

TECHNICAL INFORMATION (APPENDIX B, INCLUDING TECHNICAL ASPECTS OF OPERATORSHIP) JANUARY 2014

The applicant presents technical information at Appendix B to the application: (a) outlines the information already used to arrive at the current understanding of the acreage; and (b) proposes a Work Programme for the Initial Term of a licence.

Technical understanding and the proposed *Work Programme*, as presented in the Appendix B, will be assessed against a *marks scheme* which will largely form the basis of the decision as to who will be offered licences (see '*How Decisions Are Reached*' in the General Guidance). For Traditional, Frontier (both types) and Landward applications the applicant also submits information demonstrating the proposed operator's competence (see *Operator Competence*).

1) In Appendix B the Applicant will need to:

demonstrate the quality and understanding of its technical evaluation;

identify prospectivity;

explain the exploration (and/or exploitation) rationale;

propose a detailed Work Programme;

(in all cases except Promote applications) demonstrate Operatorship Competence;

(for Seaward Promote Applicants only) present its plans and approach to secure the resources necessary to complete the Work Programme.

APPENDIX B TECHNICAL INFORMATION

2) The Applicant should present information (via the electronic LARRY system) in whatever form it considers best illustrates its plans for the acreage and the rationale behind them. We don't wish to be prescriptive, but a fit-for-purpose application should be a report at most 50 pages long (and normally much less for Promote) including displays (relevant maps and seismic sections indicating well ties, where appropriate).

3) It is the opportunity for Applicants to describe how they have analysed the area(s) and selected the Block(s) applied for, and should include a brief description of that methodology. Any previously documented studies which have been utilised in the evaluation should be referred to and a short summary given. A Bibliography of Consultants and/or Contractors Reports utilised would be helpful. Information provided as part of the Appendix B (technical work done and work programme) will be marked in accordance with the **Marks Scheme** detailed at Annexe 2. For **each area** (there may be geographically very separate areas contained within a single application), the application should include:

3.1 A brief summary of the Exploration Rationale for that area, including an account of the Regional Geology, the overall hydrocarbon system, and potential plays.

3.2 A description of the data coverage (seismic, wells and any other data), with an explanation of how this was utilised in the analysis.

(For seismic data please enclose maps showing the Regional and Block specific areas of seismic coverage (full fold) used in the interpretation, indicating the type of seismic, and whether it has been specifically acquired (whether shot or purchased) or reprocessed for the assessment.)

(Likewise, wells specifically interpreted for the assessment should be annotated on a map, listing wells where any detailed analysis was carried out.)

3.3 The analysis performed by horizon, and the overall prospectivity potential (or lack of) identified within the block(s) and its relationship to the regional geology of the area;

3.4 The identity and analysis of [prospects](#), [leads](#), and/or [new play concepts](#) in the acreage, together with predicted reservoir performance and reserve information (including risk/chance of success).

3.5 For the main prospect/group of prospects/leads: Two interpreted seismic and geological profiles in crossing directions; Reservoir horizon time maps and depth maps presented at identical scales showing the position of the seismic and the geological profiles. For discoveries the applicant should also provide reasonable detail and similar documentation to that for prospects.

3.6 Where appropriate, include consideration of potential commercial, infrastructure and outline economic analysis if *existing* discoveries and/or *potential re-developments* are being considered for further appraisal or development;

3.7 For a group of Blocks where there is multiple prospectivity, please provide a summary Map showing the prospectivity at all levels.

3.8 A summary Table should also be provided:

| Prospect Lead Discovery Name ¹ | P L D 2 | Reservoir | | Unrisked recoverable resources ⁴ | | | | | | Geological Chance of Success ⁵ |
|---|------------------|----------------------------------|-------------------------|---|---------|------|----------------------|---------|------|---|
| | | Stratigraphic level ³ | Reservoir Depth (m MSL) | Oil MMbbls ⁴ | | | Gas BCF ⁴ | | | |
| | | | | Low | Central | High | Low | Central | High | |
| 15/27 Venus | P | Palaeocene | 2640 | 8 | 12 | 16 | 90 | 130 | 160 | 0.45 |
| 15/27 Pluto | P | Piper | 3500 | 11 | 17 | 25 | | | | 0.39 |
| 15/27 Mars | L | Cretaceous | 3100 | 3 | 14 | 27 | | | | 0.15 |
| 15/27 Earth | D | Palaeocene | 2500 | 4 | 7 | 11 | | | | 100 |

¹ The name is informal. Ensure the name is used consistently throughout the entire application document.

² D = Discovery; P = Prospect; L = Lead

³ Formal nomenclatures should be used where they exist.

⁴ Calculation methods should be explained in the technological assessment. Low and high value should equate to P90 and P10, or any deviation defined. Volumes and probability need not be stated for leads. For shale gas and shale oil prospects and leads, in-place resource estimates are acceptable.

⁵ Estimation of the likelihood of making a discovery should be explained in the geological assessment.

