

Section 1

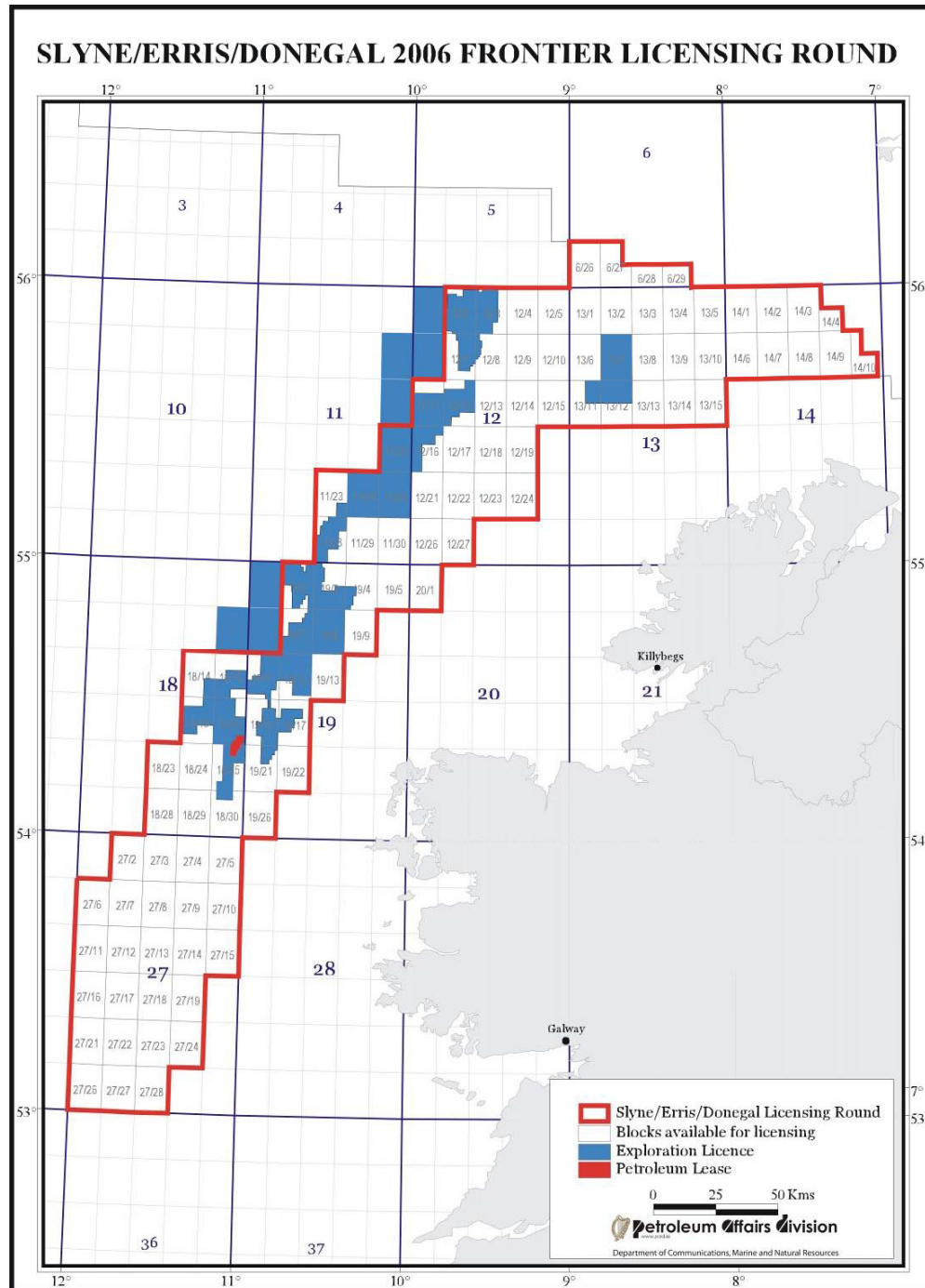
Introduction and background

1 Introduction and background

1.1 Introduction

The Petroleum Affairs Division (PAD) of Ireland's Department of Communications, Marine and Natural Resources (DCMNR) has commenced a review of the hydrocarbon-bearing potential of the Atlantic Ireland Basins starting with the acreage covering the Slyne, Erris and Donegal Basins. The Slyne, Erris and Donegal Basins are sedimentary geological basins lying beneath the present day sea bed to the west and northwest of Ireland (Figure 1.1).

