

TECHNICAL INFORMATION (APPENDIX B, INCLUDING TECHNICAL COMPETENCE) JULY 2016

The applicant presents technical information at Appendix B to the application which: (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 applications where it is proposed to start the licence in Phase C of the Initial Term, the applicant also submits information demonstrating the proposed operator's competence (see *Operator Competence*). In addition all applicants for Licences will be assessed against the safety and environmental capability requirements of the Offshore Safety Directive (OSD), as detailed in the Appendix C – Safety and Environmental Issues Licensing and Operatorship guidance

1) In Appendix B the Applicant will need to:

- demonstrate the quality of its technical evaluation and understanding of the geology;
- identify prospectivity;
- explain the exploration (and/or exploitation) rationale;
- propose a detailed Work Programme with timings and decision points, as well as detailing the required Resources necessary.

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. The Oil and Gas Authority (OGA) doesn'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 Landward applications), including displays (relevant maps and seismic sections indicating well ties, where appropriate).

3) Note that this Guidance is designed to cater for Applications in any area, whether underexplored ("Frontier") or better explored ("Mature"); the level of detail provided in an application will reflect the amount of information available and utilised by the Applicant.

4) 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:

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

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

Applicants must identify and detail all available geophysical data (whether publically or commercially available) and justify the use of the datasets chosen for the analysis from a technical perspective. The OGA encourages the use the best available datasets wherever possible.

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, key survey acquisition and processing parameters, 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 or specialist analysis was carried out.

4.3 The analysis performed by play (source rock and reservoir-seal pair), and the overall prospectivity potential (or lack of) identified within the block(s) and its relationship to the regional geology of the area.

4.4 The identity and analysis of [prospects](#), [leads](#), plays/part-plays and common risk segment analyses and/or [new play concepts](#) in the acreage, together with predicted reservoir performance, reservoir and

fluid properties, and resource/reserve information (including risk/chance of success) using analogues and play statistics. Play chance (shared chance factors) should be separated from prospect chance (local chance factors).

4.5 For the main prospect/group of prospects/leads: two interpreted seismic and geological profiles in crossing directions (dip and strike lines); reservoir horizon time maps and depth maps presented at identical horizontal 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.

4.6 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.

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

4.8 A summary Table should also be provided:

Prospect Lead Discovery Name ¹	P L D ²	Reservoir		Unrisked recoverable resources (untruncated) ⁴								Geological Chance of Success ⁵
		Stratigraphic level ³	Reservoir Depth (m MSL)	Oil MMbbls ⁴				Gas BCF ⁴				
				Low (P90)	Central (P50)	Mean	High (P10)	Low (P90)	Central (P50)	Mean	High (P10)	
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 technical assessment. Low and high value should equate to P90 and P10. Volumes and probability need not be stated for leads.

⁵ Estimation of the likelihood of making a discovery should be explained in the geological assessment. This should be the chance of finding a minimum flowable volume of oil or gas. The assumption offshore is that this P99 recoverable volume should approximate 1 MMboe.

NEW SEAWARD INNOVATE LICENCE

The OGA is introducing a new variant of the Seaward Production Licence, known as “Innovate”, which replaces all previous Seaward Production Licence sub-types (previously Traditional, Frontier, and Promote). These licence sub-types will no longer be available, but the flexible Seaward Innovate Licence structure allows for licences with the same clauses to be applied for.

The advantages of this single type of Licence are that it applies to any offshore area, and is flexible, the Licence and Phase duration being determined by the Applicant, with a Stage-Gate process that can be designed to accommodate the optimal Work Programme.

5) For the 29th Round, the current Model Clauses will apply for Seaward Innovate Licences (see “Type and Term of Licence” in the General Guidance document for more detail). The Seaward Innovate Licence comprises the usual three Terms (Initial for carrying out the Exploration Work Programme, Second, for Appraisal leading to an approved Field Development Plan, and Third, for Development and Production).

6) The lengths of the Initial Term and Second Term are flexible. For the areas included in the 29th Round the maximum duration of the Initial Term is set at 9 years; of the Second Term up to 6 years; and of the Third 18 years but extendable if still in Production.

7) The Initial Term may comprise three Phases:

- Phase A: For carrying out Geotechnical Studies and Geophysical Data Reprocessing;
- Phase B: For Shooting New Seismic and other Geophysical Data;
- Phase C: For Drilling Exploration & Appraisal wells.