WORK PROGRAMMES

For each Block the Applicant must propose a Work Programme, which is the minimum amount of exploration work that the Applicant will carry out if it should be awarded a licence.

It must be appropriate to the Type of Application (see below), and its relevance to the Prospectivity identified should be indicated.

The agreed Work Programme will form an important part of the Licence itself; the Licence will expire at the end of the Initial Term if the Work Programme has not been completed by then (or earlier if timed commitments have been agreed).

4) The **Work Programme** is part of any Production Licence awarded, and it consists of one or more elements of exploration work. Its principal function is to define the minimum amount of work that the Licensee must carry out if the licence is not to expire at the end of its Initial Term. In addition, the Licensee may make commitments to the Secretary of State to carry out some or all of these elements. Work Programmes should be specified *by Block*, but where the Applicant hopes to be awarded two or more Blocks to form a single Licence, a *joint* Work Programme should be indicated as well.

5) The Applicant proposes a Work Programme as part of its application. It may be discussed and clarified at interview. Any technical case for **Flexibility** (see paragraph 7 below) should be made in this section, and highlighted in the Comments box of the Work Programme part of the Application Form. Work Programmes normally comprise well commitments, seismic acquisition (existing or new shoot) and 'other' (Electro-magnetic, gravity and magnetic, geoscientific studies etc).

- (for *Seaward Traditional Applications*) the Work Programme proposed (including timings) should be appropriate for the licence's four-year Initial Term. (See also Flexibility, paragraph 7 below.) The *minimum* Work Programme is a [Drill-or-Drop](#) well; a depth and horizon must be indicated;
- (for *Frontier Applications* [6 year]) the Work Programme proposed (including timings) should be appropriate for the licence's six-year Initial Term, including the evaluation that will enable the Licensee to make a 75% relinquishment after three years. The *minimum* Work Programme is a [Drill-or-Drop](#) well with a depth/horizon indicated;
- (for *West of Scotland Frontier Applications* [9 year]) the Work Programme proposed (including timings) should be specified for the nine year Initial Term. This must include at six years a 75%

relinquishment and a drill or drop decision in order for the Licence to progress into the final three years of the Initial Term. The *minimum* Work Programme is a [Drill-or-Drop](#) well with a depth/horizon indicated;

- (for *Promote Applications*) the Work Programme (including timings) should also include a description of the plans and approach to secure the necessary resources to complete the Initial Term. A [Drill-or-Drop](#) well (with a depth/horizon indicated) is the standard Work Programme on any Promote Licence;

6) Seaward Promote licences are based on a basic four-year [Drill-or-Drop](#) Work Programme, with the decision to drill or drop being made at two years and are only offered as Seaward Licences. It is important that the Work Programme is structured to achieve this deadline. Only in exceptional circumstances will DECC consider licence variations that would allow the retention of the licence beyond the two-year deadline without commitment to a [firm](#) well. An example might be where, as a result of unforeseen circumstances (after licence award), it emerges that new substantive seismic is sensibly required before a drilling decision can be made. In this case, we may be willing to consider a licence variation that included commitment to necessary shooting of new seismic data together with a [contingent](#) well to be drilled by the end of year four. Financial and Operator competence checks would also need to be made at the time of continuation which would be at or before the end of year 2.

7) For Landward applications, blocks are named using the OS grid reference (10 km by 10 km) and part or all of the block can be applied for. Multiple blocks can be applied for in one application. Work programmes can be joined over contiguous blocks, but over a maximum of two blocks. For example, if 10 blocks are applied for, there must be five separate Work Programmes (each covering two blocks). There is no upper limit to the amount of acreage that can be applied for nor to the number of licences that can be offered, but DECC will not offer any individual licence over more than two blocks. An applicant who is aiming at shale or CBM should describe its plans for the area as a whole, but present separate Work Programmes. Each of these Work Programmes will be judged both on its own merits and as part of the larger whole (for which it may receive 'strategic' marks). The strategic marks may be decisive in DECC's award of a large area in several licences to a single applicant (though each Work Programme must be acceptable by itself, with a minimum of a drill or drop well commitment).

- (for *Landward Applications*) a detailed description of the Work Programme should be proposed for the licence's five-year Initial Term. The *minimum* Work Programme is a [Drill-or-Drop](#) well with a depth/horizon indicated.

8) Flexibility of Licence Terms Almost all Production Licences adhere to one or other of these patterns, but DECC has discretion to offer *different Term lengths* in special situations if an applicant makes a strong enough case for it. For example, where an applicant is ready to move straight to *development*, we can offer a licence that goes immediately into what would normally be its *Second Term*. Other cases might be where the applicant's specific target is especially *challenging*, such as an *HPHT* prospect that will necessarily take longer than usual to plan and drill, a *deep water* prospect where *rig availability* is an issue, or *new shoot seismic* is necessary and the timing of a survey cannot be guaranteed, we might consider a longer Initial Term to accommodate it. In general this flexibility does not extend to the model clauses or Rentals, or to the Terms of Promote licences. Licence Term Flexibility may encompass either the length of the Initial Term, or the length of the Second term, or the timings of *both* Terms.