Figure 1.1 Location of Slyne, Erris and Donegal Basin Frontier Exploration Licensing Round



Introduction and background

In accordance with the European Union (EU) Strategic Environmental Assessment (SEA) Directive (2001/42/EC) and the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 Statutory Instrument number 435, the Petroleum Affairs Division (PAD) of the DCMNR is carrying out an SEA on its proposed plan to issue Frontier Exploration Licences for blocks listed in the schedule to the 2006 Licensing Round – over the Slyne, Erris and Donegal Basins. This is referred to hereafter as the Draft Plan. A map of the area under offer in the licensing round is shown in Figure 1.1, but the full Draft Plan is reproduced in Appendix 1.

This is seen as the first offshore SEA of a series that will be carried out on future plans to issue exploration licenses for the entire offshore area under Irish jurisdiction between 2006 and 2008. As part of the SEA for the current proposed programme or Draft Plan, the PAD has commissioned this environmental report in order to highlight the likely significant effects on the environment and to identify any mitigating measures. This report includes information that may reasonably be required taking into account:

- current knowledge and methods of assessment;
- the content and level of detail in the Draft Plan;
- the stage reached by the Draft Plan in the decision-making process; and
- the extent to which certain matters are more appropriately assessed at different levels in the decision-making process in order to avoid duplication of environmental assessment.

The scenario being considered in the Draft Plan is detailed in Section 4 of this report, but in summary comprises the undertaking of 2D seismic data gathering in 2006 to 2007, 3D seismic data gathering in 2008 to 2010, followed by the drilling of up to two exploration wells per year 2008 to 2011 and up to two appraisal wells per year over the period 2009 to 2011. These activities will take place alongside existing exploration programmes, taking place as a result of previous licensing rounds. As an acknowledgement that a proportion of the exploration drilling is likely to be successful, and hydrocarbons in commercial quantities may be found, it is also estimated that up to two development wells per year may be drilled also over the period 2009 to 2011, and possibly as early as 2008.

This first Irish Offshore Strategic Environmental Assessment (IOSEA1) has the following objectives:

- first, it will inform the public and provide a mechanism for consultation;
- second, it will inform the Irish government of specific environmental considerations in its forthcoming licensing process;
- third, it will be a more efficient means to provide oil companies working offshore with an operational baseline against which they can conduct their work and ensure responsibility to environmental protection;
- finally, reflection on the conduct and success of various aspects of IOSEA1 will point the way for future IOSEAs.

1.1.1 Schedule

The PAD initiated IOSEA1 for oil and gas exploration in December 2005. Following a tender process, ERT (Scotland) Ltd, a marine environmental consultancy, was commissioned to undertake preparation of the environmental report.

The schedule for the IOSEA1 is aligned with that of the current licensing round, to ensure that the process leading up to production of the draft environmental report, and the subsequent consultation, can provide a meaningful input into the decision-making prior to license award. The schedule is outlined in Figure 1.2. This draft environmental report will be circulated during the consultation phase in April/May, during which expert bodies and the public will be able to provide feedback to the PAD through various channels including specially arranged meetings. The final environmental report will incorporate the findings from the consultation period to support and inform the decision-making process for the Frontier Exploration licensing round.

Figure 1.2 The schedule for preparing the environmental report



1.2 Scope and purpose of IOSEA1 and environmental report

1.2.1 The SEA Directive

Under Article 3.1 of the SEA Directive, an environmental assessment must be carried out for all plans and programmes that may have significant environmental effects at a regional or national level. The text of the Directive is presented in Appendix 2.

