



21st LICENSING ROUND

GUIDE TO PRODUCTION LICENSE APPLICATION

GENERAL INFORMATION

Delivery of application

One copy of the application must be sent to or delivered to the Ministry of Petroleum and Energy (MPE) and two identical copies of the application must be sent to or delivered to the Norwegian Petroleum Directorate (NPD), within **Wednesday 3rd of November 2010 at 12:00 hours.**

Application format

The application must be delivered both in electronic format on CD/DVD and as paper copy (in binder). The electronic version of the application will be archived by the authorities. The paper copy and the electronic application must be identical.

Each application must include:

- 1) Loose-leaf binder: two identical copies to NPD and one copy to MPE, including:
 - Paper copy of application (one application in each binder)
 - CD/DVD attached inside each binder
- 2) CD/DVD must contain:
 - 1 file in pdf-format (Adobe Acrobat Document) with the Application
 - 1 file in pdf-format with the Application Summary
 - 1 file in jpg-format (JPEG Image) or tif showing acreage applied for, with outline of all prospects/leads presented in the application
 - 1 Excel- or Word-file with table for grid coordinates for applied acreage
 - Excel/Word-files with filled-in tables 1, 2, 3, 4, 5 and 6.

There are stated upper limits for the number of pages in the different parts of the application. A font size equal to Times New Roman 12 and single/standard line spacing is preferred. It is presupposed that all information in the figures and maps is legible, also in the paper version, and all maps must have coordinates and scale.

Standard forms for use in the application can be found on the NPD's web pages, together with these guidelines, at: <http://www.npd.no/21round>.

The table formats should not be changed, except adding rows in table 1, 2, 3 and 5.

All measurements (depth, area, volume etc) must be given in metric units.

Application for additional acreage

Additional acreage can be applied for when discoveries or prospects extend into acreage announced in the 21st licensing round from an existing production license with identical licencees as the applicants. The following criteria must, as a rule, be fulfilled before additional acreage can be awarded:

1. All licencees in the existing license are applicants.
2. Distribution of participating interests will be identical to the existing license.
3. Discovery or mapped prospect extends continuously into the additional acreage and represents probable additional recourses to a field or to a discovery in the pre-development phase.

The required documentation is less extensive for applications regarding additional acreage. It is important to describe why the area should be awarded as additional acreage, based on the above criteria, and to outline the work program and plans for the existing production license which also will apply to the new acreage. In case there is no remaining work commitment in the existing

license that would cover exploration/drilling of resources in the additional acreage, a work program must be proposed, with a plan for exploration and/or exploitation of the resources.

For recent licenses, a reference may be given to the original application, but the most important information about the prospect and the work program should be repeated. NPD will normally not review the original application during the evaluation period.

APPLICATION CONTENT

1. APPLICATION SUMMARY

The application summary must be placed first in the binder. The application summary should be limited to 3 pages and must contain:

- a) Overview of applicants and applied acreage/block(s) in "Table 1: Application summary" (Table 1 must also be included as separate Excel-file on CD/DVD)
- b) Description of acreage, including "Table 2: Resource potential" (Table 2 must also be included as separate Excel- or Word file on CD/DVD)
- c) Map with coordinates and scale showing acreage applied for and outline of all prospects and leads given in Table 2 and presented in the application (must also be included as separate jpg- or tif file on CD/DVD)
- d) Table with all corner coordinates for applied acreage (must also be included as separate Excel- or Word file on CD/DVD)
- e) "Table 3: Work program" (must also be included as separate Excel-file on CD/DVD)

Overview:

Give a short presentation of applicants and applied acreage. For acquisition on additional acreage, a short background for the application should be given. Table 1 to be included with necessary data.

Table 1: Application summary

Block(s) applied for:	If application for additional acreage ¹ : PL no.:	Companies	O/P ¹	Participating interest (%) ²			Application delivered by: ³	Fee paid by: ³
				Preferred	Lower	Upper		

¹O= operator, P= partner

² The applicant(s) shall state the size of the primary preferred ownership interest, and an upper and lower limit for what could be accepted. The information must be in accordance with the application letter from each company.

