

**Guidelines for plan for development and operation of a petroleum deposit (PDO) and plan for installation and operation of facilities for transport and utilisation of petroleum (PIO). 4 February 2010.**

**CONTENTS**

<b><u>1</u></b>	<b><u>INTRODUCTION</u></b>	<b><u>7</u></b>
1.1	AUTHORITIES' ORGANISATION	7
1.2	DIFFERENCE BETWEEN PDOS AND PIOS	8
1.3	THE SYSTEM FOR PROCESSING PDOS AND PIOS	9
1.3.1	PROJECT PROCESS FOR PDOS/PIOS	9
1.3.2	THE AUTHORITIES' PROCESSING IN THE PLANNING PHASE	9
1.4	IMPACT ASSESSMENT	10
1.5	PROCESSING OF PDOS AND PIOS	10
1.6	PROCESSING TIME FOR DEVELOPMENT PROJECTS BELOW A FIXED CEILING AMOUNT	11
1.7	REQUIREMENT FOR NEW OR AMENDED PDO/PIO	11
1.8	EXEMPTION FROM PDO/PIO	12
1.9	LAND FACILITIES	13
1.10	UNITIZATION AND AREA DEVELOPMENT	14
1.11	IMPORTANT CONTRACTUAL COMMITMENTS	14
1.11.1	PDO	14
1.11.2	PIO	14
1.12	THE NATURE DIVERSITY ACT	15
<b><u>2</u></b>	<b><u>DOCUMENTATION AT MILESTONES PRIOR TO SUBMISSION OF PDOS/PIOS</u></b>	<b><u>15</u></b>
2.1	SPECIAL REQUIREMENTS FOR FIELDS THAT REQUIRE NEW TRANSPORT AND/OR TREATMENT CAPACITY FOR GAS	18
2.2	DOCUMENTATION IN CONNECTION WITH A DECISION TO CONTINUE (BOV)	19
2.2.1	DESCRIPTION OF FACILITIES AND CONCEPT EVALUATION	19
2.2.2	ELEMENTS THAT SHOULD BE MENTIONED IN BOTH THE DEVELOPMENT SECTION AND THE INSTALLATION SECTION	20
2.2.3	ELEMENTS THAT SHOULD BE MENTIONED IN THE INSTALLATION SECTION IN PARTICULAR	21
2.2.4	PRODUCTION STRATEGY AND DEVELOPMENT SOLUTION	21
2.3	OTHER DECISION CRITERIA FOR SAFEGUARDING HSE	21
<b><u>3</u></b>	<b><u>GUIDELINES TO IMPACT ASSESSMENT SECTION OF PDOS/PIOS</u></b>	<b><u>22</u></b>
3.1	INTRODUCTION	22
3.2	PURPOSE	22
3.3	LEGAL BASIS	23
3.4	POSSIBILITY OF OBTAINING AN EXEMPTION FROM THE IMPACT ASSESSMENT REQUIREMENT	23
3.5	STUDY OBLIGATION COVERED BY EXISTING IMPACT ASSESSMENTS	24
3.6	RELATIONSHIP BETWEEN REGIONAL AND FIELD-SPECIFIC IMPACT ASSESSMENTS	24

3.6.1	USE OF REGIONAL ASSESSMENTS IN CONNECTION WITH NEW FIELD DEVELOPMENTS	25
<b>3.7</b>	<b>PROCESS ASSOCIATED WITH IMPACT ASSESSMENTS</b>	<b>25</b>
3.7.1	WHEN SHOULD THE IMPACT ASSESSMENT WORK START?	25
3.7.2	PROCESS FOR STUDY PROGRAMME AND IMPACT ASSESSMENT	26
<b>3.8</b>	<b>CONTENTS OF THE STUDY PROGRAMME AND IMPACT ASSESSMENT</b>	<b>30</b>
3.8.1	FIELD-SPECIFIC IMPACT ASSESSMENTS	30
3.8.2	REGIONAL IMPACT ASSESSMENTS	35
<b>3.9</b>	<b>IMPACT ASSESSMENTS IN CONNECTION WITH TRANSBOUNDARY ENVIRONMENTAL EFFECTS</b>	<b>36</b>
3.9.1	PROJECTS IN NORWAY WHERE THERE IS RISK OF SUBSTANTIAL TRANSBOUNDARY ENVIRONMENTAL EFFECTS	36
<b>3.10</b>	<b>OTHER LEGISLATION</b>	<b>37</b>
3.10.1	PARTS OF FACILITIES THAT ARE COVERED BY BOTH THE PETROLEUM ACT AND THE PLANNING AND BUILDING ACT	37
3.10.2	PARTS OF THE FACILITIES THAT ARE COVERED BY BOTH THE PETROLEUM ACT AND THE HARBOURS AND FAIRWAYS ACT	38
3.10.3	PARTS OF THE FACILITIES THAT ARE COVERED BY BOTH THE PETROLEUM ACT AND THE ENERGY ACT	38
3.10.4	OTHER LEGISLATION THAT MAY BE RELEVANT	39
<b>4</b>	<b><u>GUIDELINES TO DEVELOPMENT SECTION OF PDO</u></b>	<b>40</b>
<b>4.1</b>	<b>INTRODUCTION</b>	<b>40</b>
<b>4.2</b>	<b>DESCRIPTION OF THE PRODUCTION LICENCE</b>	<b>40</b>
<b>4.3</b>	<b>UNITIZATION OF PETROLEUM ACTIVITIES</b>	<b>40</b>
<b>4.4</b>	<b>CONTRACT STRATEGY</b>	<b>41</b>
<b>4.5</b>	<b>USE OF FACILITIES OWNED BY OTHERS</b>	<b>41</b>
4.5.1	POSSIBILITY OF FUTURE TIE-IN OF OTHER DEPOSITS	42
<b>4.6</b>	<b>DESCRIPTION OF THE SCOPE OF THE DEVELOPMENT</b>	<b>42</b>
4.6.1	RELATIONSHIP BETWEEN THE SIZE OF THE DEVELOPMENT AND PDO DOCUMENTATION	42
<b>4.7</b>	<b>RESERVOIR FACTORS</b>	<b>43</b>
4.7.1	GEOTECHNICAL ASSESSMENT	43
4.7.2	RESERVOIR TECHNOLOGY	44
<b>4.8</b>	<b>PRODUCTION STRATEGY</b>	<b>45</b>
<b>4.9</b>	<b>DEVELOPMENT SOLUTIONS</b>	<b>45</b>
<b>4.10</b>	<b>DESCRIPTION OF FACILITIES AND CONCEPT EVALUATION</b>	<b>45</b>
<b>4.11</b>	<b>TECHNICAL DESCRIPTION OF FACILITIES</b>	<b>46</b>
4.11.1	SPECIAL INFORMATION ABOUT LOAD-BEARING STRUCTURES, DECK ARRANGEMENT AND SUBSEA FACILITIES	46
4.11.2	SPECIAL INFORMATION ABOUT PROCESS AND SUPPORT FACILITIES	46
4.11.3	SPECIAL INFORMATION ABOUT ACCOMMODATIONS CAPACITY	47
4.11.4	SPECIAL INFORMATION ABOUT TRANSPORT SYSTEMS	47
4.11.5	SPECIAL INFORMATION ABOUT METERING SYSTEMS	48
<b>4.12</b>	<b>COSTS IN THE DEVELOPMENT PHASE</b>	<b>48</b>
<b>4.13</b>	<b>ORGANIZATION AND EXECUTION</b>	<b>48</b>
4.13.1	PLANNED SCHEDULE AND ACTIVITY PLANS	49
4.13.2	ORGANIZATION	49
<b>4.14</b>	<b>OPERATIONS AND MAINTENANCE</b>	<b>49</b>
4.14.1	PRODUCTION AND RESERVOIR MONITORING	49
<b>4.15</b>	<b>MAIN PLAN FOR DRILLING AND WELL ACTIVITY</b>	<b>50</b>

<b>4.16</b>	<b>DISPOSAL OF FACILITIES</b>	<b>50</b>
<b>4.17</b>	<b>FINANCIAL ANALYSES</b>	<b>50</b>
4.17.1	ASSUMPTIONS	51
4.17.2	RESULTS	51
4.17.3	FINANCIAL RISK ASSESSMENTS	52
4.17.4	OPTIMIZATION OF DEVELOPMENT AND OPERATION	52
4.17.5	GAS FOR INJECTION PURPOSES	52
<b>4.18</b>	<b>NAMING OF FIELDS AND DESIGNATION OF FACILITIES</b>	<b>52</b>
<b>5</b>	<b><u>GUIDELINES TO INSTALLATION SECTION OF PIO</u></b>	<b><u>53</u></b>
<b>5.1</b>	<b>INTRODUCTION</b>	<b>53</b>
5.1.1	RELATIONSHIP BETWEEN THE SIZE OF THE DEVELOPMENT AND THE PIO DOCUMENTATION	53
<b>5.2</b>	<b>DESCRIPTION OF THE PROJECT</b>	<b>53</b>
<b>5.3</b>	<b>CONTRACT STRATEGY</b>	<b>53</b>
<b>5.4</b>	<b>DEVELOPMENT SOLUTIONS</b>	<b>53</b>
<b>5.5</b>	<b>DESCRIPTION OF FACILITY AND CONCEPT EVALUATION</b>	<b>54</b>
<b>5.6</b>	<b>STAGED DEVELOPMENT</b>	<b>54</b>
<b>5.7</b>	<b>TIE-IN OF THE DEVELOPMENT TO OTHER FIELDS OR FACILITIES</b>	<b>54</b>
<b>5.8</b>	<b>POSSIBILITY OF TIE-IN TO THE DEVELOPMENT FROM OTHER FIELDS AND/OR PIPELINES</b>	<b>55</b>
5.8.1	POSSIBILITIES FOR THIRD-PARTY USE OF FACILITIES	55
<b>5.9</b>	<b>TECHNICAL DESCRIPTION OF FACILITIES</b>	<b>56</b>
5.9.1	SPECIAL INFORMATION ABOUT LOAD-BEARING STRUCTURES, SUBSEA FACILITIES AND SYSTEM DESIGN	56
5.9.2	SPECIAL INFORMATION ABOUT PROCESS AND SUPPORT FACILITIES	57
5.9.3	SPECIAL INFORMATION ABOUT ACCOMMODATIONS CAPACITY	57
5.9.4	SPECIAL INFORMATION ABOUT TRANSPORT SYSTEMS	57
5.9.5	SPECIAL INFORMATION ABOUT ASSUMPTIONS	58
5.9.6	SPECIAL INFORMATION ABOUT ROUTE SELECTION AND LOCATION	58
5.9.7	SPECIAL INFORMATION ABOUT VOLUMES AND COMPOSITION OF THE PETROLEUM TO BE TRANSPORTED OR UTILIZED	58
5.9.8	SPECIAL INFORMATION ABOUT CAPACITY FACTORS	58
5.9.9	SPECIAL INFORMATION ABOUT METERING SYSTEMS	59
<b>5.10</b>	<b>COSTS</b>	<b>59</b>
<b>5.11</b>	<b>ORGANIZATION AND EXECUTION</b>	<b>59</b>
5.11.1	PLANNED SCHEDULE AND ACTIVITIES	60
5.11.2	ORGANIZATION	60
<b>5.12</b>	<b>OPERATIONS AND MAINTENANCE</b>	<b>60</b>
<b>5.13</b>	<b>DISPOSAL OF FACILITIES</b>	<b>60</b>
<b>5.14</b>	<b>FINANCIAL ANALYSES</b>	<b>60</b>
5.14.1	ASSUMPTIONS	60
5.14.2	RESULTS	61
5.14.3	FINANCIAL RISK ASSESSMENTS	61
5.14.4	OPTIMIZATION OF INSTALLATION AND OPERATION	62
5.14.5	TARIFFS	62
<b>5.15</b>	<b>DESIGNATION OF FACILITIES</b>	<b>62</b>

**6 OTHER DECISION CRITERIA FOR SAFEGUARDING HSE**

---

**63**

## Abbreviations

MPE:	Ministry of Petroleum and Energy
AD:	Ministry of Labour
Klif:	Norwegian Climate and Pollution Agency
MD:	Ministry of the Environment
NPD:	Norwegian Petroleum Directorate
PSA:	Petroleum Safety Authority Norway
NVE:	Norwegian Water Resources and Energy Directorate
PDO:	Plan for Development and Operation
PIO:	Plan for Installation and Operation
IA:	Impact Assessment
FIA:	Field-specific Impact Assessment
RIA:	Regional Impact Assessment
NGL:	Natural Gas Liquids
HSE:	Health, Safety and Environment
BOK:	Concretization Decision
BOV:	Decision to Continue
BOG:	Decision to Implement
DG:	Decision Gate

### Abbreviations of names of regulations:

Energy Act:	Act relating to the generation, conversion, transmission, trading, distribution and use of energy, etc. (the Energy Act), 29 June 1990, No. 50
Pollution Control Act:	Act concerning protection against pollution and concerning waste (the Pollution Control Act), 13 March 1981, No. 6
Facilities Regulations:	Regulations relating to design and outfitting of facilities, etc. in the petroleum activities (the Facilities Regulations), 3 September 2001, No. 1100
Internal Control Regulations:	Regulations relating to systematic health, environment and safety work in enterprises (the Internal Control Regulations), 6 December 1996, No. 1127
IPPC Directive:	Directive 2008/1 EC of 15 January 2008
IA Regulations:	Regulations relating to impact assessments, 26 June 2009, No. 855
Petroleum Act:	Act relating to petroleum activities (the Petroleum Act), 29 November 1996, No. 72
Petroleum Regulations:	Regulations to the Act relating to petroleum activities, 27 June 1997, No. 653
Planning and Building Act:	The Planning and Building Act, 27 June 2008, No. 71
Tariff Regulations:	Regulations relating to stipulation of tariffs, etc. for specific facilities, 20 December 2002, No. 1724
Framework Regulations:	Regulations relating to health, environment and safety in the petroleum regulations (the Framework Regulations), 31 August 2001, No. 1016
Resource Management Regulations:	Regulations relating to resource management in the petroleum activities (Resource Management Regulations), 18 June 2001, No. 749

TPA Regulations	Regulations relating to third party access to facilities, 20 December 2005, No. 1625
Temporary Regulations	Temporary Regulations relating to safety and working environment for certain petroleum facilities on land and associated pipeline systems, 19 December 2003, No. 1595

## 1 INTRODUCTION

The Ministry of Petroleum and Energy (MPE) and the Ministry of Labour (AD) hereby issue these guidelines for plans for development and operation of a petroleum deposit (PDOs) and plans for installation and operation of facilities for transport and utilisation of petroleum (PIOs), which replace the guidelines issued in June 2000.

PDOs and PIOs consist of a development or installation section, and an impact assessment section. The guidelines provide information about how the authorities process development plans. They describe the requirements for documentation in the planning phase, the impact assessment process, the development section of a PDO and the installation section of a PIO. These guidelines have been updated to reflect changes in the regulations since the previous edition, and they have incorporated the practice of involving the authorities at an early stage. This system has been developed on the basis of suggestions from the Norwegian Oil Industry Association (OLF), and it facilitates coordination between licensees and the authorities in the planning and decision processes. The guidelines do not entail changes in the regulations.

The purpose of the guidelines is to provide advice on how a PDO or PIO can be prepared in a manner which fulfills the authorities' requirements, as well as to explain the administrative processes and contribute to efficient cooperation between the licensees and the authorities. It is emphasized that the guidelines are solely normative, i.e. the documentation must be adjusted to fit the specific development situation.

The formulation of PDOs and PIOs is governed by the Act of 29 November 1996, No. 72 relating to petroleum activities and the Regulations to the Act relating to petroleum activities stipulated by Royal Decree of 27 June 1997, the Regulations relating to health, environment and safety in the petroleum activities stipulated by Royal Decree of 31 August 2001 with associated regulations, as well as the Temporary Regulations relating to safety and working environment for certain petroleum facilities on land and associated pipeline systems.

When planning the development of a petroleum deposit or the construction of a facility for transport and utilisation of petroleum, it is recommended that the developer contact the MPE or the Norwegian Petroleum Directorate (NPD) at an early stage in order to clarify any questions regarding documentation and the authorities' processing. It is also particularly important that developers who are considering connection of the project to the onshore power system make early contact with the Norwegian Water Resources and Energy Directorate (NVE), Statnett SF and local grid companies to clarify the process and the relevant conditions in the power system.