SEA is the formal, systematic evaluation of the likely significant environmental effects of implementing a national or regional plan before a decision is made to adopt the plan. Environmental assessment is defined under the Directive as

"the preparation of an environmental report, the carrying out of consultations, the taking into account of the environmental report and the results of the consultations in decision-making together with the provision of information."

Environmental assessment is an important tool for integrating mitigative considerations into plans and programmes that may otherwise have caused significant effects on the environment. It should be noted that under national legislation, assessments are required at different levels during the implementation of a plan/programme and its derivative projects. At the strategic level, regional or national plans covering a wide geographical extent may be required for sectoral or cross-sectoral interests. Then, at the project-specific level, large projects at specific locations may require individual environmental impact assessment involving public consultation. Finally, at the smaller project or sub-project levels, a smaller scale of environmental assessment may be required for plans that are subject to established consenting procedures without a public consultation process. See Section 3 for an outline of how the PAD manages the oil and gas sector in this respect.

Under the SEA Directive, an environmental report shall be prepared in which the likely effects on the environment of implementing the plan or programme are assessed, after identification and evaluation of reasonable **alternative** strategies, taking into account the objectives and the geographical scope of the plan or programme.

1.2.2 The purpose of the environmental report

The purpose of the IOSEA1 is to assess the significance of impacts arising from the likely seismic and exploration drilling activity levels (the 'scenario') mooted by the PAD, and to present the outcome of this assessment in an environmental report.

This environmental report describes the scope and impact of this Draft Plan and the relationship to other relevant plans and programmes. It does this by:

- describing the environmental characteristics of the Slyne, Erris and Donegal Licensing Round area likely to be significantly affected;
- identifying any existing environmental problems which are relevant to the plan specifically those relating to any areas of particular environmental importance, such as areas designated pursuant to the Birds Directive 79/409/EEC and the Habitats Directive 92/43/EEC;
- considering the environmental protection objectives, established at international, Community or Member State level, which are relevant to plan the plan and the way those objectives and any environmental considerations have been taken into account during its preparation;
- determining the likely significant effects on the environment (such as: secondary; cumulative; synergistic; short, medium and long-term permanent and temporary; positive and negative effects), including issues such as biodiversity, population, human health, fauna, flora, soil, air, water, climatic factors, material assets, cultural heritage including architectural heritage, landscape and the interrelationship between the above factors;
- describing the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan;
- presenting an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- proposing monitoring measures.

The organisation of the environmental report is described in Section 1.5. The Draft Plan and the environmental report shall be made available to the authorities delegated by the Irish government and to the public. The Environmental Authorities, other expert bodies and the public shall be given early and effective opportunity to express their opinion before adoption of the final plan.

1.3 SEA legislative context

1.3.1 SEA Directive 2001/42/EC

Environmental impact assessment (EIA) of individual projects in the EU began in 1985 with the EIA Directive 85/337/EEC. Since this was transcribed into domestic legislation, it has been established that, in conjunction with individual project assessment, there was a need for evaluation of the plans that guide these projects. In particular, it has been recognised that individual project assessment is not the best place to address cumulative effects and that there are many benefits for sustainable development in influencing decision making at earlier stages of plan development.

The SEA Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment came into force in 2001. The Directive's objective is to:

"provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment."

The full text of the Directive is shown in Appendix 1. Member states were required to transpose the Directive into laws, regulations and administrative provisions to apply to all plans programmes on or after 21 July 2004. The following Regulations have been established under Irish Law:

- European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (Statutory Instrument (SI) 435 of 2004); and
- Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI 436 of 2004).

SI 436 covers SEA for planning and development purposes, whilst SI 435 covers SEA for other specified plans and programmes.

SI 435 includes the requirement to carry out SEA for all plans and programmes prepared for (amongst others) the energy and industry sectors, and which sets the framework for future development consent of projects relevant to the extraction, storage and pipeline transfer of hydrocarbon resources.