- Special Term lengths would be considered where it appears necessary to achieve a high quality and realistic work programme rather than a faster and possibly unrealistic one. DECC would tend to prefer (all other things being equal) a work programme made on a shorter timescale than a lengthy one, although as always we will not reward impracticable commitments. The longer the Initial Term is to be, the more likely we are to look for early-termination provisions (such as an early drill-or-drop decision) to get the acreage back if the licensee fails to make good progress.
- If a case is being made for flexibility of Licence Terms, a programme outlining the *timings* for work, including any internal drill or drop decision point, exploration and appraisal drilling, and possible development timing, should be incorporated into the Appendix B, *with an abbreviated version indicating the proposed lengths of the Initial and Second Terms appended to the Comments section of the Work Programme Summary B5 in the Application Form.*

9) There is a more detailed description of the different types of Licence on our website: (<https://www.gov.uk/oil-and-gas-petroleum-licensing-guidance#types-of-licence>).

10) Well Commitments (three levels): NOTE: That any well must be planned to be drilled *within* the Initial Term.

- A *Firm Drilling Commitment* is a commitment to the Secretary of State to drill a well. It is only appropriate if the Applicant is certain that s/he would drill if awarded a licence. Essentially drilling could begin immediately, subject only to outside factors like other Regulatory regimes, rig availability, or weather. The well should therefore be drilled *early* within the Initial Term. The Department will not reward multiple Firm Well commitments within or possibly across applications

if they duplicate the geological target of other firm wells (i.e. if a failure in one would effectively condemn the other). If there is considered to be any contingency on further data acquisition/interpretation, DECC may (during discussion at Interview) indicate that a well may not be marked as a Firm well.

- See paragraph 12 below with respect to fulfilment of Firm commitments, especially wells. Firm drilling commitments will not be accepted from Promote applicants.
- A *Contingent Drilling Commitment* is also a commitment to the Secretary of State to drill a well, but it includes specific provision for DECC to waive the commitment if we agree that drilling would not be an appropriate use of resources, having regard to the policy objective of maximising successful and expeditious exploration and exploitation of the UK's oil and gas resources, and all the information available to DECC at the time of consideration, in particular the agreed evaluation of some specified further technical work (e.g. a technical study based on a new seismic survey). If the Licensee feels that the well is not justified, it must make a technical and, where appropriate, economic case to the Department to have the commitment waived, no later than one year prior to the end of the initial Term. **Contingent commitments will not be accepted on Promote or Landward applications.**
- DECC will not allow contingent wells based on results of other contingent wells nor on other firm wells bid as part of the same work programme or possibly across applications (including situations where an applicant wishes for adjacent blocks to be treated as 2 licences each with its own well commitments) where the testing of shared or linked prospectivity in one would effectively condemn the other. In some cases we might accept contingent wells based on results (available to the Applicant) of on-going or shortly to be drilled firm wells in nearby existing licences where these would provide key technical information on which a contingent well decision can be largely based (eg proof of hydrocarbon migration, reservoir quality etc). Contingent well commitments should identify key geotechnical issues which need to be addressed and should not reference financial or commercial criteria or be based on situations where decisions are outwith the Applicants direct control e.g. approval of development plans or where third party agreements might be required.
- The only form of accepted Contingent commitment is for wells, and these can only be made by Traditional and Frontier (either type) applicants.
- A *Drill-or-Drop 'Commitment'* leaves the decision whether or not to drill entirely with the licensee. If a well is to be drilled, it should be planned to complete drilling within the Initial Term.
- Traditional and Landward applicants may specify a deadline by which they will make their decision, and in such cases the Drill-or-Drop Work Programme will specify that deadline as a breakpoint at which the Licence will expire unless the Licensee has made a commitment to the Secretary of State to drill. If the commitment is made and the Licence continues, the commitment becomes a **Firm** obligation, and must be spudded before the end of the Initial Term. For West of Scotland Frontier Licences a Drill or Drop decision must be made at or before the end of 6 years or the Licence will expire.
- **Seismic data:** The amount of seismic data (whether 2D (in line kilometres) or 3D seismic (area of full migration, in square kilometres)) to be acquired over the Block should be stated, distinguishing between *shooting* of new data and *obtaining* existing data (whether by purchase or other means). A description of any further acquisition of data outside the area should be supplied, noting how it relates to the acreage applied for. Indicate whether the new data will be proprietary, speculative (and the degree to which underwritten), purchased or traded. Include an outline of any reprocessing programme. Indicate the timing of the proposed activity after award of licence. Contingent seismic bids will not be accepted or marked; nor will new shoot seismic bids made by Promote applicants. Landward applicants will be encouraged to archive any new data with the UK Onshore Geophysical Library.