### 1.1 *Authorities' organisation*

Preparation of PDOs and PIOs form the basis for the Ministry of Petroleum and Energy's (MPE's) approval of plans for development and operation (PDOs) and special permits for installation and operation (PIOs), pursuant to the Petroleum Act. Matters that are of a certain specific scope<sup>1</sup> shall be submitted to the Storting for consideration before the Ministry makes its decision. Other matters are submitted to the King in Council. Rules are laid down in the Petroleum Regulations,

---

<sup>1</sup> In 2010, this amount was NOK 10 billion. See Storting White Paper No. 39 (1999-2000), Item 4.1.2, cf. Storting White Paper No. 30 (1973-1974), Item 8.1.C.

the Framework Regulations and the Temporary Regulations which involve the Norwegian Petroleum Directorate (NPD), the Petroleum Safety Authority Norway (PSA) and the Ministry of Labour in the process. The plans shall therefore together be sent to the MPE and the Ministry of Labour, while copies shall be sent to the NPD and PSA.

The Ministry of the Environment and the Ministry of Fisheries and Coastal Affairs and their underlying agencies/directorates are bodies entitled to comment in connection with the PDO and PIO process. The same applies to NVE in matters that involve the scope of the Energy Act. Documentation requirements in connection with the PDO/PIO process are organized such that processing at a general level also facilitates the environmental authorities' need for information for the decisions required under the Pollution Control Act, with appurtenant regulations. Clarification should be secured with the pollution authorities (Klif – the Norwegian Climate and Pollution Agency) at an early stage as regards how the processing for emission/discharge permits should take place for the specific development. That applies in relation to NVE as regards the need for permits under the Energy Act. See the Petroleum Act, Sections 4-2, 4-3; the Petroleum Regulations, Sections 20, 21, 22, 22a, 22b, 22c and 28.

## ***1.2 Difference between PDOs and PIOs***

A PDO describes the development of a petroleum deposit with the aim of production (development section), and the consequences the described development activities will have (impact assessment section). A PDO is prepared by the licensees in the production licence(s) where the deposit is located. PDOs must be approved by the MPE.

Special permission for installation and operation on the basis of a PIO constitutes an independent permit. The permit issued in connection with a PIO will apply to installation and operation of facilities – often intended for transport of petroleum. In order to secure a permit for installation and operation, the companies must apply for this, and submit a PIO. The companies that receive consent for installation and operation constitute a separate group of licensees. The permit can be issued with its own licence period.

As a point of departure, a PDO shall provide an account of the entire development concept. When considering the plan, the Ministry will determine which parts of the development solution are to be handled by the licensees under the production licence, and which parts are to be developed and operated pursuant to a special permit for installation and operation. The decisive factor here will be whether parts of the development solution will, from the beginning or subsequently, be handled by a different owner than the licensees under the production licence, whether they will be subject to a different licence period, or whether different conditions should be set for the permit. Special permission for installation and operation of facilities will be necessary when the right to conduct installation and operation does not follow from an approved plan for development and operation.

In connection with a development, the licensees should contact the MPE at an early stage to clarify whether a PIO is needed, as well as to resolve any other factors, such as regulating third-party use of the facility, ownership and operatorship. These are factors that the MPE will be concerned with when processing the PIO, and before any such special permit is granted under Section 4-3 of the Petroleum Act. If the development entails the establishment or modification of a land facility, the licensee should at the same time also attempt to clarify with the MPE whether the land facility in its entirety is covered under the scope of the Act.



The relationship between PDOs and PIOs is described in more detail in Odelsting Proposition No. 46 (2002-2003), Item 2.3.

The PDO and the PIO can be compiled in a single document if this is expedient.

PDOs and PIOs must be in Norwegian, unless otherwise agreed.

See the Petroleum Act, Sections 1-4, 4-2 and 4-3.

### ***1.3 The system for processing PDOs and PIOs***

How the authorities follow up the decision process up to approval of the PDO or PIO is largely adapted to the industry's normal project progression. The authorities' early insight into the project can contribute to early clarification of issues, and facilitate a shorter final consideration process for the final plan. This will allow the licensees to submit more mature plans without necessarily extending the total project implementation time. Adjustments of the documentation can also be agreed.

#### **1.3.1 Project process for PDOs/PIOs**

The licensees' project process can be divided into two main phases: a planning phase and an implementation phase.

The planning phase starts when conceptual development is complete, and it leads up to a decision to implement the project.

The implementation phase runs up to the operation of the finished development.

#### **1.3.2 The authorities' processing in the planning phase**

The authorities' follow-up during the planning phase will particularly target:

- the resource base
- production strategy
- development solutions
- infrastructure
- unitization
- external environment
- energy efficiency
- profitability, with special emphasis on socio-economic profitability
- uncertainties
- expansion and extended use of existing infrastructure
- barriers against major accidents for protection of personnel, the external environment and material assets, including regularity
- use of risk reduction principles
- working environment-related factors that can affect health and well-being
- reliability factors that affect operational regularity/robustness/ease of maintenance

- emergency preparedness, including the ability to control and limit loss if accidents should occur
- use of new technology and work to qualify such technology

#### **1.4 Impact Assessment**

The purpose of impact assessments (IAs) is to clarify the effects of a development or a facility, and the operation of same, on the environment, including cultural monuments and cultural milieus, natural resources and the society. IAs are prepared to ensure that these effects are taken into consideration in the decision process.

At an early stage, licensees should identify any existing IAs that may satisfy the study obligation, in whole or in part. If a licensee is considering applying for an exemption from the IA, it should clarify whether or not there is a valid basis for this at an early stage. If the development entails a development on land and/or connection to the power system on land, it is important to be aware that these measures can trigger independent reporting obligations and mandatory impact assessments under the rules of the Planning and Building Act relating to impact assessments.

The topic of IAs is addressed in Chapter 3.

#### **1.5 Processing of PDOs and PIOs**

PDOs and PIOs consist of a development or installation section and an impact assessment section. The processing and contents of the impact assessment are described in more detail in Chapter 3. The contents of the development and installation section are described in more detail in Chapters 4 and 5.

PDOs/PIOs shall be submitted to the MPE and AD, with copies to the NPD and PSA. For PIOs relating to gas transport or treatment, or PDOs where treatment and pipeline transport of gas is included, copies shall also be sent to Gassco. The MPE coordinates the processing of the plan. AD, NPD and Gassco (if applicable) submit their evaluations to the MPE. The PSA submits its evaluation to AD.

The proposed study programme for the impact assessment, and the impact assessment itself, both require a public consultation. Therefore, early submission of the study programme and the impact assessment section of the PDO or PIO is a precondition for speedy consideration of the overall plan by the authorities.

The licensee sends the impact assessment out for consultation to the affected ministries, directorates, county municipalities and interest groups. The basis for the impact assessment is established in the study programme for the impact assessment. This programme is also subject to a consultation process, cf. Chapter 3. Based on the impact assessment, the development and/or installation section as well as the consultation statements, the MPE draws up a draft proposition to the Storting or Royal Decree which is submitted to the relevant ministries for consultation. After this consultation process, the matter is then submitted by the Government, either to the Storting or to the King in Council.

Normally, the time required for the authorities to process a PDO or PIO will be two to six months, depending in part on whether the matter must be submitted to the Storting. The Storting must consider developments with an investment ceiling that exceeds a predetermined amount as stipulated in connection with the Storting's annual budget deliberations.<sup>2</sup> Nevertheless, the main rule will be that the PSA's recommendation to AD, and Gassco's and the NPD's recommendations to the MPE, shall not be issued until the licensees have formally endorsed the application for PDO or PIO.

Figure 1.1 is a schematic presentation of the evaluation process for PDOs and PIOs. It is important to note that the process in connection with the impact assessment must start six months or more prior to the submission of a PDO or PIO. This early start is necessary due to the consultation requirement for both the study programme and the actual impact assessment, cf. Chapter 3.

### ***1.6 Processing time for development projects below a fixed ceiling amount***

The MPE's ambition is to achieve a processing time of eight weeks from the licensees' endorsement for development projects that do not require consideration by the Storting.

If the impact assessment is not sent out for consultation in sufficient time prior to submission of the development or installation section, a processing time of more than eight weeks must be expected. This does not apply in those cases where exemptions from the impact assessment obligation have been granted, or when the study obligation is regarded as being covered by previous impact assessments, cf. Section 3.4.2.

### ***1.7 Requirement for new or amended PDO/PIO***

The MPE shall be informed about and shall approve significant deviations from or changes in the assumptions for a submitted or approved plan. This also applies to changes regarding previously approved landing applications or facilities that were not previously included under the Act.

The MPE can require licensees to submit a new or amended plan if there are significant deviations from or changes in the assumptions. This provision could apply i.e. in cases where the authorities see a need for changes as a consequence of new knowledge about the deposit, new technology, commercial conditions or other factors that make such changes relevant. (Cf. Odelsting Proposition No. 43 (1995-1996)).

In the event of significant changes to existing fields or facilities (for example, changes in production strategy or extensive changes to infrastructure), a new plan may be required. Similarly, it will generally be expedient to prepare a new PDO or PIO if a new project must be subjected to an impact assessment. If the project relates to production of a new deposit in connection with an existing field, the main rule is that a new PDO will be required.

Licensees must inform the MPE about any significant deviation. Deviations on the cost side can emerge as overruns in relation to an approved PDO/PIO. If such deviations are covered by a new

---

<sup>2</sup> In 2010, this amount was NOK 10 billion. See Storting White Paper No. 39 (1999-2000), Item 4.1.2, cf. Storting White Paper No. 30 (1973-1974), Item 8.1.C.

or amended PDO/PIO, the licensees must describe which cost elements are due to overruns, and which originate from actual changes in the development project.

After the AD states its position, the MPE will determine whether a new or amended plan will be required on the basis of a concrete evaluation in each individual case. In this evaluation, the MPE will emphasise factors such as whether the change entails a significant increase in the investments on the field.

See the Petroleum Act, Section 4-2, seventh subsection.

### ***1.8 Exemption from PDO/PIO***

In some cases, exemptions from the authorities' approval of a PDO/PIO may be allowed. The licensees must apply to the MPE to obtain such an exemption. It is recommended that licensees contact the MPE at the earliest possible date to determine whether it is appropriate to apply for an exemption. In cases where there is some doubt as to whether a basis exists for applying for an exemption, it will usually be more efficient to prepare a PDO or PIO.

It should be noted that, in order to secure a full exemption from submitting a PDO/PIO, certain criteria in relation to impact assessment requirements must also be fulfilled, see Chapter 3.

PDO exemptions will primarily be relevant in connection with the development of smaller deposits that can be reached from existing facilities on fields with approved plans for development and operation. Elements that will carry particular weight in an evaluation of potential exemption from the authorities' approval are<sup>3</sup>:

- the deposit is near, or above or below, a deposit that already has an approved plan for development and operation,
- the entire deposit can be drilled and produced from facilities that are covered under an approved plan for development and operation,
- the deposit lies within a licensed area. If there is a basis for unitization between different licensees, the necessary agreement must exist,
- modifications to facilities must not entail elevated risk to personnel, the environment or material assets,
- there must be a satisfactory marketing solution for gas

This list is not exhaustive.

Please note that the MPE will generally require a PDO or PIO for facilities where third-party use is planned or may become relevant.

The application must substantiate that there are grounds for an exemption. It is important that the authorities gain early access to the applicants' technical and financial evaluations to ensure the best possible basis for making decisions. A deposit that is developed in this way will normally be incorporated as part of the existing field without being assigned a separate name. A precondition

---

<sup>3</sup> See Odelsting Proposition No. 43 (1995-1996) On the Act relating to Petroleum Activities, comments concerning Section 4-2.

for this is that the deposit has the same licensees and the same ownership interests as in the original field.

The main plan for drilling and well activity must be attached to the application when applying for an exemption.

See the Resource Regulations, Section 8, first subsection and the Framework Regulations, Section 20, third subsection.

See the Petroleum Act, Section 4-2, sixth subsection, cf. Section 4-3, fourth subsection.

### **1.9 Land facilities**

Facilities for the production of subsea petroleum deposits and facilities for transport of petroleum are covered under the Petroleum Act, regardless of whether the facilities are located offshore or on land. Facilities that are linked to utilisation of produced petroleum that takes place on land are covered under the Petroleum Act only when such utilisation is necessary for or constitutes an integrated part of the production or transport of petroleum.

Section 1-6 litera i) of the Petroleum Act defines utilisation as cooling in order to liquefy gas, refining and petrochemical activity, production and transmission of electric power and other use of produced petroleum, storage of petroleum, as well as the construction, placing, operation and use of facilities for the purpose of utilisation.

Facilities on land that are covered under the Petroleum Act shall have an approved PDO or PIO.

Facilities for production and transmission of high voltage electric energy require a licence under Section 3-1 of the Energy Act. The Energy Act applies to Norwegian land territory and to inland waters out to the baseline. As a rule, such measures will also trigger an independent reporting obligation and mandatory impact assessment under the rules of the Planning and Building Act, with the Norwegian Water Resources and Energy Directorate (NVE) as the responsible authority. The authority to issue licences under the Energy Act is delegated to NVE. The MPE is the appeal body for the NVE's licence decisions. The Energy Act also applies, in addition to the Petroleum Act. To the extent that measures must be considered in relation to both statutes, it is important that both the MPE and NVE are informed at the earliest possible point in time to ensure a comprehensive and coordinated process by the authorities, with regard to the consideration of impact assessments and licence applications.

Land facilities that fall under the scope of the Planning and Building Act are, as a point of departure, subject to the statute's provisions concerning building matters. However, facilities that require a licence under Section 3-1 of the Energy Act are exempt from these provisions.

In this connection, it is also important that the MPE is informed about facilities on land which may possibly be covered under the Petroleum Act. The Government has the authority to issue supplementary rules for how to draw the boundary for the Petroleum Act's area of application. It may be relevant to exercise this authority in the above-mentioned cases. If uncertainty exists, a concrete evaluation can be made in relation to a specific facility, cf. Section 1-4, sixth subsection of the Petroleum Act.

With regard to the HSE area, Section 15 of the Temporary Regulations contains provisions concerning the contents of PDOs and PIOs for land facilities covered under the Petroleum Act.

See the Petroleum Act, Sections 4-2 and 4-3, cf. Sections 1-4 and 1-6 literas c), g), i) and m) and the Planning and Building Act, Chapters 4 and 14. See the Energy Act, Sections 1-1 and 3-1. See also the Regulations relating to processing and inspection in construction matters (SAK) dated 24 June 2003 No. 749 Section 7 (New Planning and Building Act, Section 20-4, cf. Section 4-3 in the consultation proposal for new building matters regulations (scheduled to enter into force on 1 July 2010).

### ***1.10 Unitization and area development***

If a deposit extends over multiple blocks that do not have the same licensees, attempts shall be made to enter into an agreement for the most reasonable unitization of the petroleum activities, and allocation of the petroleum deposit. This also applies in cases where unitization of multiple petroleum deposits is clearly efficient.

The Regulations relating to third-party access (TPA) govern the process surrounding agreements for the use of facilities owned by others for the purpose of production, transport or utilisation of petroleum. The objective is to achieve efficient use of facilities and to ensure that licensees have good incentives to carry out exploration and production activities based on considerations for good resource management.

See Sections 4.3 and 4.4.

See the Petroleum Act, Section 4-7.

### ***1.11 Important contractual commitments***

#### **1.11.1 PDO**

Important contractual commitments cannot be undertaken, nor construction work started, until the PDO has been approved, unless the MPE grants its consent. This means that the licensee must submit an application to the MPE stating the reasons why it is necessary to undertake important contractual commitments or to commence construction work before the PDO is approved.

To achieve consent to undertake contractual commitments or to begin construction work, the licensee must demonstrate to the MPE that there are substantial disadvantages associated with delaying these activities.