There will be a maximum of four years available for any one Phase, but within the overall duration of the Initial Term, which is limited to nine years. Applicants should however note that whilst all Work Programmes must be realistic and achievable, with the target of drilling one or more exploration wells within Phase C, shorter Work Programmes are preferred and will be preferentially rewarded in the Marks Scheme.

Applicants may decide the Phase combination, whether all three Phases, straight to Phase B followed by Phase C, straight to Phase C, or Phase A direct to Phase C.

Phase A and Phase B are not mandatory and may not be appropriate in particular circumstances, but every application must propose a Phase C, except where the applicant doesn't think any exploration is needed and proposes to go straight to development (i.e. 'straight to Second Term').

For example, an Applicant may wish to Reprocess seismic in Phase A with a duration of 2 years, followed by a Phase B with a proposed duration of 4 years for Contingent seismic in case the results of the Phase A reprocessing are not clear, then Phase C would be a Drill or Drop commitment, with the well drilled in the 9th year at the latest.

A firm commitment to drill a well (a "Firm well") can only be considered where the drilling decision does not require any further work, analysis etc, and so is unlikely to be considered where there is either a Phase A or a Phase B. The Work Programme would commence with Phase C, perhaps with a duration of 3 years, but where the first year or two would be solely for well planning, ordering long lead items and site surveying.

8) There is no restriction on the number of Blocks that can be applied for, but there are limits to the amount of acreage that OGA will award in a single licence. In Seaward areas the limit is ten contiguous blocks per licence, but with no aggregate limit across several licences.

9) The durations and proposed work for each Phase should be supplied in the Appendix B. On award of any Licence a more detailed programme of work for each Phase should be provided to the OGA within two months of the Offer. Annual updates will be required to check progress of the Work Programme, with a face-to-face review provided to OGA on request. A dialogue must be held with OGA no later than three months before the end of each Phase to discuss the continuation from one Phase to the next.

10) If the Licensee no longer proposes to drill a well due to the findings made before Phase C, then the Licence will determine at the end of Phase B (or should be relinquished at the end of Phase A if no new shoot seismic is proposed).

11) In accordance with the current Model Clauses, licences with a Phase B will specify a time period under clause 4(2) so the licence may expire at the end of this phase if the Licensee has not satisfied OGA of its technical and financial capability to complete the Work Programme or if the licensee has not completed the work required under Phase B of the Work Programme. For licences with a Phase A but no Phase B, the licence will also specify a period under clause 4(2) so the licence may expire at the end of this phase if the Licensee has not satisfied OGA of its technical and financial capability to complete the Work Programme or if the licensee has not completed the work required under Phase A of the Work Programme.

12) Whilst there is no mandatory surrender of any of the licenced area at the end of either Phase A or Phase B, the OGA would recommend retention only of the area being actively worked. At the end of Phase B only the area that will be addressed by drilling should be retained, although further prospectivity that may be drilled in the early part of the Second Term could be kept, bearing in mind that at the end of the Second Term (maximum duration 6 years) only the area of an approved Field Development Plan is allowed to be retained.

13) Where the Applicant proposes any Licence does not require an Initial Term (e.g. for Development of an existing Discovery or Re-Development of a Field where Production has ceased) a Work Programme is not applicable. This should be stated in the Application Form on the Work Programme Summary Sheet and discussed at Interview. Where such cases are agreed by the Authority, on Award the Licence would go straight to a Second Term.

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 acreage applied for. Its overall duration, the length of individual Phases (see above) and 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 where there are timed commitments see paragraph 11 above which explains timed commitments for Phase A/B applicants).

14) 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.

15) The Applicant proposes a Work Programme as part of its application. It may be discussed and clarified at interview. The duration of the Individual Phases (see Seaward Innovate Licence) should be clearly stated within Appendix B, 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' (Electromagnetic, gravity and magnetic, geoscientific studies etc).

16) 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>).