11) Other Work: A description of any other work planned – surveys, research, technological development or studies relevant to the evaluation of the block (e.g. geotechnical studies, gravity or magnetic surveys, electromagnetic seabed logging, core analysis, VSP, etc), appraisal/development potential of *existing* discoveries or re-developments of decommissioned fields, or to evaluate mines gas potential. In the case of Promote applications this should include the Applicant's plans and approach to secure the resources needed to complete the Initial Term Work Programme.

12) DECC views Firm Commitments (both drilling and geotechnical work) as a core part of the licensing regime. The Department reserves the right to characterise any failure to meet a Firm Commitment as poor performance, which we will take into account in future decisions; for example, by awarding no marks for commitments offered in future licensing rounds or even a refusal to consider any further applications at all.

13) For work other than drilling, only firm commitments will be accepted – contingent new shoot seismic will not be rewarded in the marks scheme. Make clear where any seismic that has been used for the interpretation has not yet been purchased.

14) A Work Programme for every type of Licence must contain at least one drilling commitment (with horizon and depth), whether it be Firm, Contingent or Drill-or-Drop. Work Programmes that contain nothing more than data acquisition or office studies will not be accepted. (Applications covering *existing* Discoveries, or where plans are to re-develop Fields where Production has ceased, should indicate an appropriate Programme which would be discussed at interview.)

15) Parts of the Marks Scheme are closed to Promote applicants. For example, a Promote applicant cannot be given marks for a Firm Drilling Commitment because, no matter how big it may be, in the course of its application it will not have proven its financial and technical capacity to meet that commitment. It follows that, where Promote applicants are in competition with Traditional, the acreage will usually be awarded to the Traditional Applicant. Therefore, where an applicant is able to prove its ability to undertake substantial Work Programmes (such as shooting a seismic survey, seabed electromagnetic logging, drilling a well) during the first term of the licence we recommend that it should do so by applying for a Traditional or Frontier licence (of either type) where appropriate, so that this capability can be taken into account and marks awarded for commitments.

16) There is a section in the Seaward Marks Scheme to reward a Promote Applicant on the quality of its Promotional Plans (i.e. its plans to secure the additional technical and financial resources necessary to complete the Work Programme). Traditional and Frontier Applicants (both types) will automatically get full marks in this section, in recognition of the fact that they will have proven that they do not need to attract any new resources.

INTERVIEWS

The decision process usually involves an interview covering the geotechnical work already carried out and the proposed Work Programme.

17) The Exploration Team at DECC will normally interview all applicants (certainly where there is competition for the same acreage) before awarding licences. Interviews will take place in London. We aim to hold the first interview within a couple of weeks (*applicants should be prepared for this*), but we can't predict when the last one will occur – that depends on the number of applications.

18) The main purpose of the interview is to enable the Applicant to present the technical and strategic rationale for the application, and for DECC to ask questions and seek clarifications. The interview is likely to focus on:

- the Applicant's geotechnical data coverage and work completed to date;
- identified prospectivity;
- the potential for appraisal or development of *existing* discoveries and/or re-development of decommissioned fields that the Applicant has identified;
- how these relate to the Work Programme offered; and additionally, for Promote Applicants:
- its Promotional Plans (i.e. its plans for and approach to securing resources necessary to complete the Work Programme).
- For Landward applications, the companies' experience and capability, particularly as it relates to shale gas or shale oil proposed activity.

19) DECC may request further meetings after the interview if further clarification or understanding is felt necessary. Apart from a Promote Applicant's Promotional Plans, the interview will *not* address financial or environmental information; but the Department's Offshore Environment and Decommissioning Branch (OED) may invite applicants for Frontier (both types) and Traditional Seaward Production Licences to a separate interview in Aberdeen to discuss their environmental competence.

20) All the applications for any particular Block will be evaluated by the same lead technical assessor for consistency of approach.

OPERATOR COMPETENCE

21) The Department will not issue a Traditional Seaward Production Licence, Frontier Seaward Production Licence (either type) or Landward Petroleum Exploration and Development Licence other than to a competent operator, or to a group that includes an approved operator. This would usually be an exploration operator (see Oil and gas: operatorship at: <https://www.gov.uk/oil-and-gas-operatorship> for further guidance about the information to be included in the application). The Applicant must satisfy DECC that the Operator is capable of supervising

and managing drilling operations. In the special case of an application to develop an *existing* discovery or to redevelop a decommissioned field, DECC must be satisfied about the Operator's capacity to manage a development project, so that it can be approved as a Production Operator (see Appendix 8 of the Field Development Guidance Notes and on the [Process for Oil and Gas Field Development Plans Page](#)).