³ Mark with x the company which actually delivers the application, individually or on behalf of an AMI. Mark with x the company which has paid the application fee, individually or on behalf of an AMI.

Resource potential

Prospectivity in the acreage applied for should be summarised in a short text and presented on a map with outline for all prospects/leads presented in the application and listed in table 2. Color codes for various stratigraphic levels are recommended on the map. Include key data for each of the defined prospects and leads in table 2. Resource estimates and discovery probabilities are not required for leads.

Table 2: Resource potential

Discovery/ Prospect / Lead name ¹	D/ P / L ²	Unrisked recoverable resources ³						Prob. of discovery ⁴	% - part in applied acreage ⁵	Reservoir		Distance to infra- structure (km) ⁷
		Oil 10 ⁶ Sm ³			Gas 10 ⁹ Sm ³					Litho-/ chrono- stratigraphic level ⁶	Reservoir- depth (m MSL)	
		Low	Base	High	Low	Base	High					

¹ The name is informal and can be chosen freely. Ensure that the name is used consistently throughout the entire application documentation

² D = discovery, P = prospect, L = lead

³ Calculation methods should be explained in the geological and technological assessment. Low and high value should equal P90 and P10. Any deviation from this must be stated clearly. Volume estimates and probability are not required for leads.

⁴ Estimation of the likelihood of making a discovery should be explained in the geological and technological assessment.

⁵ Estimated part of the prospect/discovery resources located within the applied acreage

⁶ Formal nomenclatures should be used where it exists, see table 4 listings

⁷ Nearest relevant infrastructure with petroleum process facility

Work program and duration

Applicant's proposed work program and duration for the production license shall be described in table 3: Work program and duration, shown below. Examples/suggestions of work program and decisions to be used, are shown beneath the table, and are included as drop lists in the excel file. Other activities may be added. More detailed description of the work program shall be given in chapter 3 of the application. If the application is for additional acreage to a license in initial phase, state remaining work obligations and duration in table 3. If the application is for additional acreage to a license in extension phase, state planned work to exploit the resource potential in the additional acreage.

Table 3: Work program and duration

Period	Phase	Duration (year)	Work program	Decision at milestone
Initial period:	1			
	2			
	3			
	4			
	5			
	Sum			Extension period (years):

G&G studies

Purchase 2D-seismic

Acquisition of 2D-seismic

Reprocess 3D-seismic

Purchase 3D-seismic

Acquisition of 3D-seismic

Drill (one) firm exploration well

Drill exploration well

Decide 3D-seismic acquisition

Decide to Drill well or Drop

Decision on Continuation or Drop

For duration of work program and periods, see guidelines chapter 4.

2. DATABASE AND REGIONAL GEOLOGY

The first part in this chapter shall contain a presentation of the database upon which the evaluation of the acreage is based. The second part in this chapter shall present a relevant regional approach to the opportunities in the acreage applied for. Possible relevant regional special studies shall be issued as appendixes. These studies shall be referred to and summarized in the application itself if the studies are crucial to the evaluation of the acreage.

Chapter 2 shall be restricted to 10 pages of text.

2.1 Database

Seismic and well data on which the geological evaluation is based shall be listed with names in a tabel, and the location of these illustrated on a base map. In addition other types of data should be listed. How data are utilized, and to which degree new and own interpretations and analyses have been performed, will be valued.

Information regarding consulting reports, purchased studies and other unofficial information used in the application shall be commented.

2.2 Regional geology and other special studies

An adequate regional geological approach to the challenges and opportunities within the acreage applied for. New exploration areas or play models shall be highlighted. For recognised exploration provinces, and where play concepts are well established, it is sufficient to submit a brief regional review. Avoid to much overlapping discussion/documentation according to chapter 3.1 and 3.2.1

If previously documented studies are used in the assessment of the block(s), these should be referred to and a brief summary should be provided. The summary of each study should be limited to 1 page.

3. GEOLOGICAL AND TECHNOLOGICAL/ECONOMICAL ASSESSMENT

This chapter shall contain a petroleum geological analysis of the acreage applied for, as well as evaluations of the identified prospects and leads.