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

- A *Firm Drilling Commitment*, as required when an applicant proposes to go straight to Phase C for Seaward Innovate Licences, means that there must be a commitment to the Secretary of State to drill a well. It is only appropriate if the Applicant is certain that it would drill if awarded a licence. This requires that drilling could begin immediately, subject only to outside factors such as compliance with other regulatory regimes, rig availability, or weather. The well should therefore be drilled as *soon as practicable* within the Initial Term. The OGA will not reward multiple Firm well commitments within or possibly across applications from the same licensee if they duplicate the geological target of other Firm wells and there are strong dependencies (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, OGA may (during discussion at interview) indicate that a well may not be considered to be a Firm well, in which case the Programme would then commence at Phase A or at Phase B, with a Contingent well or Drill or Drop commitment. (See Seaward Innovate Licence description.)
- See paragraph 20 below with respect to fulfilment of Firm commitments, especially wells. Firm drilling commitments will not be accepted from applicants where Financial Capability, Technical Competence and compliance with the relevant safety and environmental requirements has not been proven.
- A *Contingent Drilling Commitment* is also a commitment to the Secretary of State to drill a well, but it includes specific provision for the OGA to waive the commitment if we agree that drilling would not be an appropriate use of resources, having regard to the MER UK policy, and all the information available to the OGA 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 OGA 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 Landward applications.
- OGA 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

(e.g. 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 Applicant's direct control e.g. approval of development plans or where third party agreements might be required.

- 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.
- 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.

18) Seismic data: Where applicable, the amount of seismic data (whether 2D (in full fold line kilometres) or 3D seismic (area of full fold 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. Make clear where any seismic that has been used for the interpretation has not yet been purchased, and, if reprocessing is to be carried out, whether access rights to readable, verified or re-mastered field tapes have been secured.

- Contingent new shoot seismic bids will be accepted for Seaward Innovate Licences where Phase A involves Reprocessing of existing seismic and it is not clear whether that work will provide sufficient uplift to identify prospectivity. Marks will be limited to a maximum of 5 so that any such commitment will not be a deciding factor for Award.
- Landward applicants will be encouraged to archive any new data with the UK Onshore Geophysical Library, and Seaward applicants are encouraged to archive any new data with Common Data Access (CDA).

19) 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, environmental studies, etc), appraisal/development potential of *existing* discoveries or re-developments of decommissioned fields, or to evaluate mine gas potential. This should include the Applicant's plans and approach to secure the resources needed to complete the Initial Term Work Programme, if they have not already been secured.

20) OGA views Firm Commitments (including, but not limited to, drilling, seismic/geophysical and geotechnical work) as a core part of the licensing regime. The OGA reserves the right to characterise any failure to meet a Firm Commitment as poor performance, which we may take into account in future decisions; for example, in the marks awarded for commitments offered in future licensing rounds or even a refusal to consider any further applications at all, where justified.

21) A Work Programme for the Seaward Innovate 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.)

INTERVIEWS

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

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

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

- the Applicant's geotechnical data coverage (including an evaluation of all datasets that are publically and commercially available) and work completed to date;
- identified prospectivity at play, lead and prospect level;

- the potential for appraisal or development of *existing* discoveries and/or re-development of decommissioned fields that the Applicant has identified (this should include an evaluation of opportunities for cluster developments);
- how these relate to the Work Programme offered.

24) OGA may request further meetings after the interview if further clarification or understanding is felt necessary. The interview will *not* address safety, financial or environmental aspects.

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

OPERATOR COMPETENCE

26) Under the Offshore Petroleum Licensing (Offshore Safety Directive) Regulations 2015, successful licensees will be required to appoint OSD operators to undertake well operations and production installation operations. Further details on OSD operator appointment are available in Appendix C – Safety and Environmental Issues Licensing and Operatorship Guidance at <http://www.hse.gov.uk/osdr/assets/docs/osd-licensing-operatorship-safety-environmental-aspects-june-2016.pdf>.

27) The older concept of operator still exists and is now referred to as Licence Operator (or Exploration Operator or Production Operator in particular circumstances) to distinguish it. An applicant need not submit any evidence of competence to act as Licence Operator if applying for a licence with a Work Programme with a Phase A and/or a Phase B at the application stage, but Licence Operator competence must be proven before a licensee can progress to Phase C. However, if applying for a licence with a Phase C-only Work Programme, or one that goes straight to the Second Term, the applicant must upload documentation at the Appendix B screens in LARRY.

28) The Oil and Gas Authority 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 OGA that it knows what structure and skills are needed and that it has a management team capable of delivering it. Also, further regulatory consents that are required for work such as drilling will not be provided until all elements of the Applicant's competence are proven. Please see the General Guidance for other requirements placed on Applicants.

29) *The Technical Competence aspects (organisation charts and Curriculum Vitae (Resumes) of key personnel) should be uploaded as a separate file into the Appendix B area of LARRY.*

30) For further guidance contact:

- Jen Brzozowska (email: jen.brzozowska@oga.gsi.gov.uk) for seaward cases or
- Toni Harvey (email: toni.harvey@oga.gsi.gov.uk) for landward cases.