22) The exception is the **Seaward Promote Licence**. It is aimed at companies who, at the time a Licence is awarded, may not meet DECC's criteria for Exploration Operators. Therefore these operatorship competence criteria will not be applied to such applicants during the Licensing Round and the application does not need to address this section. *But applicants must be aware that we will apply Operatorship Competence criteria to the nominated operator at the two-year Break Point, and the Licence will automatically expire at that time if the Department is not satisfied.* The effect is to defer these checks, not abandon them. The checks will be those in force for new applications at the time. Of course DECC will not approve any actual operations by the Licensee until there is an approved operator.

23) Even on a Promote Licence, DECC will require one company to act as "Licence Administrator" – i.e. a contact point for communications and rentals invoices – but we will not check any particular competence. On other kinds of Licence, we will consider the approved operator to be Licence Administrator.

24) DECC accepts that some elements of the Applicant's competence may not be in place at the application stage. For example, some posts may not be filled at the moment of application, which may occur months or even years ahead of any need for them. Nevertheless the Applicant will have to convince the Department that it knows what structure and skills are needed and that it has a management team capable of delivering it.

25) For Seaward Applications, *the Technical Competence aspects (organisation charts and c.v.s of key personnel) should be uploaded as a separate file into the Appendix B area of LARRY.*

26) For Landward Applications, the Applicant's experience and capability should be integrated into the Appendix B document, as this information will be considered as part of the Marks Scheme, not just as a threshold criteria (see ANNEXE 2: THE MARKS SCHEMES)

27) For further guidance contact:

Jen Brzowska (email: jen.brzowska@decc.gsi.gov.uk) for Seaward applications or

Toni Harvey (email: toni.harvey@decc.gsi.gov.uk) for Landward applications.

ANNEXE 1: DEFINITIONS

- 1) A **Prospect** is a robust structural, stratigraphic or combination feature that has been mapped with a high degree of confidence using good quality seismic and other key data.
- 2) A **Lead** is a possible structural, stratigraphic or combination feature that requires additional seismic analysis/acquisition or other key data in order to progress to a prospect.
- 3) A **New Play Concept** is an unproven concept in the area (e.g. deeper potential, additional reservoirs, or a seismic attribute anomaly). For Landward applications, shale oil, shale gas, or strata encased in shale prospectivity should be described as a lead or prospect.
- 4) To **shoot** seismic data (in the context of a Work Programme commitment) means to carry out a new seismic survey. It must be stated whether this will be by commissioning a Proprietary survey, or underwriting speculative acquisition. The *total* area of the survey the Applicant proposes to participate in should be specified, but with the amount over the potential Licence highlighted for the Work Programme.
- 5) To **obtain** seismic data (in the context of a Work Programme commitment) means to get the use of the data by purchasing or otherwise getting the use of existing data. It is for the licensee to decide how.

ANNEXE 2: THE MARKS SCHEMES

- 1) The Marks Schemes are designed to reward applicants for the use of relevant, high quality, available technical data (wells, seismic, etc.), the quality of the work already done, the technical understanding demonstrated in the generation of valid prospectivity (over the whole block area and throughout the full stratigraphic column), and the proposed Work Programme.
- 2) There are two Marks Schemes: one for Landward applications and one for Seaward Areas.
- 3) Parts of the Marks Scheme are closed to Promote applicants. For example, a Promote applicant cannot be given marks for a Firm Drilling Commitment because, no matter how big it may be, in the course of its application it will not have proven its financial and technical capacity to meet that commitment. It follows that, where Promote applicants are in competition with Traditional, the acreage will usually be awarded to the Traditional Applicant. Therefore, where an applicant is able to prove its ability to undertake substantial Work Programmes (such as shooting a seismic survey, seabed electromagnetic logging, drilling a well) during the first term of the licence we recommend that it should do so by applying for a Traditional or Frontier licence (of either type), so that this capability can be taken into account and marks awarded for commitments.
- 4) There is a section in the Seaward Marks Scheme to reward a Promote Applicant on the quality of its Promotional Plans (i.e. its plans to secure the additional technical and financial resources necessary to complete the Work Programme). Traditional and Frontier Applicants (both types) will automatically get full marks in this section, in recognition of the fact that they will have proven that they do not need to attract any new resources.

THE SEAWARD MARKS SCHEME

5) The Seaward Marks Scheme is intended for the four types of Seaward Application (Traditional, Frontier (both types) and Promote) and will be used to mark applications largely on a block-by-block basis. The Marks Scheme consists of eight sections (a marks scheme summary is presented at the end):