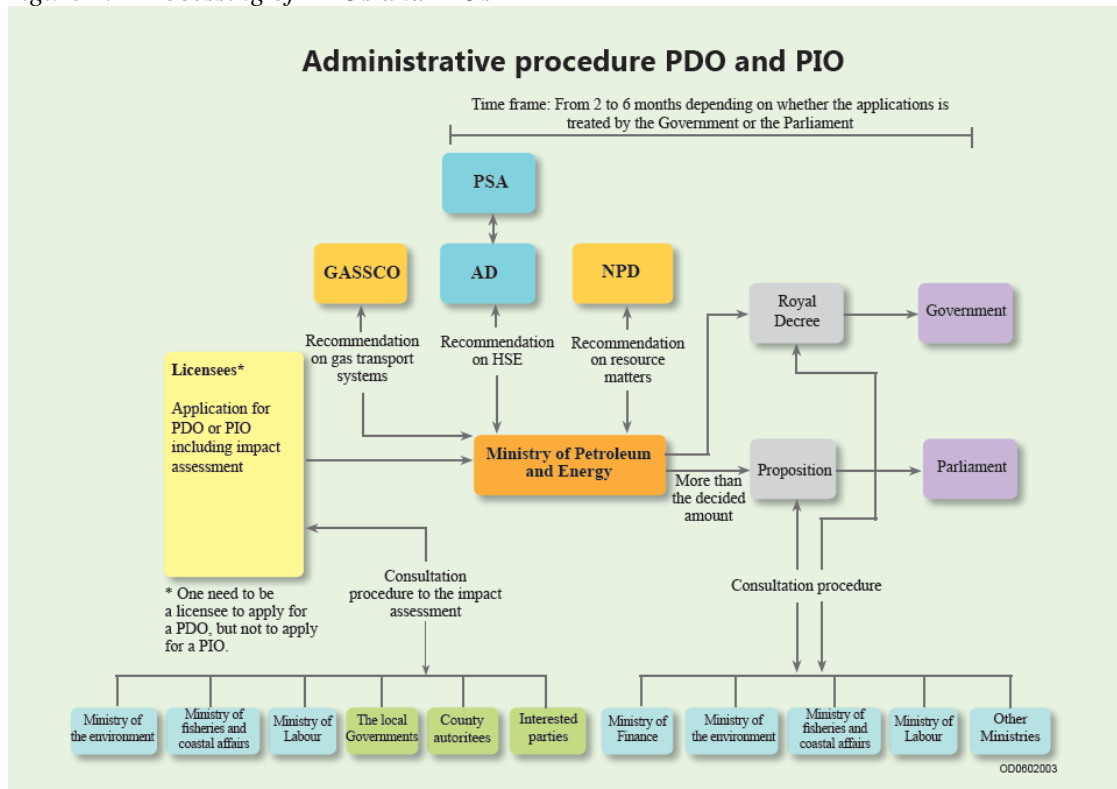
Assuming contractual commitments or beginning construction work will take place at the applicant's own risk, even if the MPE grants its consent to signing the contract. The licensees must take into account the fact that the PDO might not be approved, or that it might be amended during the approval process. The licensees must also consider the fact that other authorities will be processing necessary applications under other legislation, without taking into account that contractual commitments have already been made.

See the Petroleum Act, Section 4-2, fifth subsection.

#### **1.11.2 PIO**

Pursuant to the Petroleum Act, there is basically no limitation as regards entering into important contractual commitments or to commence construction work in connection with installation and operation of facilities for transport and utilisation of petroleum. However, it is important to note that entering into contractual commitments will take place at the applicant's own risk, as long as the specific consent for installation and operation has not been granted. It is also important to note that consent must be secured before commencing the placement of pipelines or facilities.

Figure 1.1 Processing of PDOs and PIOs



### 1.12 The Nature Diversity Act

The Nature Diversity Act took effect on 1 July 2009. This law applies to Norwegian land territory and Norwegian continental waters, with the exception of Svalbard and Jan Mayen. Some of the general principles in the statute also apply to the continental shelf and in the economic zone, cf. Section 2. Impact assessments that are to be prepared in connection with PDOs/PIOs already deal with many of the principles laid down in the Nature Diversity Act. Nevertheless, it is important that licensees consider the Act when preparing the study programme for impact assessments, particularly in connection with land facilities, where the entire statute will be applicable.

## 2 DOCUMENTATION AT MILESTONES PRIOR TO SUBMISSION OF PDOs/PIOs

To contribute to efficient coordination between the licensees and the authorities, and to pave the way for rapid processing of the final plans by the authorities, some of the documentation that

previously accompanied the PDO/PIO should now be made available to the authorities at an earlier stage of the planning phase for the project. See Item 2.1 as regards Gassco's involvement in the planning phase.

The planning phase can be divided into feasibility studies, conceptual studies and pre-engineering. The main purpose of the planning phase is to determine whether a business concept is technically feasible, whether the associated uncertainties are manageable, whether it satisfies regulatory requirements, and whether it is sufficiently profitable.

*The feasibility studies* determine whether a business idea can be concretized into a business opportunity. This phase is concluded with a "concretization decision" (BOK), which should include a description of one or more concepts with cost frameworks.

*The conceptual studies* shall concretize the technical and financial basis for a business opportunity in such a way that profitability and feasibility of implementation can be documented for the concept(s) the licensee chooses to pursue (development solution). The conceptual studies lead to a "decision to continue" (BOV).

*The pre-engineering* shall further develop the basis for a business concept to such a level that a final "decision to implement" (BOG) can be made, and the PDO or PIO can be submitted to the authorities.

The licensees should inform the NPD and the PSA when the project has reached a BOK (concretization decision) (see Section 1.3 – System for processing PDOs and PIOs). The information should be brief and should contain:

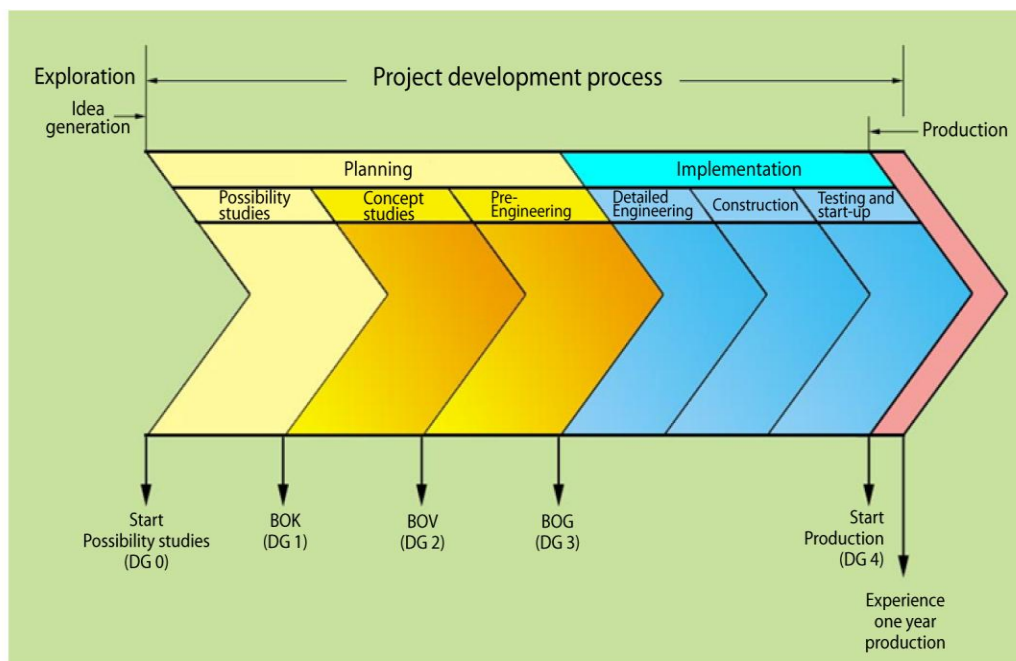
- a description of how the licensee plans to organize, manage and carry out the work, as well as information on the competence required to perform the work, including
  - organization chart
  - schedule for implementation
- a general description of the concepts, including planned use of existing infrastructure
- general decision criteria, with focus on HSE, economy and technology
- an account of activities that will be implemented to qualify completely or partially pre-engineered or prefabricated facilities where the licensee plans to use such facilities in the petroleum activities

The authorities can request more in-depth documentation from the licensees, if needed.

During the time period between BOK and BOV, a meeting with Gassco, the NPD and the PSA may be relevant for the purpose of discussing the alternatives that are being studied, special problems that should be examined, progress and the scope of BOV and PDO documentation. A meeting with the NVE may also be relevant in cases where electrification is being considered.



Figure 2.1 General project development model



In connection with the BOV, the licensees in a production licence should make the results of their conceptual studies available to the NPD, with a copy to the MPE. Applicants for a permit for installation and operation must make the results of their conceptual studies available to Gassco. A formal confirmation that the BOV has been made should be sent to the MPE, with reference to the documentation for the decision basis. A copy of the confirmation shall also be sent to the NPD and the PSA. At this time, the draft impact assessment programme under the Petroleum Regulations can be submitted. A notice containing the proposed impact assessment programme for any potential land facilities under the IA Regulations must be submitted to the responsible authority at the earliest possible date during preparation of the measure.

In those cases where the authorities choose to request documentation in connection with the BOV, the specific authorities will normally notify the licensee within six weeks regarding potential issues that should be clarified before the PDO/PIO is submitted. This will ensure that the applicants have adequate time to make the necessary adjustments up to submission of the final plan. It is assumed that the MPE is informed of significant deviations from or changes to the assumptions that may arise in the final plan, as compared with previously submitted documentation. The licensees shall include an assessment of the consequences that the deviation or change has on the selected technical solution.

See the Petroleum Regulations, Section 22; the Planning and Building Act, Section 14-2, the Impact Assessment Regulations Section 6, cf. Section 2, third subsection.

## 2.1 *Special requirements for fields that require new transport and/or treatment capacity for gas*

As part of its responsibility for the system, Gassco shall evaluate further development of the gas transport system and associated facilities with a view towards achieving comprehensive general transport and treatment solutions for the petroleum activities.

When the need for transport or treatment capacity arises, the licensees shall inform Gassco about such needs. The duty to provide information to Gassco arises when the need for capacity appears likely. In practice, this will be when development of the discovery has been evaluated as being probable, but no formal decision has been made regarding development of the discovery (Resource Class 5, equivalent to DG0 in Figure 2.1).

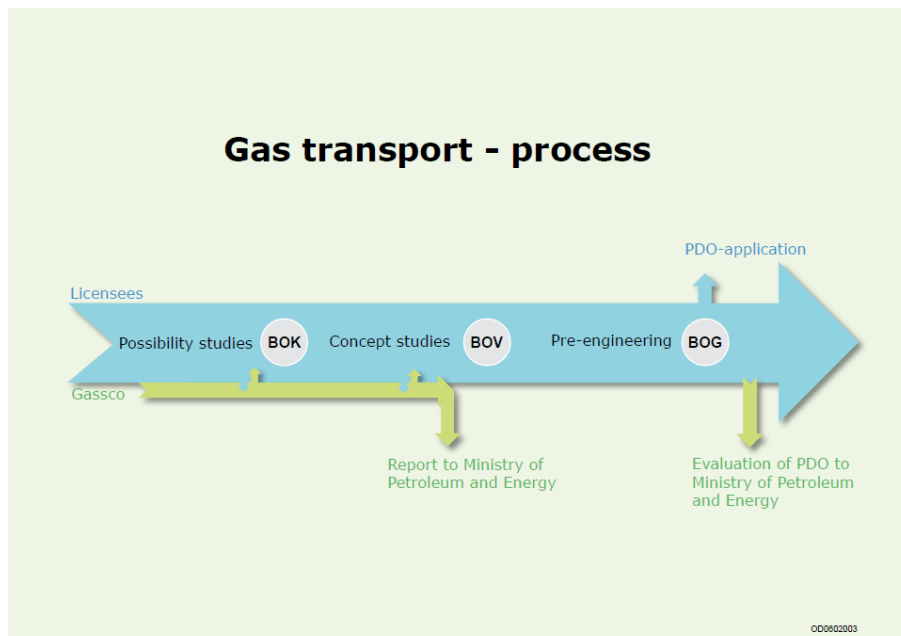
It is important for Gassco's long-term planning of the transport system on the Norwegian Shelf that the company has a good overview of all probable future transport needs.

Gassco has the ultimate responsibility for ensuring that the development of new transport and treatment capacity takes place in such a manner that ensures optimisation of the entire transport system. Gassco will therefore have a strong involvement in all new transport projects. Gassco does not have the authority to make decisions concerning further development of the upstream gas pipeline network. It will be up to the companies that finance a project to make the decision on whether or not to submit a potential plan for installation and operation.

The process between the licensees and Gassco is shown in Figure 2.2. Gassco will discuss various alternatives with the licensees and agree on preferred alternatives that will be developed further. Prior to each decision, the licensees should contact Gassco. Before the licensees select the development concept (BOV), Gassco will send a report to the MPE giving an account of the various alternatives.

See the Petroleum Regulations, Section 66 and Section 66A.

Figure 2.2: Gas transport – process



## **2.2 Documentation in connection with a decision to continue (BOV)**

Relevant documentation in connection with a BOV is listed below. The documentation should state the assumptions used as a basis for the evaluation. Unless otherwise agreed, information should be provided on the elements mentioned under Items 2.2.1 to 2.2.4.

It is most expedient that the documentation is based on the licensees' own basis for making the decision, so that preparing additional documentation is usually not necessary.

### **2.2.1 Description of facilities and concept evaluation**

A description should be given of the various types of facilities that have been considered. This description should indicate to what degree of detail the alternatives have been studied, and the advantages and disadvantages associated with the various alternatives in relation to resource, area, HSE and environmental factors.

Comparable cost estimates should be presented for the alternatives. Life cycle assessments should be enclosed, including disposal costs.

Special emphasis should be placed on the criteria used to select or reject development concepts, and on the assessments that have led to the selected solution. This should include a particular description of how risk has been evaluated and incorporated in the ranking. If relevant, reference can be made to previous clarifications with the authorities.

A special account should be given concerning whether the licensee plans to take the facility to land for routine inspection and maintenance, or whether the facility will remain on the field through the entire field lifetime.

An indication should be given of the evaluations that have been done to ensure that the selected solution satisfies the requirements for protection of personnel, the external environment and material assets, including regularity, along with requirements for risk reduction and best available technique (BAT), energy efficiency requirements, as well as the licensee's own and national environmental objectives.

Overview drawings should be presented which illustrate the selected solutions and provide a basis for evaluating the development based on the factors mentioned here.

In line with the Storting's resolution, all new field developments on the Norwegian Shelf shall study whether power supply from land is expedient. An overview shall be submitted of the energy volumes and costs required to supply the facility with power from land, rather than using gas turbines offshore.

Projects that are considering connection to the power system on land should contact the NVE, Statnett SF and possibly also other grid companies at an early stage in the planning to clarify prevailing conditions in the power system. The regulation of and the terms for connecting to the power system on land have their legal basis in the Energy Act with appurtenant regulations, see also Section 3.10 Other legislation.

Necessary impact assessments shall be carried out and necessary applications for connection to the power system on land shall be submitted to the NVE before the PDO is submitted to the MPE. It is recommended that applications for licences are clarified with the NVE prior to this time. The process for the authorities' consideration of electrical facilities can be extremely time-consuming. Processing by the authorities pursuant to both sets of legislation must, to the extent possible, be based on the same assumptions. In any event, there should be coordination in terms of timing and processing of impact assessments and applications for consent.

Petroleum regulations:

See the Petroleum Act, Section 4-2, second subsection, third sentence; the Petroleum Regulations Section 21, second subsection, literas a and c and Section 29, second subsection, literas a and c. See also the Petroleum Regulations Section 21, last subsection. Resource Regulations Section 12.

Environmental regulations:

See the Pollution Control Act, Section 2, No. 3, cf. IPPC Directive 2008/1 EC of 15 January 2008. See Recommendation to the Storting No. 114 (1995-1996).

Energy regulations:

See the Energy Act, Section 2-1, second subsection, cf. the IA Regulations, Section 2, fourth subsection. See Recommendation to the Storting No. 114 (1995-1996). See the Energy Act, Section 2-1, second subsection, cf. the IA Regulations, Section 2, fourth subsection, cf. Section 5, first subsection. See the Energy Act, Section 2-1 and the Energy Act Regulations, Section 3-2.

### **2.2.2 Elements that should be mentioned in both the development section and the installation section**

- Planned technical solutions for the concept with all relevant assumptions for the concept development, including flexibility for changed assumptions
- Basic design criteria with relevant assumptions
- Operations and maintenance philosophy for the planned facilities, integrated operations
- Evaluations linked to owning/leasing the facility, including formulation of contracts to safeguard comprehensive resource exploitation, including tail production and phase-in of third-party resources
- Goals and vision for HSE, including external environment and energy efficiency
- Information about management systems, including about the planning, organization and execution of the development
- Project objectives, including profitability and implementation
- Planned transport solutions for the proposed products from the field
- Uncertainty analyses for resource basis, technical solution, feasibility and supplier market
- Cost estimates which normally satisfy +/- 30%
- Profitability calculations before and after tax (7% discount rate)
- Price sensitivities
- Basic decision criteria, with focus on HSE, economy and technology
- Evaluation of risk elements for the concept(s) and implementation
- Evaluation of potential need to develop new technology and/or use untraditional solutions
- Evaluation of the need for accommodation capacity
- Evaluation of remaining uncertainties with reasons for continuation
- Area-related consequences
- Tie-in to other fields or facilities
- Opportunities for tie-in from other fields
- Use of existing infrastructure beyond the design lifetime
- Opportunities for unitizing petroleum activities

- Regional effects, including evaluation of landing and localization
- Planned personnel transport solution

### **2.2.3 Elements that should be mentioned in the installation section in particular**

- Purpose of the installation, dimensions and capacity
- The pipelines' destination and route

### **2.2.4 Production strategy and development solution**

- Geotechnical and technical reservoir factors, as well as production schedule

## **2.3 *Other decision criteria for safeguarding HSE***

Plans and other documentation that shall be submitted to the AD in the planning phase must contain a description of how the licensee plans to organize, manage and execute the work, including plans for ensuring employee participation, as well as information regarding the competence required to perform the work.