ANNEXE 1: DEFINITIONS

- 1) A **prospect** is a robust structural, stratigraphic or combination trap 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 trap 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, new source-reservoir-seal combination, etc).
- 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 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 applications in Seaward Areas.

THE SEAWARD MARKS SCHEME

3) The Seaward Marks Scheme will be used to mark applications largely on a block-by-block basis. The Marks Scheme consists of multiple 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. OGA will consider the quality of the data utilised compared with what we know to be available in the area, and applicants must demonstrate that they have evaluated all publically and commercially available datasets that are relevant to the application, with a justification of the choice of dataset. 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 (both Regional & Block specific)** Marks will be available for the quality and understanding demonstrated in the generation of realistic prospectivity and new play potential on the Block or area as a whole. This work should assess the potential both by area and stratigraphically. Play Fairway Maps and Common Risk Segment maps should demonstrate that all aspects of 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 Oil and Gas Authority 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. OGA will categorise and mark leads and prospects within three ranges (leads, prospects, or fully evaluated prospects) depending on consideration of validity/derisking 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 OGA 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, OGA 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 OGA 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 OGA's Promote publications, Relinquishment Reports, or material derived from data rooms or from other company websites.

- **New Play Concepts** (where specific leads and prospects cannot yet be identified) will be assessed against the information used, the quality of interpretation in their evolution, and on OGA understanding of their potential validity.
- **Geotechnical Work Programme** With the Innovate Licence, the Work Programme is assessed on the basis of the start Phase. The aim is to reward new activity (particularly drilling and new shoot seismic), at a higher level than e.g. Reprocessing or desk studies. For instance, marks will be available where Phase A is the start-phase for Purchase of Seismic Data, Reprocessing, or Geotechnical Studies, under the 'Phase A programmes' marking criteria and an application may then attract an additional 5 or 10 Marks depending on the Applicants' proposed duration of that Phase. As an example, if the Applicant proposes to purchase and Reprocess 3D with a short Phase A, a maximum of 65 Marks will be available, whereas an Applicant committing to purchase and Reprocess 3D with a long Phase A will attract only 55 Marks. Because the application starts with Phase A, none of the marks under the 'Phase B programmes' marking criteria would be available.
- NOTE that the OGA is not defining specific lengths for Phases, apart from a maximum of 4 years per Phase, and up to a maximum of 9 years in total for the Initial Term for underexplored areas.

- The Phase A Geotechnical Work Programme includes commitments for 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.
- Phase B includes commitments for the shooting of new seismic data. Higher marks will be given to new shoot seismic surveys and other data acquisition methods which are considered appropriate to derisking and delineating the area and prospectivity applied for, and which use the most advanced techniques.
- **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, ullage and access should be demonstrated if possible. A brief description of possible Improve Oil Recovery/Enhanced Oil Recovery IOR/EOR may be included if applicable. Forward plans with associated timelines should be presented. Conceptual development options for *exploration* prospects are *not* required and will not be marked, although potential offtake routes and dependencies with existing infrastructure should be detailed.

Seaward marks scheme summary

Geotechnical database used

3D Seismic †:	40 (max)
2D Seismic †:.....	30 (max)
Seismic Reprocessing:	20 (max)
Well data:	5 (max)
Other:	20 (max)

Geotechnical evaluation already performed over block (*both regional & Block-Specific*)

Well interpretation/ties:	5 (max)
Stratigraphic interpretation:	5 (max)
Structural interpretation:	5 (max)
Petroleum System Analysis:	5 (max)
Hydrocarbon system:	5 (max)
Depth interpretation:	5 (max)
Exploration rationale and timing :	5 (max)
Other:	10 (max)

Specific prospectivity identified

Fully evaluated prospects:	21-30 each
Prospects not fully evaluated:.....	11-20 each
Leads:.....	10 (max)
Original Play and Common Risk Segment Analyses:.....	10 each
New play concepts:.....	5 each

Geotechnical Work Programme

Phase A Programme

3D seismic (Purchase) †.....	20 (max)
2D seismic (Purchase) †.....	15 (max)
Seismic reprocessing: Includes novel processing, e.g Bi-Azimuth, etc.....	10 (max)
Geotechnical studies*: Includes Grav/Mag, EM	25 (max)