- **Geotechnical database:** Marks will be available for the coverage (including newly-gathered data) and use of relevant, high quality, existing geotechnical data appropriate to the prospectivity of that area. DECC will consider the quality of the data utilised compared with what we know to be available in the area. Data from outside the Block (to provide regional context) will be rewarded where it has been utilised to demonstrate improved understanding of prospectivity (or lack of potential) on the Block itself.
- **Geotechnical evaluation (block as a whole)** Marks will be available for the quality and understanding demonstrated in the generation of realistic prospectivity and new play potential on the Block as a whole. This work should assess the potential of the block both by area and stratigraphically. Play Fairways should demonstrate all aspects for a Petroleum system have a reasonable chance of being present. Applicants should not expect to be rewarded for speculative, overly optimistic or unsupported analysis, and where appropriate they should explain the rationale for a lack of prospectivity at particular levels within the acreage applied for.
- **Specific prospectivity identified** Marks will be available for what the Department understand and consider as valid leads and prospects on the Block(s) that will be progressed either through a technical Work Programme or which are ready to drill. DECC will categorise and mark leads and prospects within three ranges (leads, prospects, or fully evaluated prospects) depending on consideration of validity/risk and the degree to which further work is necessary before they are fully evaluated and ready to drill. Marks within the ranges will also consider the quality of interpretation and understanding demonstrated in the lead or prospect generation. Few, if any, marks will be awarded to leads that are based on speculative geotechnical arguments, are so small as to have limited commercial potential, or where DECC takes the view that prospectivity has been effectively disproved. Applicants should include volumetric estimates of leads and prospects with associated risk analysis where possible. A series of leads or prospects identified at a similar reservoir level on a block will be marked as one where information from a single well would effectively condemn the other leads. Where leads or prospects straddle block boundaries, DECC may split marks (for both prospectivity identified and associated work programmes) between blocks in a manner that best reflects where the bulk of the lead or prospect exists, and/or in a manner that helps preserve the integrity of the lead or prospect if competed. The Department may split blocks depending on the geotechnical work focus of competing applications.

Relatively few marks will be given in situations where prospectivity analysis (block or specific leads/prospects) draws heavily on non-original work e.g. derived from DECC's Promote CD, Relinquishment Reports or material picked up in Data rooms or from other company websites.

- **New Plays** (where specific leads cannot yet be identified) will be assessed against the information used, the quality of interpretation in their evolution, and on DECC understanding of their potential validity.

- **Geotechnical Work Programme** This includes commitments for the shooting of new seismic data (which only gets marks in Traditional and Frontier (both types) applications), obtaining existing seismic data, reprocessing of seismic data and other geotechnical studies e.g. biostratigraphy, geochemistry, petrophysics, fault seal analysis, etc. Work should be linked to identified prospectivity where possible. For new data acquisition (including seabed electromagnetic logging, gravity or magnetic surveys), only firm commitments from Traditional or Frontier (either type) applications will receive marks. Higher marks will be given to new shoot seismic surveys and other data acquisition methods which are considered appropriate to the area applied for.
- **Drilling Work Programme** This falls into 3 categories:
 - i. Each **Firm Well** (appropriate for Traditional and Frontier (both types) applications only) will attract a block of **50** marks (see above Annexe 1: Definitions), with up to **20** additional marks available where deeper prospectivity or technically challenging prospects are to be drilled (e.g. HPHT, UBD, extended reach). Multiple wellbores drilled as sidetracks to different parts of a linked prospect will be treated as one well. DECC would expect Firm wells to be spudded early within the Initial Term. Where a request is being made for Flexibility, the timed work programme should indicate when *realistically* the well might be spudded. This may be taken into consideration in competitive situations on a block by block basis. A Firm well will only be accepted against a named mapped Prospect.
 - ii. Each **Contingent Well** (appropriate for Traditional and Frontier (both types) applications only) will attract between **10 and 30** marks, subject to the level of uncertainty and the appropriateness of the work committed to derisk that uncertainty, with up to **10** additional marks available where deeper prospectivity or technically challenging prospects are to be drilled (e.g. HPHT, UBD, extended reach) or where a contingent deepening is proposed on a Firm shallow well. A Contingent well should also be committed against a specific prospect at a particular stratigraphic level. If the Contingency is not met and the well waived, the Applicant should not expect to retain the acreage beyond the end of the Initial Term unless an alternate well is agreed by DECC and can be drilled within the remaining timeframe for that Term.
 - iii. **Drill or Drop Wells** will only attract marks in the case of Traditional applications and only where an early decision point is committed to (20 marks if committed to by end year 1 and 10 marks for year 2). If a decision to drill is not made at the stated time, the Licence will expire. In cases where Flexibility is sought, DECC will, in competing situations, assess each Applicant's timed work programme and assign marks in this section against a realistic, achievable, early decision.
- **Promote applications** Promote Applicants will be marked on the quality of their plans and approach to secure additional resources (technical and financial) to complete the full 4-year Initial Term Work Programme. This would include an assessment of a) plans on securing the resources for the proposed first-phase technical Work Programme b) options considered to resource the substantial activity envisaged in the latter phase of the licence and c) the marketing strategy, including discussion of how potential customers have been or will be identified and approached. Include timings and milestones. Competing Traditional Applicants will get the maximum mark for this section, on the basis that they will have demonstrated that they do not need to attract extra resources. Promote Applicants who intend to secure internal resources to complete the Work Programme will likewise be judged on the plans and approach to securing those resources and commitment from within the Company.
- **Evaluation and plans for existing discoveries or re-developments** Marks will be available for work that demonstrates the quality and understanding of the appraisal/development potential of *existing* discoveries or re-developments of decommissioned fields, including an assessment of extent and reserve potential, an outline economic case, understanding of commercial aspects and what infrastructure would be necessary for optimal timely development or further appraisal. Evidence for appropriate Infrastructure availability should be demonstrated if possible. A brief description of possible IOR/EOR may be included if applicable. Forward plans with associated timelines should be presented. Concept development options for *exploration* prospects are *not* required and will not be marked.

