that are considered feasible or appropriate, or on the environmental impact report available for the production or operation licence if such licence includes the decommissioning methods.

The requirements for environmental impact reports are set out in the Environmental Assessment Act.

##### *Comparative assessments*

All offshore in-situ decommissioning of installations (installations below water and pipelines) must be justified on the basis of a Comparative Assessment comparing all available decommissioning methods with the one selected. Annex II to the OSPAR Convention describes the criteria to be considered in this assessment, based on but not restricted to the following 5 main criteria:

- Technical complexity
- Safety considerations
- Environmental considerations
- Societal interests
- Economy

For further information on Comparative Assessments, see the OSPAR Convention.

##### *Monitoring programmes after decommissioning*

A decommissioning project will be deemed to be completed when subsequent monitoring programmes have been implemented. The need for and scope of

environmental monitoring will be assessed in connection with the environmental impact report available for the decommissioning.

**Re 5 – Decommissioning costs:**

In order to assess decommissioning costs for decommissioning projects on a fair and uniform basis, costs must be stated in categories corresponding to the cost model used in the UK (see Decommissioning Cost Basis template at <https://www.ogauthority.co.uk/decommissioning/cost-estimate/>), which is summarised in Table 3. Decommissioning plans must generally state the capital costs broken down by those categories. Final and detailed decommissioning plans must also state costs on an annual basis distributed across the whole decommissioning period.

<b>OGA: Decom basis of estimate template, June 2017</b> <a href="https://www.ogauthority.co.uk/decommissioning/cost-estimate/">https://www.ogauthority.co.uk/decommissioning/cost-estimate/</a>
Project Management
Facilities Costs (Post CoP OPEX)
Facilities Making Safe
Wells Abandonment
Topsides Preparation Topsides Removal
Substructure Removal
Subsea Infrastructure
Onshore Recycling
Site Remediation Monitoring

Table 3: Decommissioning cost categories

**Re 6 – Project management and resources:**

The section of the decommissioning plan concerning organisation and control must account for the way in which the requisite technical capacity for the implementation of the decommissioning project is established and organised (see Guidelines on

Technical Capacity). In addition, that section must provide a time schedule for the project, describing how the time schedule for decommissioning of wells, pipelines and topsides will proceed.

## **6 Use of decommissioning data by the DEA**

The DEA will collect the estimated and realised decommissioning costs in a national database. In the long term, this database will facilitate a comparison of decommissioning costs and help the DEA to carry out the necessary evaluation of whether the estimates – and thereby the associated security – are reasonable.

Access to the database will be restricted to the DEA and will not be available to external or international parties.

## 7 Definitions

<p><i>Installations (or development)</i></p>	<p>Installations means facilities and structures etc., including drilling, placed at the site of their use.</p> <p>Installations also include initiated installations, including drilling, being carried out within the licensed area, and pipelines being positioned in the approved tracé.</p> <p>This means installations for production and transportation of oil and gas, i.e. drilling, well platforms, subsea well installations, processing plant and installations for accommodation in connection with such installations and pipelines internally in fields, between several fields, and to the shore, and pipelines for use for production of hydrocarbons from Danish territory and pipelines and preparation plant on the Danish continental shelf for use for production from foreign fields.</p> <p>Installations include pipelines for transportation of oil and gas to the shore and to the first terminal in Denmark or to the border between the Danish continental shelf and a foreign one.</p> <p>Transit pipelines for transportation of gas across Danish shelf is not covered under this definition.</p>
<p><i>Life</i></p>	<p>The period during which a development is expected to operate or be operational. The period is limited by the expiry of the production licence but may be further limited by a lack of remaining resources, by changes to the revenue basis or because the structural condition of the installations does not allow continued operation.</p>
<p><i>Decommissioning</i></p>	<p>Specific activities in connection with decommissioning including termination of operation/closure, clean-up of installations and installation areas, removal of installations, transportation of installations/materials/waste to treatment installations onshore, remediation of installation areas, etc. In this definition, decommissioning does not include planning, studies or analyses carried out before or after the particular decommissioning.</p>
<p><i>In-situ decommissioning</i></p>	<p>Termination of operation of a pipeline or an installation where the structure is emptied, cleaned, insulated and left to disintegrate. The OSPAR Convention restricts the installations that may be left in place offshore.</p>
<p><i>Decommissioning project</i></p>	<p>All activities associated with decommissioning, including planning, feasibility studies, EIA reports, the physical removal of installations, completion of decommissioning and subsequent monitoring of installation areas.</p>