If the licensee plans to use a partially or completely pre-engineered or pre-fabricated facility to carry out the petroleum activities, an account must also be provided of the activities that will be implemented to qualify the facility for use in these activities, cf. Section 19 of the Framework Regulations.

### **3 GUIDELINES TO IMPACT ASSESSMENT SECTION OF PDOs/PIOs**

#### **3.1 Introduction**

As regards development, installation, operation and disposal of facilities, it is the licensees, in practice the operator, who are responsible for conducting and presenting an impact assessment.

The IA process emphasizes the regional consequences of a development. Therefore, these guidelines also describe the contents and process involved for regional studies, as well as the connection between field-specific (FIA) and regional studies (RIA). For RIAs it will, in most cases, be expedient to prepare topic-based<sup>4</sup> regional assessments, because the geographic area selected to evaluate the effects of various emissions, discharges, etc. will vary significantly from topic to topic.

The impact assessment is an integral part of the PDO and PIO, and forms part of the basis for the decision to approve a PDO and to grant consent for installation and operation. The impact assessment process must therefore be completed and the study requirement must be fulfilled before a PDO can be approved or consent can be granted for installation and operation.

HSE questions linked to the IA section of the PDO/PIO are handled in the customary manner by the AD and the PSA in accordance with the provisions of the Petroleum Act and relevant HSE regulations.

#### **3.2 Purpose**

The purpose of the impact assessments is to clarify the effects of a development/installation and the operation of same on the environment, including cultural monuments and cultural milieus, natural resources and the society in general.

Impact assessments shall ensure that these effects are taken into consideration in the planning of a development or an installation, and when decisions are made regarding whether or not a PDO or PIO is approved and, if so, on what conditions. The impact assessments shall ensure that the authorities have a good basis on which to make their decision.

The IA process is an open process. This is to ensure that players who have an opinion on the development and/or installation have the right and the opportunity to express their opinion. This is important for several reasons. The process ensures that the general public is made aware of potential consequences and possible alternatives other than those put forward by the developer. This applies both as regards viewpoints on the consequences of the measure, as well as what remedial measures would need to be implemented.

The consultation process for the impact assessments is an important part of the PDO/PIO process, because it contributes to the evaluation of more solutions with different environmental and social consequences. The consultation bodies must have an opportunity to evaluate the licensees'

---

<sup>4</sup> Topics can include occupied area, discharge of produced water and emission of nitrogen oxides.

description of the effects the development and/or the installation might have. Therefore, the FIA shall, together with any relevant regional assessments:

- describe the plans for the field development and/or installation and the effects they could have on the environment, natural resources and the society,
- discuss the significant positive and negative consequences that presumably could arise,
- discuss remedial measures, as well as propose any necessary follow-up studies and monitoring programmes.

If the licensees in an area want to prepare an RIA, or if they are ordered to prepare such an assessment pursuant to Section 4-2, third subsection of the Petroleum Act, the purpose of this is to obtain a better overview of the regional consequences. At the same time, this makes it possible to simplify the process linked to impact assessments of individual developments. The RIA and FIA together must satisfy the impact assessment requirement in the prevailing regulations.

### **3.3     *Legal basis***

The Petroleum Act contains provisions regarding impact assessments as a part of the basis for decisions concerning the opening of new areas for petroleum activities, in connection with development and operation of petroleum deposits, in connection with installation and operation of facilities and cessation of the activities. The Petroleum Regulations provide more detailed rules concerning what an impact assessment must contain. The Planning and Building Act will also apply in connection with developments on land.

The PSA also has rules regarding impact assessments for measures that fall within the jurisdiction of this act. In matters that relate to tie-in to the power system on land, such as through development of facilities for generation or transmission of electric power, these parts of the measure can trigger an independent reporting obligation and impact assessment under the IA Regulations, with the NVE as the responsible authority. Among other things, the impact assessments shall form the basis for the NVE's processing of licence applications under Section 3-1 of the Energy Act.

In those cases where an impact assessment is also required under the Planning and Building Act for measures that are subject to licensing consideration under the Energy Act, it is important that the licensee contacts the MPE and the NVE at an early stage in order to clarify questions concerning coordination of the case processing.

See the Petroleum Act, Sections 4-2 second subsection and 4-3, fourth subsection, cf. the Petroleum Regulations, Sections 20, 22, 22a, 22b, 22c and 29, fourth subsection. See also the Planning and Building Act, Sections 4-2, second subsection and 14-2, first subsection and the IA Regulations, Section 6, first subsection.

### **3.4     *Possibility of obtaining an exemption from the impact assessment requirement***

In exceptional cases, the licensee can apply for an exemption from the impact assessment requirement. The criteria for applying for an exemption from the impact assessment in connection with a PDO is that the development will not entail production of more than 4000 barrels of crude oil per day and/or more than 500,000 m<sup>3</sup> of natural gas per day, and that the development is not

otherwise assumed to have significant commercial or environmental effects. The criteria for applying for an exemption from the requirement for an impact assessment in connection with a PIO is that a facility for transport or utilization of petroleum does not entail a pipeline with a diameter larger than 800 mm and a length of more than 40 km, and that it is not otherwise assumed to have significant commercial or environmental effects.

In addition to this, the licensee can, in special cases, also apply for exemption from the obligation to conduct studies, even if the development or the facility for transport or utilization of petroleum exceeds the threshold values stipulated in the regulations. However, EFTA's surveillance body shall be notified of the reasons for the exemption, before such exemption can be granted. As a consequence of the strict criteria, the MPE assumes that the exemption rule will not have substantial practical importance.

See the Petroleum Act, Section 4-2, sixth subsection and Section 4-3, fourth subsection, cf. the Petroleum Regulations, Section 22b as well as 29, fourth subsection. See also the Framework Regulations, Sections 20, third subsection and 21, as well as the Resource Management Regulations, Section 8, first subsection.

### **3.5 Study obligation covered by existing impact assessments**

If it is presumed that the study obligation has been covered by existing impact assessments, no new impact assessment shall be prepared. If the licensee believes that no FIA is needed, this must be substantiated vis-à-vis the MPE. In practice, this means a letter explaining why existing impact assessments, if applicable in combination with a regional impact assessment, are adequate for the project in question. It is important that the letter to the MPE contains sufficient information to allow the MPE to assess the above-mentioned factors. It is also important that the licensee contacts the MPE at an early point in time to clarify relevant questions.

Based on the application for exemption, or letter from the licensee seeking confirmation that sufficient impact assessments have been made for the development, the MPE will determine whether or not an FIA must be performed. This clarification will take place after an evaluation of whether the development meets the requirements for an exemption from impact assessments, or whether it has been documented that the presumed effects have already been adequately studied. The MPE will send copies of the clarification to the AD and the Ministry of the Environment. Final approval of compliance with the impact assessment obligation will take place in connection with approval of the PDO, or when consent is granted for installation and operation.

If the MPE finds that the development is covered by existing impact assessments, the application will be approved and the consideration process will be concluded.

### **3.6 Relationship between regional and field-specific impact assessments**

The RIA will be particularly relevant where multiple developments are planned in the same area. The RIA can achieve efficiency that will simplify the work of preparing field-specific assessments. It will also provide a better overall picture of the environmental effects in the area. The authorities can order execution of an RIA if special reasons so dictate. The licensees can also make an independent decision to prepare an RIA.



### **3.6.1 Use of regional assessments in connection with new field developments**

#### **3.6.1.1 Existing regional studies**

The MPE's intention is for regional impact assessments to be used as documentation in connection with future developments. However, the MPE will not require that regional assessments be updated each time they are used as documentation for a development. It would be natural to consider updating the assessments when there are significant changes in the assumptions for the assessment, for example if large new developments that have not been taken into consideration are implemented, or other factors indicate that the studies are out-of-date. Nevertheless, it will make sense to update the assessments in relation to the updating work that may be carried out as part of an FIA.

The framework for the petroleum activities is laid down in the management plans for the respective offshore areas. The sector reports and supporting documents that are prepared in this connection can be used in the same manner as RIAs have previously been utilized. For example, the MPE has decided on this basis that the sector study "Consequences of the petroleum activities and other forms of offshore energy" (dated May 2008) can be used as an RIA in connection with new developments in the relevant area.

It is essential for the MPE that the study obligation in connection with a development is fulfilled in accordance with prevailing statutes and regulations. This can either take place through an FIA or a combination of an FIA and an RIA. It will be up to the licensees themselves to determine how the study obligation can be fulfilled in the most practical manner.

The study programme for a development should clearly indicate what type of information the licensees plan to cover in an RIA or an update of relevant RIAs.

#### **3.6.1.2 Regional studies under preparation**

If the developer plans to use an RIA that is under preparation in connection with a new development, this must also be reflected in the FIA programme. The MPE emphasizes that the developer must take into consideration that the FIA cannot be approved until the new RIA has been submitted and subjected to a consultation process.

### **3.7 *Process associated with impact assessments***

#### **3.7.1 When should the impact assessment work start?**

##### **3.7.1.1 Field-specific impact assessments (FIAs)**

In many cases, it will be natural to start the work on impact assessments when drilling, testing and, if applicable, delineation wells, have led the licensee to determine that development of the deposit is commercially interesting (cf. Chapter 2).

At this time, the licensee's representatives should contact the MPE to discuss the impact assessment for the deposit in question, so that the subsequent work can be organized in the best possible way. In such a meeting it will be natural for the developer to present the preliminary development plans. It will also be natural to clarify a schedule for the impact assessment process, consultation deadlines and the need for additional meetings. See the Petroleum Regulations, Sections 22-22 c).

### **3.7.1.2 Regional impact assessments (RIAs)**

Any independent regional assessments that the developer wants to use in connection with field developments should be prepared at such an early stage that the approval process for the studies has been completed before the licensee plans to use the studies as documentation in connection with an FIA for the first time. This means that the studies should have undergone a round of consultations, and that any need for improvement is addressed before the FIA programme is sent out for consultation (see 3.5.3.1). Completion of an RIA, or a lack of upgrading of certain elements of an RIA, will not impede the consideration of a FIA. This presumes, however, that all relevant factors are covered in the FIA.

It is important that the developer initiates a dialogue with the MPE as early as possible to clarify these factors.

See the Petroleum Act, Section 4-2 third subsection, cf. the Petroleum Regulations, Section 22 a, second and third subsections.

## **3.7.2 Process for study programme and impact assessment**

### **3.7.2.1 Field-specific impact assessments (FIAs)**

#### ***Study programme***

The process starts when the licensee prepares a draft study programme. The programme should describe the development, and the anticipated effects of the development on the environment, including cultural monuments and cultural milieus, any transboundary environmental effects (cf. Section 3.9), natural resources, fisheries and the general society. The programme shall be prepared on the basis of available knowledge and necessary updates thereof, and it should provide an account of the need for any new studies and documentation.

The study programme shall also provide the authorities and the consultation bodies with the opportunity to have an impact on what must be studied. The study programme determines which factors must be illuminated in the impact assessment, and it forms the basis for the impact assessment executed by the developer.

See the Petroleum Regulations, Section 22 and Section 29, fourth subsection.

#### ***Consultation regarding the study programme***

The developer sends the study programme for consultation to the relevant authorities and special interest organizations, and simultaneously makes the programme available on the internet. The MPE has drawn up a general consultation list that can be found on the MPE's website, [www.regjeringen.no/oed](http://www.regjeringen.no/oed). It will almost always be appropriate to have a dialogue with the MPE to

ensure that the relevant consultation bodies are consulted. A copy of the study programme must be sent to the MPE at the same time. In special cases, the MPE itself can decide to send the impact assessment programme out for consultation.

The consultation is an important part of the study programme process. The consultation bodies must be given the opportunity to evaluate the licensee's description of the effects the development could have, and to point out potential conflicts and possible alternatives. In this manner, the consultation bodies will contribute to determining which issues should be illuminated in the impact assessment. The consultation statements shall be sent to the developer, with a copy to the MPE.

The deadline for consultation comments is set in coordination with the MPE, and will, as a general rule, be 12 weeks. The deadline should not be shorter than six weeks. The length of the deadline will depend on the size, complexity and scope of potential consequences for the environment, society and other industries, as well as to what extent these consequences have been studied previously.

When regional assessments are used as a basis for an FIA programme, they will also be part of the consultation regarding the FIA. If the consultation bodies find it necessary that regional studies be updated, this must emerge from the consultation statements regarding the FIA programme. If the regional studies that have been used are not enclosed with the FIA programme, it must clearly emerge where the consultation bodies can obtain the relevant studies. See the Petroleum Regulations, Section 22 third subsection and Section 22 litera a, fourth subsection.

#### ***Determination of the study programme***

When the developer has received the consultation comments, a copy of all received comments shall be sent to the MPE. At the same time, the MPE should receive a summary of the comments, with the developer's comments as to how they will be taken into consideration in the impact assessment, along with a draft study programme. On this basis, the MPE will determine the final study programme. In practice, the MPE will often request a meeting with the licensee to review the consultation comments and how they will be followed up in the impact assessment. The MPE must ensure that the study programme fulfills the regulatory requirements regarding the contents of a study programme.

Determination of the FIA programme will take place by means of the MPE sending a letter to the licensees. If a study programme must be drawn up that also fulfills the requirements in the Planning and Building Act, the processing of the study programme in the MPE shall be coordinated with the consideration of the study programme in the Ministry of the Environment.<sup>5</sup> If the measure could conflict with national or important regional considerations, the MPE shall submit the programme to the Ministry of the Environment prior to final determination. The Ministry of the Environment must submit any remarks no later than two weeks after receiving the necessary information in the case.

See the Petroleum Regulations, Section 22, second and third subsections, cf. the Impact Assessment Regulations, Section 2, fourth subsection and Sections 7 and 8.

#### ***Consultation regarding the impact assessment***

The impact assessment is prepared by the licensees, normally the operator, in accordance with the prevailing regulations. The licensee sends the impact assessment out for consultation, and

---

<sup>5</sup> The MPE submits the study programme to the Ministry of the Environment.

simultaneously announces in "Norsk Lysingsblad" that the impact assessment has been submitted for consultation (the announcement can be sent electronically to [lysingsbladet@norge.no](mailto:lysingsbladet@norge.no)). The impact assessment must be made available on the internet. The impact assessment must simultaneously be sent to the MPE. In special cases, the MPE itself can decide to send the matter out for consultation.

The impact assessment is part of the plan for development and operation or the plan for installation and operation. Therefore, it is important that the impact assessment is sent out for consultation sufficiently well in advance of planned submission of the plan for development and operation or plan for installation and operation. This is to ensure that any comments and remarks can be dealt with in the plan for development and operation or the plan for installation and operation.

During the consultation of the impact assessment, it is important to obtain an evaluation of whether the effects of the development have been satisfactorily illuminated in relation to the stipulated study programme. The deadline for comments should not be shorter than six weeks. The deadlines shall be set in consultation with the MPE, and will as a rule be 12 weeks. In the same manner as for the programme, the consultation deadline will depend on the character of the development. This means that the entire process from when the programme is presented until the impact assessment is approved usually takes at least eight months. It is important that the licensees take this into account in their planning.

See the Petroleum Regulations, Section 22a, fourth subsection.

***Study obligation fulfilled – potential requirements for additional studies or supplementary information***

When the developer has received the consultation comments, a copy of all received comments is sent to the MPE. At the same time, the developer should send the MPE a summary of the statements along with the developer's comments. On the basis of the impact assessment and the associated consultation comments, the MPE will determine whether the study obligation has been fulfilled in connection with consideration of the PDO/PIO.

The MPE can require additional studies or supplementary information before the study obligation is deemed to have been fulfilled. This could be relevant, for example, if information emerges in the consultation process which indicates that the study programme has not been followed up as regards significant elements, or that the consultation bodies have uncovered new issues that are of material significance for an approval decision.

Additional studies shall not normally be demanded beyond the stipulated study programme.

Additional studies shall normally be sent out for consultation to the parties that have submitted comments in connection with consultation for the impact assessment. The study obligation is not deemed to be fulfilled until any additional studies have been heard and processed. The deadline for comments is normally substantially shorter than in connection with the consultation for the impact assessment itself, but should not be shorter than two weeks.

The MPE's presentation of the case shall indicate how the effects of the development and the received comments have been evaluated, and what impact has been attributed to them. The presentation is, as a point of departure, in the public domain. Insofar as possible, the documents should be made available on the internet. The MPE's statement regarding the matter will take place by means of Royal Decree for developments with an investment ceiling lower than an amount stipulated in connection with the annual budget consideration process in the Storting, and

which have no significant fundamental or social aspects.<sup>6</sup> For other developments, the presentation of the case can take place by means of a Storting Proposition. See the Petroleum Regulations, Section 22a fifth and sixth subsections.

***Approval of the development***

The consultation comments regarding the impact assessment will be part of the basis for making decisions in the authorities' consideration of a PDO or PIO.