Phase B Programme

3D seismic (Shoot) † Includes Broadband, OBC/OBN, Dual/Multi/Wide-Azimuth, etc.....	30 (max)
2D seismic (Shoot) † Includes Broadband, OBC/OBN, Dual/Multi/Wide-Azimuth, etc.....	20 (max)
Geotechnical studies*: Includes Grav/Mag, EM,	25 (max)

† Use of the best available/optimum seismic datasets will attract more marks (e.g. an Ocean Bottom Node survey will be clearly better at derisking subsalt prospectivity compared to a conventional towed streamer survey). Applicants should demonstrate that they have made an assessment of all publicly and commercially available seismic datasets, and justify their choice/the value of this information in relation to how this data addresses the critical risks and reduces subsurface uncertainty. More advanced seismic technologies committed in the Phase B programme will also attract more marks.

* It would be expected that if a Licence were to be offered, Licensees would undertake and support Higher Education Institution Research (e.g. PhDs / Postdocs) and Collaborative Regional Studies as part of the Geotechnical Studies programme in accordance with the principles of MER UK. Where Research and Studies are relevant to licence activities or furthering the understanding of petroleum plays relating to the licence area marks may be awarded for these.

- HEI Research may be via one of the NERC Centres for Doctoral Training, such as the CDT in Oil and Gas (<http://www.nerc-cdt-oil-and-gas.ac.uk/>) or other individual, recognised, higher education institutions or bodies.
- Collaborative Regional Studies may include participation in and contribution to projects proposed and governed by the MERUK Exploration Board and the “21st Century Roadmap” Technical Steering Committee.
- Applicants can also propose other appropriate study mechanisms.
- Please indicate the type of Research and/or Project(s) you would expect to support, with appropriate funding and timing, in a separate paragraph within the Appendix B and briefly in the Comments section of the Work Programme Summary Sheet.
- Equivalent Marks for Studies may also be available where the start Phase is Phase C, provided it is clear these studies will not be associated with the Firm well.

Applicants should make clear how all activities, studies and research it proposes are relevant to:

- i. the way in which the licence activities will be carried out, and/or
- ii. to the applicant’s technical capability.

If the OGA feels that such proposals are not relevant to the above, then they will not be awarded marks.

Phase Timing Mark (Rewards Faster Work Programmes)

Phase A is Start Phase (i.e. Seismic/Drop or Drill/Drop)	(Duration)
Firm Studies, Seismic Purchase & Reprocessing	Long 0
.....	Mid 5
.....	Short 10

Phase B is Start Phase (Firm New-Shoot Seismic and Contingent Well)	(Duration)
Firm New-shoot Seismic.....	Long 15
<i>with Contingent Well based on new seismic</i>	Mid 20
.....	Short 25
Contingent Seismic.....	5 (max)

Phase C is Start Phase (Firm Well)	(Duration)
Firm Well.....	Long 30
<i>Includes consideration of depth, technical difficulty and number of wells/sidetracks</i>	Mid 40
.....	Short 50

Existing Discoveries

Technical assessment:	10 (max)
Economics:	5 (max)
Commercial:	5 (max)
Infrastructure:	5 (max)
Plans and timing:	5 (max)

Re-developments

Technical assessment:	20 (max)
Economics:	10 (max)
Commercial:	10 (max)
Infrastructure:	10 (max)
Plans and timing:	10 (max)

THE LANDWARD MARKS SCHEME

4) 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.

5) The Marks Scheme 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. Data from outside the Block (to provide regional context) 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 OGA 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 OGA 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 OGA 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, OGA 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 OGA 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 OGA 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:
 - i. **Firm Wells** will attract a block of 50 marks, with up to 20 additional marks available where deeper prospectivity or technically challenging prospects are to be drilled (e.g. extended reach). Marks will not be awarded for each sidetrack or multiple CBM or Shale Gas wells.
 - ii. **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.
 - iii. OGA 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.

Landward marks scheme summary

Geotechnical database used

3D Seismic:	30 (max)
2D Seismic:	20 (max)
Seismic reprocessing:	15 (max)
Well data:	6 (max)
Other:	10 (max)

Geotechnical evaluation already performed over block

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
Leads and prospects not fully evaluated	20 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:	10 (max)

Drilling Work Programme

Firm well:	50 (+0-20 if deep)
Drill-or-drop:	0-20 (timing dependent)

Existing discoveries & Re-developments

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