Seaward marks scheme summary

Geotechnical database used

| | |
|----------------------------|----------|
| 3D Seismic: | 30 (max) |
| 2D Seismic:..... | 20 (max) |
| Seismic reprocessing:..... | 15 (max) |
| Well data: | 6 (max) |
| Other: | 12 (max) |

Geotechnical evaluation already performed, both Regional *and* Block specific

| | |
|--|----------|
| Well interpretation/ties: | 6 (max) |
| Stratigraphic interpretation: | 6 (max) |
| Structural interpretation: | 6 (max) |
| Seismic interpretation: | 6 (max) |
| Hydrocarbon system: | 6 (max) |
| Depth interpretation: | 6 (max) |
| Exploration rationale and timing : | 6 (max) |
| Other: | 10 (max) |

Specific prospectivity identified

| | |
|--------------------------------------|---------------|
| Fully evaluated prospects: | 21-30 each |
| Prospects not fully evaluated: | 11-20 each |
| Leads: | 10 each (max) |
| New plays: | 5 each (max) |

Geotechnical Work Programme

| | |
|--|----------|
| 3D seismic | 25 (max) |
| 2D seismic | 15 (max) |
| Seismic reprocessing: | 10 (max) |
| Geotechnical studies/new data acquisition: | 25 (max) |

Drilling Work Programme (marks only for Traditional and Frontier (both types) applications)

| | |
|---|-------------------------|
| Firm well: | 50 (+0-20 if deep) |
| Contingent well: | 10 – 30 (+0-10 if deep) |
| Drill-or-drop with early decision point (marks for Traditional only): | 0-20 (timing-dependent) |

Promote assessment

| | |
|--|---------|
| Future resourcing: | |
| Immediate technical Work Programme | 7 (max) |
| Later phase Work Programme | 7 (max) |
| Marketing/potential customers | 7 (max) |

Existing discoveries

| | |
|---|----------|
| Technical assessment:..... | 10 (max) |
| Economics: | 5 (max) |
| Commercial: | 5 (max) |
| Infrastructure access and ullage: | 5 (max) |
| Plans and timing: | 5 (max) |

Re-developments

| | |
|--|----------|
| Technical assessment: | 20 (max) |
| Economics: | 10 (max) |
| Commercial : | 10 (max) |
| Infrastructure access and ullage:..... | 10 (max) |
| Plans and timing: | 10 (max) |

THE LANDWARD MARKS SCHEME

6) The Landward Marks Scheme is designed to reward applicants for the use of relevant, high quality, available technical data (wells, seismic, etc.), the quality of the work already done, the technical understanding demonstrated in the generation of valid prospectivity (over the whole block area and throughout the full stratigraphic column), and the proposed Work Programme. The Landward Marks Scheme now also includes criteria to assess which applicant companies are best capable of progressing shale exploration and development. More marks are available for studies and data collection relevant to shale and commitments to drill horizontal wells or hydraulic fracturing. For applications which include joint Work Programmes (each across a maximum of 2 coincident blocks) the strategic scope of the entire application is considered.

7) The Marks Scheme will be used to mark applications largely on a block-by-block basis, and then the strategic scope will be assessed. The Marks Scheme consists of eight sections (a marks scheme summary is presented at the end):

- **Geotechnical database:** Marks will be available for the coverage (including newly-gathered data) and use of relevant, high quality, existing geotechnical data or studies. Data from outside the Block (to provide regional context or identify shale producing analogies) will only be rewarded where it demonstrates improved understanding of prospectivity (or lack of potential) on the Block itself.
- **Geotechnical evaluation (block as a whole)** Marks will be available for the quality and understanding demonstrated in the generation of realistic prospectivity and new play potential on the Block as a whole. This work should assess the potential of the block both by area and stratigraphically. Applicants should not expect to be rewarded for speculative, overly optimistic or unsupported analysis, and where appropriate they should explain the rationale for a lack of prospectivity at particular levels within the acreage applied for.
- **Specific prospectivity identified** Marks will be available for what DECC understand and consider as valid leads and prospects on the Block(s) that will be progressed either through a technical Work Programme or which are ready to drill. The Department will categorise and mark leads and prospects as either leads or prospects ready to drill depending on consideration of validity/risk and the degree to which further work is necessary before they are fully evaluated and ready to drill. Marks within the ranges will also consider the quality of interpretation and understanding demonstrated in the lead or prospect generation. Few, if any, marks will be awarded to leads that are based on speculative geotechnical arguments, are so small as to have limited commercial potential, or where DECC takes the view that prospectivity has been effectively disproved. Applicants should include volumetric estimates of leads and prospects with associated risk analysis where possible. A series of leads or prospects identified at a similar reservoir level on a block will be marked as one where information from a single well would effectively condemn the other leads. Where leads or prospects straddle block boundaries, DECC may split marks (for both prospectivity identified and associated work programmes) between blocks in a manner that best reflects where the bulk of the lead or prospect exists, and/or in a manner that helps preserve the integrity of the lead or prospect if competed. The Department may therefore split blocks depending on the geotechnical work focus of competing applications.