See the Petroleum Act, Section 4-2, first subsection, cf. the Petroleum Regulations, Section 20, fourth subsection.

**3.7.2.2 Regional impact assessments**

***Consultation regarding the study programme***

The consultation period is determined in cooperation with the MPE and, as for FIAs, it will normally be 12 weeks, but no shorter than six weeks. For programmes for regional assessments, shorter deadlines than 12 weeks will only be set in exceptional cases. This is because such programmes will normally be more extensive in terms of area than the programmes for field-specific assessments, and because a regional assessment will be used in connection with multiple developments, and will thus have greater importance and a longer lifetime than the field-specific assessments.

See the Petroleum Regulations, Section 22, third subsection.

***Determination of the study programme***

After the consultation process, the MPE stipulates the study programme based on the licensee's proposed programme, consultation statements and any comments from the licensees regarding the statements. The RIA study programme will be stipulated by means of the MPE sending a letter to the licensees.

See the Petroleum Regulations, Section 22, third subsection.

***Consultation regarding the impact assessment***

The licensees prepare the impact assessment in accordance with the study programme. The developer sends the impact assessment out for consultation, and announces simultaneously in Norsk lysingsblad that the impact assessment has been sent out for consultation. During the consultation process, it is important to obtain an evaluation of whether the consequences have been sufficiently illuminated in relation to the stipulated study programme. The consultation deadlines are set in cooperation with the MPE and shall as a general rule be 12 weeks, but not shorter than six weeks. In the same manner as for the programme, the consultation deadline will depend on the scope of the study and there must be good reasons for setting a consultation deadline shorter than 12 weeks.

See the Petroleum Regulations, Section 22a, fourth subsection.

***Consideration of the impact assessment***

A regional assessment will not be part of a development in the same way as a field-specific assessment. For regional assessments, an appendix should be prepared to present the consultation statements received and the licensees' comments regarding these statements. The licensee is responsible for preparing the appendix, but this should take place in a dialogue with the MPE.

---

<sup>6</sup> The current limit is NOK 10 billion, cf. Recommendation to the Storting No. 67 (1999-2000), Item 4.1.2.

The regional impact assessment, together with any appendices, will be addressed by the MPE in a separate letter. The MPE should determine whether the RIA with appendices can be used in connection with future, field-specific assessments.

See the Petroleum Regulations, Section 22a, fifth and sixth subsections.

### **3.8 Contents of the study programme and impact assessment**

#### **3.8.1 Field-specific impact assessments**

##### **3.8.1.1 Study programme**

A study programme shall be prepared when an independent impact assessment is to be performed in connection with a development, cf. Item 3.6.1.1 above.

The study programme is to serve as information to the authorities as well as a basis for consultation. The programme should be as short and concise as possible, and should not normally exceed 30 A4 pages of text (excluding appendices). The study programme must be in Norwegian and unnecessary use of technical terminology should be avoided.

It is important that the study programme provides a clear and easily understandable overview of the planned project, the extent to which existing regional background studies will be used and planned new study work.

A proposed disposition and table of contents for the study programme appear below. Chapters 3, 4 and 6 should give a description of the extent to which any existing or new independent regional studies will be used as documentation. If the licensee plans to use existing regional impact assessments, it must be demonstrated that the studies have taken the effects of the development in sufficient consideration. The consultation regarding the programme will be the appropriate time for the consultation bodies to make comments regarding a potential need to update the relevant regional assessments.

0. Summary
1. Introduction
2. Plans for development and operation
3. Environmental consequences and remedial measures
4. Consequences for the fisheries and other maritime industries
5. Social consequences
6. Planned studies

#### **Chapter 1**

This chapter should explain the purpose of the study programme and the statutory requirements for impact assessments. The process, consideration procedure and schedule should also be discussed. The schedule should be clarified with the MPE in advance.

#### **Chapter 2**

The study programme should provide a brief description of the licensees, the history of the licence, resources, production plans, alternative development solutions that have been considered, health, working environment and safety, economy and cessation of the activities.

### **Chapter 3**

This should be followed by a preliminary description of the planned contents of the FIA as regards environmental factors and environmental impact. The effects of discharges/emissions and the consequences viewed in relation to national objectives should be included. A description should be provided of any known cultural monuments in the area, and whether any such monuments have been uncovered through the work that has been done. The description should include how the licensee plans to deal with the consequences of regular and acute discharges on plant and animal life in the sea areas and along the coastline, as well as on cultural monuments and cultural milieus. The likelihood of acute discharges should be described. An account should be given of how the licensee will safeguard BAT in connection with the planned development.

An overview should be provided of remedial measures to limit emissions to air and discharges to sea that the licensee plans to evaluate. To the extent such information is available, the developer should submit an overview of the energy requirement and costs of supplying the facility with power from land instead of using gas turbines offshore, as well as the costs of potential reinjection of CO<sub>2</sub> from produced gas, turbines and other facilities. Potential NO<sub>x</sub> reduction measures must also be considered.

The primary rule objective of not allowing environmentally hazardous discharges to sea from deposits with independent development solutions should be used as a basis for the remedial measures being considered. The expected content of chemicals, etc. in produced water should be indicated, to the extent possible. Whether existing studies of remedial measures can be used, or whether new studies are needed should be discussed with the MPE at an early stage.

An account shall also be given of any transboundary environmental effects (cf. Chapter 3.9), i.e. potential significant environmental effects for countries other than Norway. The estimated discharges from ship traffic associated with the activities on the Norwegian shelf should be indicated.

### **Chapter 4**

This chapter should provide a preliminary description of the consequences for the fisheries and other maritime industries of e.g. the area that will be occupied by the development, as well as what the FIA must describe concerning this topic.

### **Chapter 5**

This should give a preliminary description of the planned contents of the FIA as regards the effects on the society at large. Planned operations and base services should be discussed. For developments where significant ripple effects can be expected on land, the competence and capacity of local and regional business and industry in connection with the development, as well as the need for labour, should be discussed. This discussion should consider whether the development in employment will have different consequences for women and men. An account should also be given of expectations for facilitation by local and regional authorities.

### **Chapter 6**

This chapter should include a brief overview of the issues to be illuminated in new studies, and how they will be conducted and reported in the impact assessment. It may also be appropriate to include a (preliminary) table of contents for the impact assessment.

See the Petroleum Regulations, Section 22. See Storting White Paper No. 58 (1996-1997), Item 14.6, 8<sup>th</sup> paragraph et.seq., cf. Item 6.2, 3<sup>rd</sup> paragraph. See also Recommendation to the Storting No. 114 (1995-1996).

### **3.8.1.2 Field-specific impact assessment**

The consultation process for the impact assessment should be completed before the PDO/PIO is submitted to the authorities.

The point of departure for the impact assessment shall be the issues defined in the study programme. It is important that also remedial measures that the licensee has decided not to implement are mentioned. This should be substantiated on the basis of environmental, financial, technical or reservoir factors. It would be advantageous to discuss the degree of documentation needed for these elements with the MPE early in the process. The MPE's evaluation of the relevant remedial measures will be based on the assumption that cost-effective environmental measures shall be implemented.

#### ***Relationship to regional impact assessments***

The main point for the authorities and other consultation bodies is that field-specific assessments, together with other relevant documentation such as approved regional studies of various aspects, as a whole cover the requirements stipulated for impact assessments in connection with new developments.

Because of the independent approval process that the regional assessments undergo (see above), it is assumed that when these assessments are used by the developer in connection with field developments, and thus become part of the FIA process, then both the regional impact assessments and their appendices will be available in connection with consultation regarding the programme for FIAs, cf. Section 3.5.3.2.

#### ***Scope***

The scope of an FIA will depend in part on the degree to which other documentation, for example regional assessments, is used. See also Section 3.4 on exemptions for FIAs.

#### ***Disposition***

The proposed disposition for FIAs is very similar to the study programme:

##### Preface

0. Summary
1. Introduction
2. Plans for development, installation and operation
3. Summary of consultation statements received
4. Environmental consequences and remedial measures
5. Consequences for the fisheries and other maritime industries
6. Social consequences
7. Summary of remedial measures and follow-up studies and monitoring
8. Emergency preparedness

*The preface* should give a brief description of the reason for the impact assessment and who is responsible for it.



*The summary* and conclusion, maximum five pages, should summarize the main elements of the assessment and present the most important conclusions and recommendations.

*Chapter 1* should deal with the purpose of the assessment and provide a brief description of the statutory requirements in relation to the impact assessment. The process, consideration procedure and schedule should be discussed. In addition, an overview should be provided of other decisions by the authorities than the PDO approval/consent for installation and operation that are required in connection with the project.

*Chapter 2* can include a brief description of the licensees, the history of the production licence, resources, production plans, alternative development solutions considered, selection of the development solution and production strategy, which criteria have been used as a basis for selecting the development solution and production strategy, including production regularity, health, working environment and safety, economy and cessation of the activities.

*Chapter 3* should include a summary of the consultation statements received in connection with the FIA programme, with an evaluation of the statements and, if applicable, reference to where the various issues are discussed in the impact assessment.

*Chapter 4* should include an account of the effects the development could have on environmental factors. Preventive and remedial measures should be included in the description. Any subsequent development phases and tie-ins to other fields and land facilities, as well as any unitization of the petroleum activities, shall be described. An account shall also be given of:

- discharges to sea and soil, emissions to air
- any material assets, including natural resources and cultural monuments, that may be affected as a consequence of the development,
- the consequences of the technical solutions that have been selected,
- how environmental criteria and consequences have been used as a basis for the technical solutions selected.

Any environmental consequences for animal and plant life in the sea areas and along the coastline should be described, including regular and/or acute discharges from the activities. An account should also be given of any significant transboundary environmental effects (cf. Section 3.9), i.e. potential significant environmental effects in countries other than Norway. If these factors are documented in existing or new independent regional impact assessments, the appropriate references should be provided. At the same time, the licensee must substantiate that these studies reflect due consideration for the volume of discharges expected in connection with the activities. The expected content of chemicals, etc. in produced water, as well as chemicals associated with drilling (drilling fluid) should be indicated, to the extent possible. Remedial measures should also be reviewed in connection with the discussion of each specific type of discharge.

An account must be provided of how BAT requirements will be safeguarded in the planned development. An overview must also be provided of planned preventive measures to limit emissions to air and discharges to sea, along with a preliminary assessment of these measures. The licensees shall submit an overview of the volume of energy required and the costs associated with supplying the facility with power from land rather than using offshore gas turbines, and the costs of possibly reinjecting CO<sub>2</sub> from produced gas, turbines and other facilities. Potential NO<sub>x</sub> reduction measures shall be considered.

If cultural monuments are uncovered, the rules for dealing with such monuments must be followed. Any potential measures shall be described.

This chapter should also include an estimate of expected discharges from ship traffic in connection with the activities on the Norwegian Shelf.

*Chapter 5* should indicate the area that the alternative development solutions will occupy, and the associated impact on the fishery industry must be described. If documentation has been provided in the appended regional impact assessments, the appropriate references must be given.

*Chapter 6* shall give a description of the impact on the society in general, and for business and industry aspects of the alternative development solutions, including planned operations and base services. This will only be relevant for independent developments that may yield ripple effects of a certain size.

An analysis should be made of local and regional business and industry competence and capacity in relation to the company's needs for goods and services in the development and operations phases. The initiatives the company will take to enhance expertise in business and industry should be examined. This could include use of supplier networks and information about tender procedures. A description should be given of what will be done under the direction of the company, and any possibilities for cooperation with other players.

An analysis and evaluation should also be made of various types of labour in relation to the company's own needs in the development and operations phases. Measures should be proposed, both under the auspices of the company and measures that could possibly be implemented in cooperation with various authorities, in order to meet the need for labour highlighted in the analysis. Expected employment effects should be described, both local, regional and national. However, this expectation shall not constitute a guideline for the employment process. The analysis shall include an evaluation of whether the development in employment will have different consequences for women and men.

An analysis and evaluation should also be performed of the company's need for participation by the authorities – local, regional and national – in connection with the development. This applies particularly to landing solutions and in those cases where the operations organization is located at a different site than the main office. Depending on the character and size of the development, the study can include disposition of area, different types of infrastructure, house-building capacity and financing of various tasks.

A description should be provided of other social factors that will be affected on the local level, and which measures could be initiated, or which the company could help to realize, in the local society and the municipality, including also the consequences of the development on social planning in the local community.

*Chapter 7* shall provide a summary of remedial measures. Follow-up studies and environmental monitoring should also be described in this chapter.

*Chapter 8* shall give an evaluation of facilities for transport or utilization that are covered under the PIO.

*Chapter 9* shall provide an evaluation of technical and organizational preparedness measures.

The *appendices* to the impact assessment should present overviews of regional background studies, other implemented studies and other relevant basic material. The appendices should also include a plan for how potential follow-up studies and monitoring programmes are to be implemented.

See the Petroleum Regulations, Section 22a, first and second subsections.

As regards cultural monuments, see the Petroleum Act, Section 10-1, second subsection, cf. the Petroleum Regulations, Section 22 a and the Cultural Artefacts Act, Sections 1, 9 and 14. See also any relevant licence conditions.

### 3.8.2 Regional impact assessments

When there is reason to believe that new developments will be executed in an area on the Continental Shelf, the MPE takes a positive view of the preparation of studies of the regional consequences of the development. The MPE can also order licensees to prepare regional impact assessments if special reasons so indicate.

The purpose of establishing such regional impact assessments is that, as long as the methodology and assumptions remain relevant, they can be used as documentation in connection with new developments in the area. Such studies will thus contribute to the simplification of both the FIA document and the consideration process, since part of the documentation needed for the developments already exists.

A joint impact assessment for several specific developments may be appropriate for some fields/areas. This will apply particularly to small areas/fields with the same development operator and where several developments come at nearly the same time. However, such a study cannot naturally be regarded as a regional impact assessment, but rather a joint FIA for several developments.

The geographic delimitation of a regional impact assessment will differ from study to study. For discharges to sea, there is an express desire for the regional division to concur with the defined environmental monitoring regions on the Shelf. These will not necessarily coincide with the optimal division as regards examining regional effects of emissions to air. The infrastructure in an area can also render such a division inappropriate.

As the appropriate geographic area for evaluating the consequences of various emissions/discharges, etc. will vary from topic to topic, it will in most cases be most reasonable to prepare topic-based<sup>7</sup> regional assessments. This provides the best basis for evaluating the consequences because the area can be optimized based on what is most relevant for each topic.

The consequences/effects which it may be appropriate to examine through an independent regional study include:

- regional consequences for the natural environment and resources as a consequence of emissions to air, including NO<sub>x</sub> and nmVOC,
- regional consequences for the natural environment and resources as a consequence of planned discharges to sea, including oil and chemicals,
- consequences for the natural environment and resources from acute discharges,

---

<sup>7</sup> Topics could include occupied area, discharges of produced water and emissions of nitrogen oxides.

- consequences for the fisheries and other maritime industries of total area occupied in an area,
- social consequences of the activity
- cultural monuments

In each instance, there should be a dialogue between the licensee, the MPE and the consultation bodies in order to agree on an appropriate delimitation. This can vary considerably in relation to the various topical studies.

See the Petroleum Act, Section 4-2, third subsection.

### **3.9 *Impact assessments in connection with transboundary environmental effects***

The rule for transboundary pollution is based on the obligations Norway has under the Convention of 25 February 1991 regarding impact assessments for measures that may entail transboundary environmental effects (the Espoo Convention). Sweden, Finland, Denmark and the United Kingdom have also ratified the convention, which entered into force on 10 September 1997. Briefly stated, the rules entail that countries that may suffer significant impacts from other countries' activities in the form of substantial environmental effects are entitled to information about the project and an opportunity to exert influence. The evaluation of which activities may entail "significant transboundary environmental effects" must be subject to a specific assessment in each individual case. Elements to be considered will include the distance to the border, the activity's size, type of effect, scope of the effects, the size of the risk, possibility of spreading and the unique value of the natural environment in the specific area.

In addition, the recipient country and its citizens are entitled to participate in the national impact assessment process. Rules regarding notification of transboundary effects are found in the Petroleum Regulations, Section 22c. See also the Planning and Building Act, Sections 4-1, fourth subsection and 14-4, cf. the Impact Assessment Regulations, Section 19. See also Council Directive 97/11/EC on amendment of Council Directive 85/337/EEC on evaluation of the environmental effects of certain public and private projects.

#### **3.9.1 *Projects in Norway where there is risk of substantial transboundary environmental effects***

The licensee shall give an account of potential transboundary environmental effects in the study programme. The MPE is required to consider whether the scope of the effects is such that other countries must be notified. However, the licensees should notify the MPE at an early stage of potential transboundary effects, so that the Ministry's assessment and potential work to notify the authorities in other countries does not delay stipulation of the IA programme.