3.1 Petroleum geological analysis

The following items should be briefly discussed for each block/combination of blocks which have been applied for:

- stratigraphic and sedimentologic framework including reservoir development and reservoir quality
- structural framework including trap development and evaluation of seal/retention characteristics
- basin development including source rocks, maturity and migration

The analysis must focus on the matters which are considered critical for the prospectivity of the area and for its evaluation.

The applicant shall provide a short summary of all relevant studies. The summary shall contain conclusions, as well as arguments for the relevance of each study. If previously documented studies are used in the assessment of the block(s), these should be referred to and a brief summary should be provided. The summary of each study should be limited to 1 page.

The documentation should be limited to maximum 20 pages for each block/combination of blocks. In addition, a limited number of relevant maps and figures presented in a legible format (no larger than A3) should be submitted. Adjust chapter 2.2, 3.1 and 3.2.1 to avoid much overlapping discussion/documentation.

3.2 Geological and technical-economical prospect evaluation

A geological and technical-economical evaluation of each prospect shall be issued. Such an evaluation shall also be issued for the leads (3.2.4) in blocks where these are crucial for the potential of the blocks.

The combined documentation under 3.2 (3.2.1 – 3.2.7) must be limited to 10 pages of text for each prospect (or combination of prospects where this is appropriate). The combined documentation for leads must be limited to 3 pages of text.

Table 4 "Prospect information", table 5 "Cost and production profiles" and table 6 "Key economic data" shall also be submitted digitally (in excel format). All standard forms and tables are found as appendix.

The various definitions of terms are provided following

tables 4, 5 and 6, respectively.

3.2.1 Prospect description

The following should be assessed for each prospect:

- depositional environment and reservoir type(s)
- trap and seal
- hydrocarbon type, source, migration and trap fill

The evaluation must explain conditions which are considered critical for the prospect.

The following documentation should be included for each prospect:

- overview map with coordinates, showing the outer limits of the prospect, as well as the position of the seismic line and the geological profile (should also be submitted digitally)
- seismic profiles in crossing directions and geological profile across the prospects
- seismic line showing well ties
- time- and depth maps of reservoir horizons presented at identical scales
- seismic attribute maps if possible

Other documentation and figures can be included if they are relevant to the prospect description.

Available key data for each prospect should be listed in table 4.

3.2.2 Resources

The following should be briefly commented upon:

- estimation of rock volume
- choice of reservoir parameters
- choice of gas/oil ratio and expansion/shrink factors
- estimation of recovery rate

If only parts of the mapped prospect occur in the area applied for, it must clearly appear how large a part lies in the area applied for, as well as the total resource estimate.

Resource estimates with their uncertainty ranges should be stated in table 4.

3.2.3 Probability of discovery

The probability of discovery stated on table 4 should be commented upon and substantiated in light of the critical factors of the prospect. The risk analysis method should be briefly discussed. Note definitions attached on table 4.

3.2.4 Leads and play models

For blocks/areas where only leads has been identified provide a brief description of these, illustrated with a limited number of relevant maps/figures in a practical (legible) format (no larger than A3).

If the application is based on new play models or on the potential in play models without mapped prospectivity a brief description of the play models should be given.

Give an estimate of the resource potential if possible. In addition describe what is needed to mature the lead to a prospect. Give a brief description of the resource estimation method.

Table 4 is to be used for the available data / parameters.

3.2.5 Reservoir technology

Production profiles shall be prepared for each prospect, and/or for the combination of prospects, which is anticipated to be the most favourable development scenario. Production profiles shall be prepared for P90, P10 and expected value of resource outcome.

Describe briefly the method and the assumptions for preparation of the profiles. These will include:

- number of development wells and flow rates
- possible production limitations
- the methods/technologies by which the resources will be recovered (e.g. drive mechanisms and reservoir management)
- a description of uncertainties in the production profiles estimates
- whether the production profiles are calculated based on a stochastic resource distribution or on deterministic resource estimates

Only the production profiles for the expected (most likely) resource outcome shall be submitted in table 5 – one for each prospect or combination of prospects.

3.2.6 Technological assumptions

Development and transport scenarios for each prospect, and/or the combination of prospects, which results in the most favourable development scenario. Development and transportation scenarios shall be prepared for P90, P10 and expected value of resource outcome.