Relatively few marks will be given in situations where prospectivity analysis (block or specific leads/prospects) draws heavily on non-original work e.g. derived from previous application documents, material picked up in Data rooms or from other company websites.

- **New Plays** (where specific leads cannot yet be identified) will be assessed against the information used, the quality of interpretation in their evolution, and on DECC understanding of their potential validity.
- **Geotechnical Work Programme** This includes commitments for the shooting of new seismic data, obtaining existing seismic data, reprocessing of seismic data and other geotechnical studies e.g. biostratigraphy, geochemistry, petrophysics, fault seal analysis, etc. Work should be linked to identified prospectivity where possible. For new data acquisition (including gravity or magnetic surveys), only firm commitments will receive marks.
- **Drilling Work Programme** This falls into 2 categories:
 - Firm Wells** will attract a block of 50 marks. Additional marks may be awarded for horizontal drilling or hydraulic fracturing. However, a commitment to hydraulic fracturing will only be accepted where 3D seismic already exists or is part of the Geotechnical Work Programme.
 - Drill or Drop Wells** will only attract marks where an early decision point is committed to (20 marks if committed to by end of Yr2 and 10 marks for Yr3). If a decision to drill is not made at the stated time, the licence will expire.
 - DECC will not accept any **Contingent Commitments**.
- **Evaluation and plans for existing discoveries or re-developments** Marks will be available for work that demonstrates the quality and understanding of the appraisal/development potential of existing discoveries or re-developments of decommissioned fields, including an assessment of extent and reserve potential, an outline economic case, understanding of commercial aspects and what infrastructure would be necessary for optimal timely development or further appraisal. Forward plans with associated timelines should be presented.
- **Company experience and capability.** Beyond the requirement to meet minimum Operator Competence criteria, marks will be considered for the applicants geotechnical experience, and experience in hydraulic fracturing and shale development. The applicants operating experience and experience of key staff should be presented. Marks will be available for detailed plans which realistically demonstrate the expected pace of activity or readiness to drill and the applicants capability to meet commitments, given the UK social and regulatory environment. In addition, when multiple blocks are applied for, marks

will be available for the strategic rationale of the entire application and how the work programme will accelerate shale exploration and development.

Landward marks scheme summary

Geotechnical database used

| | |
|----------------------------|----------|
| 3D Seismic: | 30 (max) |
| 2D Seismic: | 20 (max) |
| Seismic reprocessing:..... | 15 (max) |
| Well data: | 6 (max) |
| Other: | 20 (max) |

Geotechnical evaluation already performed

| | |
|--|----------|
| Well interpretation/ties: | 6 (max) |
| Stratigraphic interpretation: | 6 (max) |
| Structural interpretation: | 6 (max) |
| Seismic interpretation: | 6 (max) |
| Hydrocarbon system: | 6 (max) |
| Depth interpretation: | 6 (max) |
| Exploration rationale and timing : | 6 (max) |
| Other: | 50 (max) |

Specific prospectivity identified

| | |
|---|--------------|
| Fully evaluated prospects: | 21-30 each |
| Leads and prospects not fully evaluated | 11-20 each |
| New plays: | 5 each (max) |

Geotechnical Work Programme

| | |
|--|----------|
| 3D seismic | 25 (max) |
| 2D seismic | 15 (max) |
| Seismic reprocessing: | 10 (max) |
| Geotechnical studies/new data acquisition: | 25 (max) |

Drilling Work Programme

| | |
|----------------------|------------------------------------|
| Firm well: | 50 (max) |
| | plus horizontal well 25 (max) |
| | plus hydraulic fracturing 25 (max) |
| Drill-or-drop: | 0-20 (timing dependent) |

Developing existing conventional discoveries & re-developments

| | |
|---|----------|
| Technical assessment: | 10 (max) |
| Economics: | 5 (max) |
| Commercial: | 5 (max) |
| Infrastructure access and ullage: | 5 (max) |
| Plans and timing: | 5 (max) |

Experience and capability (shale only)

| | |
|---|-----------|
| Company shale geotechnical experience: | 50 (max) |
| Company hydraulic fracturing and shale development experience | 50 (max) |
| Pace (readiness to drill, rig availability, detailed plans) | 100 (max) |
| Strategic (scope across multiple blocks) | 100 (max) |