If the MPE finds there is a significant risk of substantial transboundary environmental effects, the study programme, with information about the project, shall be sent to the authorities in the relevant country(ies) (contact point). The MPE will normally do this at the same time that the Ministry of the Environment is informed. The MPE will also ensure that relevant countries that wish to participate in the impact assessment process are given a reasonable deadline during which to indicate whether or not the country wants to participate in the impact assessment process. The consultation rules for the impact assessment will also apply to these countries. The MPE will update the Ministry of the Environment and other relevant authorities regarding such matters.

The MPE has a reporting obligation to other countries. The licensees must therefore expect a somewhat longer consultation period for the study programme in these cases. See the Petroleum Regulations, Section 22c, cf. the Planning and Building Act, Section 4-1, last subsection, cf. Section 14-4 and the IA Regulations, Section 19.

### **3.10 Other legislation**

Some developments may be subject to other legislation that also requires impact assessments. The Petroleum Act does not provide for exemptions from the study obligation under other legislation. In such cases, there may be an independent obligation to report and to perform an impact assessment under the IA Regulations. The consideration process and the required contents of the study programme and the impact assessment may vary in relation to different legislation. The relationship to other legislation must be clarified between the MPE and other relevant authorities as early as possible during preparation of the measure, and before planned delivery of the PDO/PIO. In practice, the Planning and Building Act and the IA Regulations are the legal statutes that licensees will encounter most often in the impact assessment context. A brief description is provided below for this reason.

The MPE will coordinate the work in relation to other relevant authorities to ensure the most expedient coordination of the consideration process as regards impact assessments.

See the Planning and Building Act, Section 4-2 and Section 14-2, first subsection, cf. the IA Regulations, Section 6.

#### **3.10.1 Parts of facilities that are covered by both the Petroleum Act and the Planning and Building Act**

The Planning and Building Act will apply when a facility is placed on land or offshore within one nautical mile outside the baseline. Nevertheless, pipelines in the sea that transport petroleum within the area in which the Planning and Building Act applies are not covered under the Planning and Building Act. The Act stipulates requirements for impact assessments in Chapters 4 and 14.

The MPE is the responsible authority as regards developments and facilities that are related to the petroleum activities, including in those cases where area development plans for measures under the Planning and Building Act. If a PDO entails building and construction measures that are in conflict with the area section of the binding planning decision under the Planning and Building Act, the Ministry cannot approve the plan until the planning authority has given its consent.

The consideration process is largely the same as that under the Petroleum Act. It should be noted that the impact assessment process must be completed before planning decisions are made or before building permits are granted under the Planning and Building Act. The same applies to those cases where decisions are made according to specific special statutes, where the decisions can have a significant impact on the environment, natural resources or the society.

The licensee should expect somewhat more time needed in cases where the measure may be in conflict with national or important regional considerations. In such cases, the study programme

shall be submitted to the Ministry of the Environment before it is stipulated by the MPE. The Ministry of the Environment has two weeks from when it receives the study programme until it must respond as to whether or not it will be submitting remarks. The impact assessment is sent to the MPE, which sends it out for public consultation and simultaneously presents it for public inspection in the municipality where the facility will be established.

With regard to the consideration for the impact assessment in connection with decision and implementation, the consenting authority shall take into account both the impact assessment and any statements received in its processing and decision process. The recommended decision shall indicate how the application, with the impact assessment and the received statements, has been evaluated, and the importance attributed to these in the decision process.

There shall be an evaluation and, to the extent necessary, requirements shall be stipulated for studies with a view towards monitoring and clarifying the actual effects of measures. There shall also be an evaluation, and to the extent necessary, requirements shall be stipulated to limit and alleviate significant negative effects. The conditions must have a legal basis in the relevant sector legislation or in the Planning and Building Act.

The consenting authority can determine that an environmental follow-up programme must be prepared, with a view towards monitoring and alleviating significant negative effects. The programme shall ensure that the proposer, in cooperation with the relevant supervisory authorities, monitors the effects of the activity, including consideration of any potential unforeseen effects and implementing suitable corrective measures.

The Ministry of the Environment has prepared separate guidelines for the IA Regulations for planning under the Planning and Building Act. These guidelines can be found on the Ministry of the Environment's website, [www.regjeringen.no/md](http://www.regjeringen.no/md).

See the IA Regulations, Sections 2, 8, 10 and 12. See the Petroleum Regulations, Section 20, second subsection.

### **3.10.2 Parts of the facilities that are covered by both the Petroleum Act and the Harbours and Fairways Act**

Pipelaying and other petroleum activities in Norwegian sea territory that may have an impact on traffic and safety at sea will require permits, and possibly also mandatory studies under the provisions of the Harbours and Fairways Act (Act of 17 April 2009, No. 19 relating to harbours and fairways, etc.).

### **3.10.3 Parts of the facilities that are covered by both the Petroleum Act and the Energy Act**

Construction and operation of facilities for generation and transmission of high voltage electric energy – such as gas power plants or large electric facilities, require a licence under Section 3-1 of the Energy Act. The authority to issue licences under the Energy Act has been delegated to NVE. The MPE is the appeal body for the NVE's licence decisions. The Energy Act applies to Norwegian land territory and to inland waters out to the baseline.

Such measures will, as a rule, also trigger an independent reporting obligation and mandatory impact assessments vis-à-vis the NVE under the rules of the Planning and Building Act. For a more detailed account of the consideration procedure under the IA Regulations and the Energy Act in relation to these cases, please refer to "Facts 2008 about energy and water resources in Norway", Chapter 4 – Figures 4.2 and 4.3.<sup>8</sup>

The Energy Act will apply along with the Petroleum Act. To the extent that the measures are to be considered under both statutes, it is important that the MPE and the NVE are informed at the earliest possible point to ensure comprehensive and coordinated processing by the authorities as regards consideration of impact assessments and applications for consent under the Energy Act and the Petroleum Act.

The necessary impact assessments must be performed and the necessary applications for tie-in to the power system on land shall be submitted to the NVE before the PDO is submitted to the MPE. It is recommended that the processing of licence applications is clarified with the NVE prior to this time. The process of authority consideration of electrical facilities can be extremely time-consuming. It is necessary that the authorities' processing under both statutes is based on the same assumptions to the greatest possible extent. In any event, for this reason there should be coordination as regards time and processing of impact assessments and applications for consent.

In cases where land-based power production shall be established or planned in connection with the power system, it is important to ensure that the effects of the measure on the land-based power system and the relationship to regional and national electric power balances are thoroughly evaluated by both the developer and the authorities, throughout the entire process. This will ensure that the general public, the affected organizations and authorities can evaluate the case on a sufficiently studied basis. It is particularly important that NVE, Statnett and grid companies responsible for regional power system studies are included on consultation lists and are consulted at all stages of the matter (consultation regarding the notification, stipulation of the study programme, consultation regarding the implemented IA, application, etc.)

See the Energy Act, Section 2-1, the Regulations to the Energy Act, Section 3-2, cf. the Planning and Building Act, Sections 4-2 and 14-2, the IA Regulations, Section 6, cf. Section 2, last subsection.

#### **3.10.4 Other legislation that may be relevant**

- Act of 19 June 2009 No. 100 relating to conservation of nature
- Act of 17 June 2005 No. 62 relating to working environment, working hours and employment protection, etc.
- Act of 9 June 1978 No. 50 relating to the cultural heritage
- Act of 13 March 1981 No. 6 relating to protection against pollution and relating to waste

---

<sup>8</sup> [http://www.regjeringen.no/upload/OED/pdf%20filer/Faktaheftet/EVfakta08/Evfakta08\\_kap04\\_no.pdf](http://www.regjeringen.no/upload/OED/pdf%20filer/Faktaheftet/EVfakta08/Evfakta08_kap04_no.pdf)

## **4 GUIDELINES TO DEVELOPMENT SECTION OF PDO**

### ***4.1 Introduction***

Plans for development and operation of petroleum deposits shall be approved by the MPE, and the MPE must consent to the installation and operation of any facilities. Developments with an investment ceiling higher than a fixed amount shall also be submitted to the Storting (cf. Section 1.5).

In general, the authorities want to emphasize that the resource base and the technical solutions, as well as the economic estimates, must be sufficiently well-prepared. Estimates should be made that highlight the uncertainties that are critical for the project. The plan(s) should also contain an overview of future business opportunities that can provide a basis for changes in the scope of investments. PDOs should be adapted to the size and complexity of the development, and should be supplemented with supporting documentation. When the development includes facilities for transport or utilization of petroleum, the PDO shall also contain information about such factors.

The following sections and subsections will address topics in the development part of the PDO that affect both resource factors and HSE factors, cf. Section 20 of the Framework Regulations and Section 15 of the Temporary Regulations. In addition, the account given in the development section of the PDO shall include additional factors as regards HSE, cf. Chapter 6 Other decision criteria for safeguarding HSE.

Cf. the Petroleum Act, Sections 4-2 and 4-3.

### ***4.2 Description of the production licence***

A brief description should be given of the production licence's history and current status, including current and previous licensees.

### ***4.3 Unitization of petroleum activities***

Under the Petroleum Act, an obligation exists in certain cases to attempt to enter into agreements regarding unitization, cf. Section 4-7 of the Petroleum Act. In those cases where a petroleum deposit extends over several blocks that do not have the same licensees, attempts shall be made to enter into an agreement for the most efficient coordination of the petroleum activities, and allocation of the petroleum deposit. Also in those cases where unitization of multiple petroleum deposits is clearly an efficient solution, the licensees shall attempt to reach agreement on unitization. In both cases, such agreements are conditional on the approval of the MPE.

This means that, in those cases where there are multiple known, separate petroleum deposits in an area that extends over multiple production licences, and one or more of these deposits are being considered for development, the possibility of coordinating production, transport, utilization and cessation must be investigated and evaluated. It is important to obtain the best possible overview of unitization opportunities and benefits at the earliest possible point in time. If the criteria for unitization are in place, and the licensees cannot agree regarding an agreement, the MPE can stipulate how such unitized petroleum activities shall take place.



Which solutions are selected for unitization depends on the resource base, the maturity of the area and existing infrastructure. The duty under the unitization provision rests with all licensees in the relevant area, with a natural activity commitment for the licensee(s) that are considering a specific development or other form of petroleum activity. Documentation of studies to evaluate potential unitization will be demanded where this is natural.

Factors that are of significance for health, environment and safety in connection with potential unitization of the petroleum activities shall also be described.

A unitization agreement for the deposit or deposits must be prepared and approved prior to submission of the PDO. The development plan shall refer to the unitization agreement, and describe the main elements in the agreement.

See the Petroleum Act, Section 4-7 and the Petroleum Regulations, Section 21, second subsection, litera a.

#### **4.4 Contract strategy**

Based on an analysis of the opportunities for ripple effects in the region, the licensees should give an account of how it will organize its contract strategy in connection with the development.

#### **4.5 Use of facilities owned by others**

The TPA Regulations govern the process surrounding the signing of agreements for the use of facilities owned by others for production, transport or utilization of petroleum, pursuant to Section 4-8 of the Petroleum Act. The purpose is to achieve efficient use of facilities and ensure that the licensees have good incentives for exploration and production activities, based on good resource management considerations. When entering into an agreement for use of facilities owned by others, the licensee shall provide a report on the most important elements of the negotiation process and the agreement. A standardized agreement can be found on [www.npd.no](http://www.npd.no).<sup>9</sup>

If the plan entails use of existing facilities offshore or on land territory, a description of such facilities shall normally be presented, including a description of necessary modifications as a consequence of the tie-in. An agreement including tariff must be negotiated before the application is submitted.

Furthermore, the description shall clarify where the physical boundary between the applicant's own and others' facilities runs, as well as indicate other potentially uncertain factors associated with the connection. An account shall also be given of the division of responsibilities between the parties. The licensee group that owns the existing facility has an independent responsibility for clarifying vis-à-vis the authorities whether the modifications or changes lead to a requirement for a new or amended PDO/PIO.

---

<sup>9</sup>

<http://www.npd.no/Global/Norsk/5%20-%20Regelverk/Skjema/Andres%20bruk%20av%20innretninger/TPAskjema-bokmål.pdf>

<http://www.npd.no/no/Rapportering/Innretninger/>

If the right of ownership and/or right of use is transferred to another owner group than the one that is responsible for the application, this must be stated.

See the Petroleum Act, Sections 4-2 and 4-8 and the Petroleum Regulations, Section 21, second subsection, litera a. See also the Petroleum Regulations, Section 28, third subsection, litera b, and the TPA Regulations.

#### **4.5.1 Possibility of future tie-in of other deposits**

The plan should provide an assessment of the possibility of future tie-in of other petroleum deposits in the area, as well as an analysis of the financial and general safety consequences for the field or the facility if other licensees are to use the facilities.

This should include an overview of all deposits in the area, with special emphasis on the resource base and maturity. This also includes nearby petroleum deposits whose status is at the prospect stage, even when they are not included in the production licence.

See the Petroleum Regulations, Section 21, second subsection, litera l and Section 29, second subsection, litera j. See also the Petroleum Act, Section 4-8 and the TPA Regulations.

#### **4.6 Description of the scope of the development**

A clear and exact description must be provided of the scope of the development with regard to the deposits that are included, both in terms of area and stratigraphically.

If the plan entails development in two or more stages, the plan shall address the overall development, to the extent possible.

The first stage of a development can set guidelines for the further development. These guidelines can affect the total recovery from the field, and the recovery of other petroleum resources in the area. To enable evaluation of these effects, the PDO shall, to the extent possible, describe the further stages or alternative stages of the development. A description shall be provided of what is entailed in each stage, with consideration both for the deposits to be produced and the facilities that will be used.

If the plan is not intended to cover all of the stages that will make up the overall development, a clear description should be given of which stages are covered in the existing plan.

The authorities can limit the approval to apply to the specific stages.

Exemptions from area fees will, upon application from the licensees, be calculated on the basis of the area-wise extent of the deposits covered under the PDO, as long as production takes place from the deposits. Any needs and/or plans for further delimitation of the field should be described.

See the Petroleum Act, Sections 4-2, fourth subsection, 4-3, second subsection and the Petroleum Regulations, Section 21, second subsection, litera a, and Section 39, second subsection.

#### **4.6.1 Relationship between the size of the development and PDO documentation**

The requirements for the contents of a PDO are listed in the following. The PDO will not necessarily discuss all of the details of the project, but can refer to supporting documentation. The documentation as a whole must satisfy the requirements stipulated for a PDO, but shall be adapted to the individual development's size and complexity. A PDO shall describe the main features of the development solution, resource base, financial estimates, HSE factors and assumptions. The documentation should be clarified with the MPE well before submission. It is assumed that supporting documentation will be submitted together with the PDO.

#### **4.7 Reservoir factors**

A technical reservoir description and geotechnical description shall be provided for the petroleum deposit(s) that the licensee plans to develop. Key elements of the description will be an estimate of the petroleum volumes in place and a study of alternative production methods. The planned production schedule and recovery rate should be described, and uncertainties should be illuminated.

See the Petroleum Regulations, Section 21, second subsection, litera b.

##### **4.7.1 Geotechnical assessment**

###### ***Basis of data***

An overview shall be provided of seismic surveys and wildcat and appraisal wells. The description of the seismic surveys should include the basis of data, interpretation, modeling studies and methods of depth conversion.

The following illustrations should be enclosed:

- shot point map
- time map
- depth map
- velocity map
- interpreted seismic sections through the wells

###### ***Geology***

Geological surveys should include regional geology with tectonic development and sequence stratigraphic framework, lithostratigraphy and biostratigraphy. A description and mapping of the deposit should be available, including reservoir zones and a description of faulting and jointing that may have an impact on the extent and production properties of the reservoir. A model for potential regional pressure support should be discussed.

To obtain an overview of the reservoir properties, a description should be provided of the sediments, including facies, petrography and diagenesis. Special descriptions should be provided for any flow barriers and highly permeable strata. Thickness maps and correlations through the field should be enclosed. An evaluation of potential subsidence and sand production should be included.

###### ***Petrophysics***

The following elements should be included in the petrophysical documentation:

- formation parameters (lithology, porosity, permeability, water saturation, cut criteria, interpretation method)

- comparison of laboratory analyses (core plug measurements and water analyses) with data derived from logs
- fluid contacts, pressure data
- formation temperature
- method for correcting measured depth to true vertical depth

### ***Resources in place***

The following estimates should be documented:

- reservoir rock volume
- hydrocarbons in place at reservoir conditions
- hydrocarbons in place at surface conditions

The volumes should be divided according to type of hydrocarbon, and should also be split among the deposits and reservoir units included in the plan. The calculation method for the resource estimate should be stated, and the uncertainty in the estimate should be described and quantified.

## **4.7.2 Reservoir technology**

### ***Basis of data***

A listing should be included of all relevant data for technical reservoir studies from all exploration wells and, if applicable, test production wells, as well as an evaluation of the various reservoir data.