A description should be given of development and transport scenarios for P90, P10 and expected value of resource outcome. Uncertainties regarding technology and cost should be discussed.

In addition, the applicant shall provide a brief description of a regional development strategy if this has relevance for the development scenario(s) in the block(s) applied for.

Similarly, if development involves particular technical challenges or presupposes specific technical capabilities. The description shall present conceptual scenarios and their likely consequences for project schedule and costs. The applicant may further refer to his own experience with similar challenges and refer to relevant technical qualifications to meet these.

Any eventual description of a regional development scenario with its particular challenges, together with the applicant's technical qualifications shall be submitted as an appendix. This chapter shall provide only a conclusive summary and grounds for the relevance of the content of the appendix (ces).

In table 5 only the cost profiles for the expected (most likely) resource outcome shall be submitted - one table for each prospect or combination of prospects. The costs shall be presented in fixed millions 2010 NOK. Figures illustrating development scenarios may be submitted as appendices. All appendices shall be restricted to a maximum of one page of text.

3.2.7 Prospect Economics

Key economic indicators shall be calculated for each prospect, and/or that combination of prospects, which results in the anticipated optimal development scenario.

Key economic indicators shall be calculated for P10, P90 and expected value of resource outcome. The basis for the calculations should be clarified. If a combination of prospects is the basis for the calculations it should be clear whether the outcomes have been weighted with the probabilities belonging to the discoveries. This should be illustrated in a decision tree.

The following economic assumptions shall be used as a basis for the calculations: (product prices in 2010 NOK):

All evaluations on pre-tax basis
Start of exploration in 2012
Discount: 1 January 2010
Rate of Discount: 7%
Oil price: 2566 NOK/Sm³ (65 USD/bbl)
Gas price: 1.81 NOK/Sm³
Condensate price: 2566 NOK/Sm³
NGL price 1726 NOK/ Sm³
Exchange rate: 6,28 NOK/USD
Cost related to CO₂: 20 NOK/Sm³ o.e.
Cost related to NO_x: 10 NOK/Sm³ o.e.

The results shall be listed in table 6.

4. EXPLORATION STRATEGY AND WORK OBLIGATION

4.1 Plan for exploration and work commitment

A description of the plan for exploration of the block(s) applied for must be given:

- initial G&G work
- possible seismic or other data acquisition
- possible exploration wells
- time schedule for the various exploration phases
- proposed duration of the initial period and the extension period of the production license
- anticipated time schedule for phase-in to existing infrastructure
- possible clarification/ unitisation with respect to adjacent production licences

The duration of the initial period can be up to 10 years. The duration of the extension period should correspond to the expected production period, with maximum as a general rule up to 30 years.

Exploration consequences must be discussed in cases where substantial portions of mapped prospects and leads are located in an existing production license and are not applied for as additional acreage.

In blocks where only leads or play models are identified, describe briefly the strategy to mature these into prospects.

The description should be limited to 2 pages of text.

5. EXPERTISE AND EXPERIENCE IN TECHNOLOGY, SAFETY, WORKING ENVIRONMENT AND ENVIRONMENTAL MATTERS

The applicant should submit a short overview of his expertise and experience in technology, safety- and working environment, and with regard to environmental matters.

The following areas of expertise should be described:

- Exploration Technology
- Development Technology
- Reservoir Technology
- Environmental Technology
- Research and development
- Safety and working environment

It is important to emphasise in which regard expertise is relevant for, and suited to, the technical challenges in the block(s) applied for. The applicant should refer to how his expertise could contribute to cost effective exploration of, and possible development of the block(s) applied for.

A brief summary of the applicant's experience from relevant projects within exploration, field development and operation should also be submitted. The role and level of responsibility in the actual project should be stated (operator or partner).

For those applicants seeking operatorship for the first time in Norway, documentation of their operational experience regarding safety, working environment and environment-related matters that they deem to be relevant in connection with the blocks applied for should be submitted. This should include the following;

1. Guiding principles regarding safety, working environment and environment-related matters.
2. System for safety control, working environment and external environment the applicant will encounter in Norway, including the continuous improvement of these matters.
3. Operational organisation, including resources, expertise and experience.

The documentation shall be restricted to 20 pages of text.

REFERENCES