SI 435 also states that a plan or programme will only require SEA when it is likely to have significant effects on the environment. In determining whether a particular plan or programme may have significant effects on the environment, the Competent Authority, in this case the PAD, will take account of:

The characteristics of the plan or programme, or the degree to which it:

- sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources;
- influences other plans including those in a hierarchy;
- integrates environmental considerations in particular with a view to promoting sustainable development;
- incorporates environmental problems;
- is relevant to the implementation of EU legislation on the environment (eg plans and programmes linked to waste-management or water protection); and

The nature of the effects and of the area likely to be affected by the plan or programme, with regard to:

- the probability, duration, frequency and reversibility of the effects;
- the cumulative nature of the effects;
- the transboundary nature of the effects;
- the risks to human health or the environment;
- the magnitude and spatial extent of the effects;
- the value and vulnerability of the area likely to be affected due to:
 - special natural characteristics or cultural heritage,
 - exceeded environmental quality standards or limit values,
 - intensive land-use,
 - the effects on areas or landscapes which have a recognised national, EU or international protection status.

The PAD has recognised the Draft Plan may have significant effects on the environment and has embarked on an SEA process to inform the Irish government of specific environmental considerations in its licensing process.

1.3.2 Energy policy context

In the recently published Statement of Strategy (DCMNR, 2005a), high level goals have been set to promote the sustainable development, management and regulation of the communications, energy, marine and natural resources sector in support of national economic and policy objectives. Within this strategy, which is set against the economic backdrop, there are sectoral policy goals and strategy. Ireland's energy policy closely mirrors that of the EU and the Organisation for Economic Co-operation and Development (OECD) and is based on three main policy pillars:

- safeguarding security of supply;
- developing a sustainable energy future; and
- the development of competitive, efficient and properly regulated energy markets.

In a report of the International Energy Agency relating to Ireland (IEA, 2003), the Summary of Conclusions and Recommendations includes the following (at page 7):

"Concurrent with these two commendable developments has been a rapid increase in energy demand resulting from an impressive level of economic growth. This high rate of energy demand growth has occasionally strained the country's energy infrastructure and, while these constraints are generally being addressed, they increase concerns about the country's overall energy security. These concerns are fuelled in part by the country's lack of substantial domestic energy resources and consequent high level of imports. In 2000, only 15% of the country's energy came from indigenous sources. The country's relative isolation and lack of extensive international energy connections also exacerbate Ireland's vulnerability to supply disruptions and/or price spikes."

The recommendations on Energy Market and Energy Policy at page 12 of the same report is as follows:

"The government of Ireland should:

- *Develop a long-term strategy for optimal energy supply mix striking an appropriate balance between energy security and climate change mitigation, noting a rapidly growing share of natural gas in the electricity sector.*
- *Promote international integration in the electricity and gas sectors to enhance energy security and competition, and facilitate integration with the single EU market.*
- *Continue to undertake energy supply-demand and CO₂ emissions projections, noting rapid growth in energy consumption and CO₂ emissions.*
- *Pursue social objectives by means other than energy policies, prices and taxation."*

It is within this context that IOSEA1 is being undertaken. The Irish Government intends to publish an Energy Policy Paper later in 2006.

The introduction to the Licensing Terms for Offshore Oil and Gas Exploration and Development 1992 includes the following:

"Commercial production of oil and gas can make a major contribution to Ireland's economic development. This has been demonstrated by the impact of natural gas from the Kinsale Head and Ballycotton Fields. The Government of Ireland are therefore committed to realising the full potential of oil and gas resources offshore Ireland. Since the Government do not consider that direct State involvement in this area of activity is appropriate, the pursuit of their policy objectives requires that competent private sector companies be encouraged to invest in the search for and production of oil and gas in Irish waters. The private sector is recognised as having the resources, expertise and practical experience essential for such a task. In the early 1990s the Government took a number of major initiatives in order to enhance the comparative attractions of Ireland as a location for investment. Principal among such initiatives is the introduction of a complete statutory regime of petroleum taxation and the introduction of new Licensing Terms."