The following data should be described:

- fluid properties
- data from formation tests/test production

See the Petroleum Regulations, Section 18 and Section 48 with comments

### ***Drive mechanisms and reservoir simulation***

An evaluation of various drive mechanisms and the reasoning for selecting the mechanism with necessary data basis should be given (core analyses, miscibility studies, simulations, etc.).

The drive mechanism and expected production and injection rates should normally be documented through reservoir simulation. Results of sensitivity analyses should be included.

Important input data used in the reservoir simulation should be stated. The licensee must be able to provide data files with input data for simulation to the NPD, if the NPD finds this expedient. Uncertainties in input data and how this affects the estimated recovery from the reservoir should be evaluated.

### ***Recovery rate and production schedule (production profiles)***

The description of the estimated production and recovery rate should include the following:

- technically recoverable resources linked to various production methods
- recoverable reserves (commercially recoverable volumes under the conditions on which the plan is based)

Expected production profiles for oil, gas and condensate/NGL for the entire field and for separated zones, or different production facilities, if applicable, should be stated.

In addition to the anticipated profiles, the licensee must show at least one high and one low estimate, together with a probability distribution.

The licensee should also show how the uncertainty in resources in place, recovery rate and start-up date have been taken into account in connection with preparation of the profiles.

Profiles for expected water production and any profiles for injection of gas and/or water should be stated, divided in the same manner as the production profiles.

#### ***Methods for improving recovery***

Evaluations of methods for improving recovery in relation to the basic assumptions should be discussed. A plan for potential studies of such methods should also be included.

#### **4.8      *Production strategy***

The selected production strategy for the field must be described. This should include all short-term and long-term plans and measures that will have an impact on production speed and the total recoverable volumes of petroleum.

See the Petroleum Act, Section 4-1, cf. the Petroleum Regulations Section 21, second subsection, litera a. See also Odelsting Proposition No. 43 (1995-1996), pg. 41.

#### **4.9      *Development solutions***

The plan shall describe the selected development solution and state the reasons for selecting this solution. A brief description should also be given of alternative solutions that have been considered. If it is difficult to submit just one development solution for all areas at the time of submission, multiple solutions may be indicated. The development alternatives in question should then all be equally well-documented. The licensee must also give a clear indication of during which situations each individual development solution will apply.

If the development includes facilities on land, these facilities shall be included in the description of the development solution. The MPE should be contacted if there is doubt regarding whether or not a facility on land is covered under the Petroleum Act. Please also note the importance of the need for coordination with impact assessments under the Planning and Building Act, cf. Chapter 3.10.1.

The plan should also contain an overview of future business opportunities that may provide a basis for changes in the development solution.

See the Petroleum Act, Section 4-2, the Petroleum Regulations Section 21, second subsection, literas a and g. See also the Petroleum Regulations, Section 21, third subsection.

#### **4.10    *Description of facilities and concept evaluation***

If changes have been made in relation to the documentation submitted in connection with the decision to continue (BOV), this should be described in the application for a PDO or PIO. See Section 2.2 (documentation in connection with BOV).

#### **4.11 *Technical description of facilities***

A description of the technical solutions for the development shall be provided. The plan should contain a description of the selected type of facility, and the facility's flexibility vis-à-vis changes in reserve estimates and production schedule should also be discussed. The solutions and technology selected to prevent major accidents and to minimize hazardous emissions to air and discharges to sea must be included, and the facility's energy efficiency should be described.

An evaluation of potential development solutions for additional resources in and near the field should be included. Technical and cost-related consequences of including these resources in the plan, or alternatively in a future adaptation of the plan, should be explained.

If the plans for the petroleum activity entail use of new technology, the PDO shall contain a plan for qualification of this technology.

An evaluation of development solutions shall be provided, as regards use of manned subsea operations in all phases of the petroleum activities.

An account shall also be given of the need for safety zones in connection with development and operation of the petroleum deposits.

The plan should state the expected regularity for the entire facility, and for key main components. An account should be given of the sensitivity vis-à-vis potential changes in technical or commercial factors.

See the Petroleum Regulations, Section 21, second subsection, literas c and e and Section 26.

##### **4.11.1 Special information about load-bearing structures, deck arrangement and subsea facilities**

A description should be given of the type and lifetime of load-bearing structures, deck arrangement and subsea facilities. If there is danger of subsidence in the installation area, a description should be given of the consequences this could have for the facilities, as well as which measures will be implemented to secure the facilities.

Overview drawings should show load-bearing structures and deck arrangements. Deck arrangements should show main equipment and the relative placement of the various areas. Emphasis should be placed on the flexibility of the solution as regards area, weight capacity, risers and tie-in possibilities in connection with potential future changes.

For subsea developments, the general drawings should show the respective placement and design of the planned facilities. An account should be given of the flexibility for further tie-ins. Measures the licensee plans to implement to safeguard considerations for fishery activities, i.e. installation of protective structures and other covering of pipelines and equipment, should also be described. Planned maritime operations in connection with tow-out to fields, installation, operations and maintenance should be described.

##### **4.11.2 Special information about process and support facilities**

The flow chart for the main process, with capacity indications and a description of the arrangement of main areas, should be presented.

The following should also be described:

- principles and criteria for selecting arrangements and main components
- philosophy for securing the facility
- flexibility vis-à-vis expected changed operating conditions

A description should be provided of the possibilities for future changes to the process with a view towards unforeseen reservoir behaviour, as well as the possibility for accepting wellstreams from satellite fields.

#### **4.11.3 Special information about accommodations capacity**

An account should be given of the planned accommodations capacity in relation to the need for personnel in the various phases of the petroleum activity covered under the PDO.

#### **4.11.4 Special information about transport systems**

When the development includes facilities for transport or utilization of petroleum, the PDO shall contain information about such factors, including an assessment of the relevant landing methods and locations. Even if a PIO will be submitted, facilities for transport or utilization must also be described in the PDO.

In the description of the transport system, an account should be given of the criteria used in connection with the selection of technical solutions. This may include:

- quantity and composition of the hydrocarbons to be transported
- corrosiveness evaluation over the planned lifetime of the system
- possibilities for increasing capacity
- tie-in point
- regularity
- trawlability
- economy
- health, environment, safety and quality
- risk exposure
- robustness/flexibility
- operational aspects

Overview drawings showing the total transport system, including any tie-in points, should accompany the description.

An account should be given of the transport system's sensitivity to potential changes in technical or commercial factors.

Priority rules for various users' oil/gas transport should be described.

If a PIO is to be submitted in parallel with the PDO, which describes the transport solution for the development, details about these factors can be included in the PIO.

See the Petroleum Act, Section 4-2, second subsection, cf. the Petroleum Regulations, Section 21, second subsection, litera i.

#### **4.11.5 Special information about metering systems**

The plan should contain the following information about the fiscal metering systems:

- metering principle
- quantification of expected metering uncertainty
- cost/benefit evaluation of the selected solution

#### **4.12 *Costs in the development phase***

Investment costs should be stated in accordance with NORSOK standard Z-014. Operating costs should be included, and separate profiles should be stated for CO<sub>2</sub> tax and NO<sub>x</sub> tax.

The project should be developed so far that all investment elements can be estimated with reasonable certainty before the PDO is submitted to the authorities.

The licensees should present sensitivity analyses for economic parameters that provide a good impression of the project's range of uncertainty. How the licensee handles uncertainties in the cost estimates should also be addressed clearly. Cost estimates shall be stated as an expected value. In addition, estimates should be presented with 10/90 and 90/10 confidence levels. In those cases where cost estimates are based in whole or in part on foreign currency, the conversion rates to NOK as well as the percentage of the costs that will be incurred in foreign currency must be specified. The licensees are responsible for any overruns in relation to the cost estimates.

An account should be given of future business opportunities that could provide a basis for changes in the scope of investments.

See the Petroleum Regulations, Section 21, first and second subsections, litera f and Section 29, first subsection and second subsection, litera f.

#### **4.13 *Organization and execution***

As a main rule, a description must be provided of the planning, execution and organization of the development, including plans for safeguarding employee participation.

The ownership of the facility should be described. If the facilities included under the PDO application are also subject to the Petroleum Safety Authority Norway's requirement for an Acknowledgement of Compliance (AoC), the licensee should state who will be applying for the AoC.

See the Petroleum Act, Section 10-6, first subsection. See also the Petroleum Regulations, Section 21, second subsection, litera d, Section 29, second subsection, litera d and the Petroleum Regulations, Sections 56, 57 and 58.



#### **4.13.1 Planned schedule and activity plans**

A schedule for the development divided by activities must normally be submitted. A description of the schedule should be included, with an indication of which activities are time-critical and whether or not the implementation time can be shortened.

#### **4.13.2 Organization**

An account of the project's management system shall be provided. An account should also be given of the philosophy applied to execution of the development and the contract strategy.

#### **4.14 Operations and maintenance**

A general description shall be given of the requirements for operation and maintenance of the facility and which operations and maintenance philosophy shall be used as a basis, including use of integrated operations (IO). It will be natural to discuss this in relation to the items about regularity mentioned elsewhere in the document.

See the Petroleum Regulations, Section 21, second subsection, litera e and Section 29, second subsection, litera e.

#### **4.14.1 Production and reservoir monitoring**

##### ***Rate sensitivity***

The planned plateau rate for the field and the maximum rate from individual wells should be stated, taking into consideration any rate sensitivity associated with displacement in the reservoir, coning, etc.

##### ***Production strategy***

Information should be provided about the evaluation that led to the selection of well types and the selected number of production and injection wells. The need for extra well slots and the need for any observation wells should be included in the account. The licensee should state the number of wells, indicate the drilling plan and the planned well positions and perforation intervals that form the basis for the expected production profile.

The strategy for selecting production intervals (reservoir zones, etc.), criteria for any recompletion and the programme for monitoring the reservoir should be stated.

If pre-drilling of production wells is relevant, a plan for collecting information from these wells, and for how the information will be used in the development, should be included.

For high-pressure fields, the connection between lowering pressure in the reservoir and limitations in the possibility to drill production wells should be described. For such fields, the production effects of potential delayed drilling progress should be described and quantified.

Potential production strategies should be indicated for zones or parts of the deposit that the licensee does not plan to produce under the current plan, but which could be profitable if assumptions change, such as with regard to the size of the resources or the price of oil.

Consideration should be given to how the capacity for treating produced water, gas, etc., as well as the capacity for injecting water, gas or chemicals affects the production schedule and total recovery.

#### ***Fluid chemistry***

Information should be provided concerning the composition of the reservoir fluid. The following properties should be described: corrosiveness, scaling, wax and asphalt deposits, hydrate formation and emulsion tendencies.

#### ***4.15 Main plan for drilling and well activity***

The PDO shall include a main plan for drilling and well activity.

The main plan should contain the following:

- purpose and schedule for the planned drilling and well activities
- references to relevant governing documentation for the respective activities
- overview of deviations in relation to regulatory requirements and internal procedures/requirements
- description of the planned drilling and well activities, with associated use of downhole equipment, surface equipment and safety valves
- well sketch with clear indications of barriers in connection with drilling and well activities and technical solutions for completion and permanent plugging of the well
- summary of potential technical and operational problems that can occur during the activities and identified risk, as well as precautions planned in this connection
- geological forecasts/information of significance for the activities
- account of any planned use of oil-based drilling fluid
- plan for disposal of drill cuttings

The main plan for drilling and well activity shall be submitted as a separate document attachment to the PDO or to the application for exemption from the PDO.

#### ***4.16 Disposal of facilities***

Licensees shall describe how the facilities can be disposed of after cessation of petroleum activities, and shall stipulate the costs of disposal. A review of various disposal solutions at this stage can have an impact on the selection of materials and technical solutions. The opportunities for further use after production from the deposit(s) has ceased should also be included in the description.

See the Petroleum Regulations, Section 21, second subsection, literas h and i and Section 29, second subsection, litera h (Section 3 of the Facilities Regulations).

#### ***4.17 Financial analyses***

A description shall be provided of all relevant financial aspects of the project, and an uncertainty assessment should also be included.

Profitability calculations should be performed, both before and after tax, and the assumptions for these calculations should be specified. Insofar as possible, all variables should be unbiased. See the Petroleum Regulations, Section 21, second subsection, litera f.

#### **4.17.1 Assumptions**

All assumptions that are used as a basis for financial calculations in the PDO should be documented so that the calculations can be reproduced. This indicates e.g. that the different variables that are included in the calculation must be presented in relation to a division by time, as necessary. Key variables are:

- price and price trends for the products to be sold
- exchange rates
- inflation
- required rate of return
- sales volumes of oil, gas, condensate and NGL
- purchase of gas
- tariff income
- investments
- all operating costs, including tariffs for processing and transport of petroleum and other services, CO<sub>2</sub> tax, NO<sub>x</sub> tax, etc.
- all necessary assumptions for tax calculations, including financing assumptions
- final disposal
- any credits for income, costs, taxes, etc. included in the calculations.

All amounts are to be stated in firm NOK, or in other currencies where relevant.

If the various licensees have substantially different bases for decision-making, the plan can include a comment describing this.

At the same time as the PDO is submitted, the licensee should provide an update of the petroleum-related data provided in connection with reporting to the revised national budget. This shall be submitted as a separate report to the NPD.

#### **4.17.2 Results**

Profitability should be presented before and after tax.

Profitability should be presented as a present value with the authorities' prevailing required rate of return.<sup>10</sup> The CO<sub>2</sub> tax and the NO<sub>x</sub> tax should also be included in the before-tax calculations.

The present value before tax of revenues (by product/service if applicable), investments and operating costs should be shown separately. For operating costs, tariffs, fixed and variable agreed and optional leasing costs, NO<sub>x</sub> tax and CO<sub>2</sub> tax should be separated from other operating costs.

---

<sup>10</sup> The licensee should contact the MPE to clarify the required rate of return to be used.

In addition to the present value, a break-even price and internal rate of return should be calculated before and after tax. The break-even price is the oil price (with associated gas, NGL and condensate price) that makes the present value of the development at the selected required rates of return equal to zero.

#### **4.17.3 Financial risk assessments**

The licensee must clearly indicate how it has dealt with uncertainty in the project, for example as regards dimensioning and flexibility.

The overall financial risk with the most important uncertainty factors, seen from both the licensee's perspective and a socio-economic perspective, should be described and quantified. Descriptions should be provided of the methods and assumptions used to handle uncertainty.

#### **4.17.4 Optimization of development and operation**

A presentation of the project's economy should include analyses showing that optimization has been conducted as regards

- development concepts
- production strategy
- transport solutions for oil and gas
- flexibility, i.e. the possibility of making adjustments in relation to changed assumptions
- evaluations linked to owning/leasing facilities, including contract wording to safeguard good resource exploitation, including tail production and phase-in of third-party resources

Changed assumptions include changed prices for petroleum, changed resource estimates and additional resources in nearby areas.

#### **4.17.5 Gas for injection purposes**

If imported gas is to be used for gas injection to optimize production, such purchase of gas should be described and signed agreements for gas deliveries should be documented.

#### **4.18 Naming of fields and designation of facilities**

No later than in connection with the submission of the PDO or the application for exemption from such a plan, the licensees should apply to the Norwegian Petroleum Directorate for consent to name the field.

See the Petroleum Regulations, Section 79 and the Resource Regulations, Section 17.

## **5 GUIDELINES TO INSTALLATION SECTION OF PIO**

### **5.1 *Introduction***

Special permission for installation and operation of facilities is granted by the MPE, cf. Section 4-3 of the Petroleum Act. Developments with an investment ceiling that exceeds a fixed limit shall also be submitted to the Storting before the MPE approves the development (cf. Section 1.5).

Estimates should be made that highlight the uncertainties that are critical for the project. The plan(s) should also contain an overview of future business opportunities that can provide a basis for changes in the scope of investments. The PIO should be adapted to the size and complexity of the development, and should be supplemented with background documentation.

The following sections and subsections will address topics in the installation part of the PIO that affect both resource factors and HSE factors, cf. Section 20 of the Framework Regulations and Section 15 of the Temporary Regulations. In addition, the account given in the installation section of the PIO shall include additional factors as regards HSE, cf. Chapter 6 Other decision criteria for safeguarding HSE.

See the Petroleum Act, Section 4-3 and the Petroleum Regulations, Sections 28 and 29

#### **5.1.1 Relationship between the size of the development and the PIO documentation**

The requirements for the contents of a PIO are listed in the following. The PIO will not necessarily discuss all of the details of the project, but can refer to supporting documentation. The documentation as a whole must satisfy the requirements stipulated for a PIO, but should be adapted to the size and complexity of the individual development. A PIO should contain the main features of the development solution, financial estimates, HSE factors and assumptions. The documentation as a whole must satisfy the requirements stipulated for a PIO. The scope of the documentation should be clarified with the MPE well before submission and any supporting documentation must be submitted together with the PIO.

### **5.2 *Description of the project***

A short description should be provided of the project's history and current status, including participants and distribution of ownership interests.

### **5.3 *Contract strategy***

Based on an analysis of the possibilities of ripple effects in the region, the company should explain how it will organize its contract strategy for the project.

### **5.4 *Development solutions***

The plan shall describe the selected development solution and state the reasons for selecting this solution. A brief description should also be given of alternative solutions that have been considered. If it is difficult to submit just one development solution for all areas at the time of submission, multiple solutions may be indicated. The development solutions in question should then all be equally well-documented. The licensee must also give a clear indication of during which situations each individual development solution will apply.

If the development includes facilities on land, these facilities shall be included in the description of the development solution. The MPE should be contacted if there is doubt regarding whether or not a facility on land is covered under the Petroleum Act. Please also note the importance of the need for coordination with impact assessments under the Planning and Building Act, cf. Section 3.10.1.

The plan should also contain an overview of future business opportunities that may provide a basis for changes in the development solution. See the Petroleum Act, Section 4-2, the Petroleum Regulations Section 21, second subsection, literas a and g. See also the Petroleum Regulations, Section 21, third subsection.

### **5.5      *Description of facility and concept evaluation***

If changes have been made in relation to the documentation submitted in connection with the decision to continue (BOV), this should be described in the application for a PDO or PIO. See Chapter 2.2 Documentation in connection with BOV.

### **5.6      *Staged development***

If the development is planned in two or more stages, the plan shall address the entire development, insofar as possible. The authorities can limit the consent to apply to specific stages. The first stage of a development can set guidelines for the further development. These guidelines can affect the production from specific fields, the production of other petroleum resources in the area and future transport solutions. To enable an assessment of these effects, the PIO shall, to the extent possible, describe the further or alternative stages of the development.

If the plan is not intended to cover all stages, a description should be given of what is included in each stage.

See the Petroleum Act, Sections 4-2, fourth subsection, Section 4-3, second subsection and the Petroleum Regulations, Section 29, first subsection.

### **5.7      *Tie-in of the development to other fields or facilities***

The TPA Regulations govern the process surrounding the signing of agreements for the use of facilities owned by others for production, transport or utilization of petroleum, pursuant to Section 4-8 of the Petroleum Act. The purpose is to achieve efficient use of facilities and ensure that the licensees have good incentives for exploration and production activities, based on good resource management considerations. When entering into an agreement for the use of facilities owned by others, the licensee shall provide a report on the most important elements of the

negotiation process and the agreement, cf. Section 14 of the TPA regulations. A standardized agreement can be found on the NPD's website.<sup>11</sup>

For tie-in to and use of Gassled's facilities, the principle of regulated third party access shall apply. For tie-in to and use of other facilities than Gassled, an agreement including tariffs must be negotiated before the application is submitted. If the plan entails use of existing facilities offshore or on land, a description of such facilities should normally be submitted, including a description of necessary modifications as a consequence of the tie-in.

Furthermore, the description should clarify where the physical boundary between the applicant's own and others' facilities runs, as well as state potential uncertainties associated with the connection. An account shall also be given of the division of responsibilities between the parties. The licensee group that owns the existing facility has an independent responsibility for clarifying vis-à-vis the authorities whether the modifications or changes lead to a requirement for a new or amended PIO.

If the right of ownership and/or right of use is transferred to another owner group than the one that is responsible for the application, this must be stated.

The TPA Regulations govern such matters as the negotiation process up to the signing of an agreement for third-party use of facilities subject to the TPA Regulations.

See the Petroleum Act, Sections 4-2 and 4-8. See also the Petroleum Regulations, Section 9 and Section 28, third subsection, litera b, as well as the TPA Regulations and, if applicable, the Tariff Regulations in connection with use of pipelines with regulated tariffs.

## **5.8 Possibility of tie-in to the development from other fields and/or pipelines**

The plan should provide an evaluation of the possibility of future tie-in of other petroleum deposits and/or pipelines in the area, as well as an analysis of the financial consequences and overall safety consequences if other licensees are to use the facilities.

This should include an overview of other possible petroleum deposits in the area, with particular emphasis on resource base and maturity. This also applies to nearby petroleum deposits that have prospect status, even if they are not included under the production licence.

See the Petroleum Regulations, Section 21, second subsection, litera l and Section 29, second subsection, litera j. See also the Petroleum Act, Section 4-8 and the TPA Regulations.

### **5.8.1 Possibilities for third-party use of facilities**

The plan should give an account of the possibilities the facilities have to transport and process production from other fields.

---

11

<http://www.npd.no/Global/Norsk/5%20-%20Regelverk/Skjema/Andres%20bruk%20av%20innretninger/TPAskjema-bokmål.pdf>  
<http://www.npd.no/no/Rapportering/Innretninger/>

Documentation should be provided to confirm that the technical solutions, HSE factors, tariff structure, ownership rules and other licence agreements in place (e.g. voting rules) are formulated such that they provide for good socio-economic exploitation of infrastructure. The plan should give an account of technical and legal aspects that are of significance for third-party use of the facilities as described in the PIO, and if relevant, also about the owners' individual right to utilize available capacity. These topics should be raised with the MPE and Gassco well in advance of PIO submission.

The plan should describe licensee arrangements and resource estimates for key fields and petroleum deposits in the area, with a view towards third-party use and need for transport solutions.

Reference is also made to Section 4.3 on unitization of petroleum activities.

See the Petroleum Regulations, Section 29, second subsection, litera j. See also the Petroleum Act, Section 4-8, and if applicable, the TPA Regulations, Section 5, or the Tariff Regulations.

## **5.9 *Technical description of facilities***

A description of the technical solutions for the development shall be provided. The plan should contain a description of the selected type of facility, and the facility's flexibility vis-à-vis changes in transported or treated volume should also be discussed. The solutions and technology selected to prevent major accidents and to minimize hazardous emissions to air and discharges to water must be included, and the facility's energy efficiency should be described.

The plan should state the expected regularity for the entire system, and for key main components. An account should be given of the transport system's sensitivity vis-à-vis potential changes in technical or commercial factors. Prioritization rules for the various users' oil/gas transport should be described.

See the Petroleum Regulations, Section 29 second subsection, literas c and e and Section 26.

### **5.9.1 *Special information about load-bearing structures, subsea facilities and system design***

A description should be given of the type and lifetime of load-bearing structures, deck arrangement and subsea facilities. If there is danger of subsidence in the installation area, a description should be given of the consequences this could have for the facilities, as well as which measures will be implemented to secure the facilities.

Overview drawings should show load-bearing structures and deck arrangements. Deck arrangements should show main equipment and the relative placement of the various areas, particularly the placement of all critical equipment. Emphasis should be placed on the flexibility of the solution as regards area, weight capacity, risers and tie-in possibilities in connection with potential future changes.

For subsea developments, the general drawings should show the respective placement and design of the planned facilities. An account should be given of the flexibility for further tie-ins. Measures the licensee plans to implement to safeguard considerations for fishery activities, i.e.



installation of protective structures and other covering of pipelines and equipment, should also be described. Planned maritime operations, as well as manned underwater operations in connection with tow-out to fields, installation, operations and maintenance should be described.

### **5.9.2 Special information about process and support facilities**

The flow chart for the main process, with capacity indications and a description of the arrangement of main areas, should be presented.

The following should also be described:

- principles and criteria for selecting arrangements and main components
- philosophy for securing the facility
- flexibility vis-à-vis expected changed operating conditions, as well as future use

A description should be given of the possibilities for future changes to the process with a view towards unforeseen reservoir behaviour, as well as the possibility for accepting well streams from satellite fields.

### **5.9.3 Special information about accommodations capacity**

An account should be given of the planned accommodations capacity in relation to the need for personnel in the various phases of the petroleum activity covered under the PIO in question.

### **5.9.4 Special information about transport systems**

When the development includes facilities for transport or utilization of petroleum, the PIO shall contain information about such factors, including an assessment of the relevant landing methods and locations.

In the description of the transport system, an account should be given of the criteria used in connection with selection of technical solutions. This may include:

- quantity and composition of the hydrocarbons to be transported
- corrosiveness evaluation over the planned lifetime of the system
- possibilities for increasing capacity
- tie-in point
- regularity
- trawlability
- economy
- health, environment, safety and quality
- risk exposure
- robustness/flexibility
- operational aspects

Overview drawings showing the total transport system, including any tie-in points, should accompany the description.

An account should be given of the transport system's sensitivity to potential changes in technical or commercial factors.

Priority rules for various users' oil/gas transport should be described.  
See the Petroleum Act, Section 4-2, second subsection, as well as Chapter 2.1.

#### **5.9.5 Special information about assumptions**

An account should be given of the assumptions used for the design and engineering, including:

- lifetime
- selection of materials
- corrosion protection
- operations and maintenance philosophy, including integrated operations
- regularity

#### **5.9.6 Special information about route selection and location**

An account should be given of the route selection with reference to planned and implemented route studies. Other planned activities in the route area should be mentioned. The location of the facility and the pipeline route should be indicated on a map with coordinates in a suitable scale. Any alternative routes should also be mentioned.

Relevant landing sites for the transport system should be discussed.

Pipelines on the seabed within the territorial boundary require consent under the Harbour and Fairways Act.

See the Petroleum Regulations, Section 28, second subsection, literas b and c and Section 29, second subsection, litera a, the Act of 17 April 2009 No. 19 relating to harbours and fairways, etc., Section 27.

#### **5.9.7 Special information about volumes and composition of the petroleum to be transported or utilized**

To the extent possible, the plan should describe which fields and petroleum deposits the facility is intended to serve. Resource volumes with uncertainty assessments and production profiles should be provided.

Expected transport needs and the plateau period should be described.

Information about hydrocarbon composition should be included where such data is known.

#### **5.9.8 Special information about capacity factors**

The plan should provide an account of the volumes, pressure and composition of hydrocarbons the facility is designed for. This applies to both incoming streams and end products. The plan should state the expected composition of end products from the fractionating facility.

The possibilities for increasing capacity, changing the composition of products and any relevant limitations should be indicated.

### **5.9.9 Special information about metering systems**

The plan should contain the following information about the fiscal metering systems:

- metering principle
- quantification of expected metering uncertainty
- cost/benefit evaluation of the selected solution

### **5.10 Costs**

Investment costs should be stated in accordance with NORSOK standard Z-014. Operating costs should be included, and separate profiles should be stated for CO<sub>2</sub> tax and NO<sub>x</sub> tax.

The project should be developed so far that all investment elements can be estimated with reasonable certainty before the PIO is submitted to the authorities.

The MPE places great emphasis on the licensees presenting sensitivity analyses for economic parameters that provide a good impression of the project's range of uncertainty. How the licensee handles uncertainties in the cost estimates should also be addressed clearly. Cost estimates shall be stated as an expected value. In addition, estimates should be presented with 10/90 and 90/10 confidence levels. In those cases where cost estimates are based in whole or in part on foreign currency, the conversion rates to NOK as well as the percentage of the costs that will be incurred in foreign currency must be specified. The licensee is responsible for any overruns in relation to the cost estimates.

An account should be given of future business opportunities that could provide a basis for changes in the scope of investments.

See the Petroleum Regulations, Section 29, first subsection and second subsection, litera f.

### **5.11 Organization and execution**

As a general rule, a description must be provided of the planning, execution and organization of the development, including plans for safeguarding employee participation.

The ownership of the facility should be described. If the facilities included under the PIO application are also subject to the Petroleum Safety Authority Norway's requirement for an Acknowledgement of Compliance (AoC), the licensee should state who will be applying for the AoC.

See the Petroleum Regulations, Section 29, second subsection, litera d and the Petroleum Regulations, Sections 56, 57 and 58.

### **5.11.1 Planned schedule and activities**

A schedule for the development divided by activities must normally be submitted. A description of the schedule should be included, with an indication of which activities are time-critical and whether or not the implementation time can be shortened.

### **5.11.2 Organization**

An account of the project's management system shall be provided. An account should also be given of the philosophy applied to execution of the development, including the contract strategy.

### **5.12 Operations and maintenance**

A general description shall be given of the requirements for operation and maintenance of the facility and which operations and maintenance philosophy shall be used as a basis, including use of integrated operations (IO). It will be natural to discuss this in relation to the items about regularity mentioned elsewhere in the document.

See the Petroleum Regulations, Section 21, second subsection, litera e and Section 29, second subsection, litera e.

### **5.13 Disposal of facilities**

Licensees shall describe how the facilities can be disposed of after cessation of petroleum activities, and shall stipulate the costs of disposal. A review of various disposal solutions at this stage can have an impact on the selection of materials and technical solutions. The opportunities for further use after production from the deposit(s) has ceased should also be included in the description.

See the Petroleum Regulations, Section 29, literas e and h, cf. Section 3 of the Facilities Regulations.

### **5.14 Financial analyses**

A description shall be provided of all relevant financial aspects of the project, and an uncertainty assessment should also be included.

Profitability calculations should be performed, both before and after taxes, and the assumptions for these calculations should be specified. Insofar as possible, all variables should be unbiased. See the Petroleum Regulations, Section 29, second subsection, litera f.

#### **5.14.1 Assumptions**

All assumptions that are used as a basis for financial calculations in the PIO should be documented so that the calculations can be reproduced. This indicates e.g. that the different variables that are included in the calculation must be presented in relation to a division by time, as necessary. Key variables are:

- exchange rates
- inflation
- required rate of return
- sales of products (volumes)
- purchase of gas
- tariff income
- flow profiles
- investments
- all operating costs, including tariffs for processing and transport of petroleum and other services, CO2 tax, NOx tax, etc.
- all necessary assumptions for tax calculations, including financing assumptions
- final disposal
- any credits for income, costs, taxes, etc. included in the calculations.

All amounts are to be stated in firm NOK, or in other currencies where relevant.

If the various licensees have substantially different bases for decision-making, the plan can include a comment describing this.

At the same time as the PIO is submitted, the licensee should provide an update of the petroleum-related data provided in connection with reporting to the revised national budget.

#### **5.14.2 Results**

Profitability should be presented before and after taxes.

Profitability should be presented as a present value with the authorities' prevailing required rate of return.<sup>12</sup> The CO2 tax and the NOx tax should also be included in the before-tax calculations.

The present value before tax of revenues (by product/service if applicable), investments and operating costs should be shown separately. For operating costs, tariffs, CO2 tax and NOx tax should be separated from other operating costs.

In addition to the present value, a break-even tariff and internal rate of return should be calculated before and after tax. The break-even tariff is the tariff that makes the present value of the development at the selected required rates of return equal to zero.

#### **5.14.3 Financial risk assessments**

The licensee must clearly indicate how uncertainty has been dealt with in the project, for example as regards dimensioning and flexibility. The overall financial risk with the most important uncertainty factors, seen from both the owner's perspective and a user's perspective, as well as from a socio-economic perspective, should be described and quantified. Descriptions should be provided of the methods and assumptions used to handle uncertainty.

---

<sup>12</sup> The licensee should contact the MPE to clarify the required rate of return to be used.

#### **5.14.4 Optimization of installation and operation**

A presentation of the project's economy should include analyses showing that optimization has been conducted as regards

- development concepts
- flexibility, i.e. the possibility of making adjustments in relation to changed capacity needs

#### **5.14.5 Tariffs**

The plan should describe the agreements and principles for calculating tariffs for the volumes the licensee expects to transport and/or treat, as well as principles for calculating tariffs for potential volumes in excess of this.

See the Petroleum Act, Section 4-8, second subsection, the TPA Regulations, Section 9, the Tariff Regulations and the Petroleum Regulations, Section 28, third subsection, litera a.

#### **5.15 *Designation of facilities***

Permanently located facilities shall receive a designation using quadrant/block number and letters from A to P for each field or block, cf. Section 12 of the Resource Management Regulations.

## **6 OTHER DECISION CRITERIA FOR SAFEGUARDING HSE**

The previous chapters provide guidelines regarding documentation associated with topics that are also important for HSE factors. In addition, the account provided in the development/ installation section of the PDO/PIO shall cover the following elements, cf. Section 20 of the Framework Regulations and Section 15 of the Temporary Regulations:

- objectives for health, environment and safety and risk acceptance criteria,
- how the operator handles interfaces between the participants in the development, coordination and follow-up of the participants' activities,
- for the shelf-based part of the activities: plans for health services, including preventive health services and curative services, hygiene and health-related preparedness,
- a plan for execution and follow-up of analyses,
- an overview of discipline or area-specific documents that can expand on the description given in the plans,
- an overview of standards and specifications that will apply to the development,
- other factors of significance for health, environment and safety.

For petroleum facilities on land, the account must also include:

- a description of the location and disposition of area/site plan,
- a proposed safety area and evaluation of the need for an area development plan or amendment of an existing area development plan,
- information about permits, etc. that have been applied for under other applicable legislation