That policy has been pursued by every Government in office since then, and those initiatives remain in place today. The Agreed Programme for Government following the general election in 2002 includes an undertaking to *"encourage further exploration for hydrocarbons and minerals while maximising the added value to the Irish economy."*

In the EU context, the following passage is taken from Sustainable Energy Ireland (2006):

"The EU Green Paper 'Towards a European strategy for the security of energy supply' discusses the risk of low levels of indigenous fuel supplies and increased reliance on imports. It states "If no measures are taken, in the next 20-30 years 70% of the Union's energy requirements as opposed to the current 50% will be covered by imported projects". The EU Green Paper notes the spirit of Articles 2 and 6 of the Treaty of Europe and states that, "The European Union's long-term strategy for energy supply security must be geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development, as enshrined in Articles 2 and 6 of the Treaty on European Union."

In Ireland's case there is now some urgency about the need to make further discoveries of indigenous gas. Ireland imports more than 80% of its gas requirement and to date the UK has been its primary source. In 2005 the UK became a net importer of gas as its own indigenous production does not meet its requirements. Until there is production from the Corrib Field the likely source for future Irish gas imports is Eastern Europe. This brings with it issues of security of supply, price stability/volatility and cost. On top of the purchase cost of the gas there is the transport cost over a significant distance. Government policy is to maintain the present licensing and fiscal terms and to continue to promote exploration in the Irish offshore.

1.4 Oil and gas licensing context

The PAD administers Ireland's regime of licensing for oil and gas exploration and production. The principal relevant statute is the Petroleum and Other Minerals Development Act 1960 applied to the Irish offshore, comprising the territorial waters of the State and offshore areas designated by Order from time to time under the Continental Shelf Act.

The acquisition of seismic data in Irish offshore waters started in 1965 and the first licensing authorisations were granted in 1970. According to PAD data, 166 wells of all types have been drilled at separate locations in offshore Irish waters between 1970 and 2005 (PAD, 2006a).

The acreage on offer in the current Frontier Licensing Round will cover unlicensed blocks in an area of approximately 25,000 square kilometres. The area has been classified as Frontier acreage because of the challenging environment off Ireland's west and northwest coasts. Successful applicants will be offered Frontier Exploration Licences in 2006 that will last 15 years, as detailed in the Draft Plan (Appendix 1) and summarised below. The license period will be divided into four phases, each with work obligations as follows.

First phase	15 May 2006 to 14 May 2009	- seismic data acquisition
Second phase	15 May 2009 to 14 May 2011	- at least one exploration well
Third phase	15 May 2011 to 14 May 2016	- at least one exploration well
Fourth phase	15 May 2016 to 14 May 2021	- to be agreed with the Minister

In the first phase, the licensee must undertake a work programme that shall generally include 3D seismic data acquisition to cover an area equivalent to at least 50% of the licence (unless 3D already exists). Where exploration drilling is not included in the first phase, planning for drilling in the second phase should take place and be proposed prior to the start of the second phase. The third phase should include a proposal to drill a further exploration well. Licensees will be required to undertake reasonable site-specific environmental studies as may be appropriate to the work programmes. The Licensing Terms for Offshore Oil and Gas Exploration and Development, 1992 will apply to licences granted under the Round (see Section 3). The IOSEA1 covers the first and second phases only, ie the period 2006 to 2011. It is proposed that subsequent phases and licensing rounds for exploration in this area will be the subject of further SEA at a future date.

The current Frontier Exploration Licensing round was announced with a press release from the Minister for Communications, Marine and Natural Resources on 25 January 2005 (DCMNR, 2005), and closed for bids on 15 March 2006. The PAD has since published the outcome of the licensing round on the PAD website. Five applications were received from four companies, covering six full and ten part blocks:

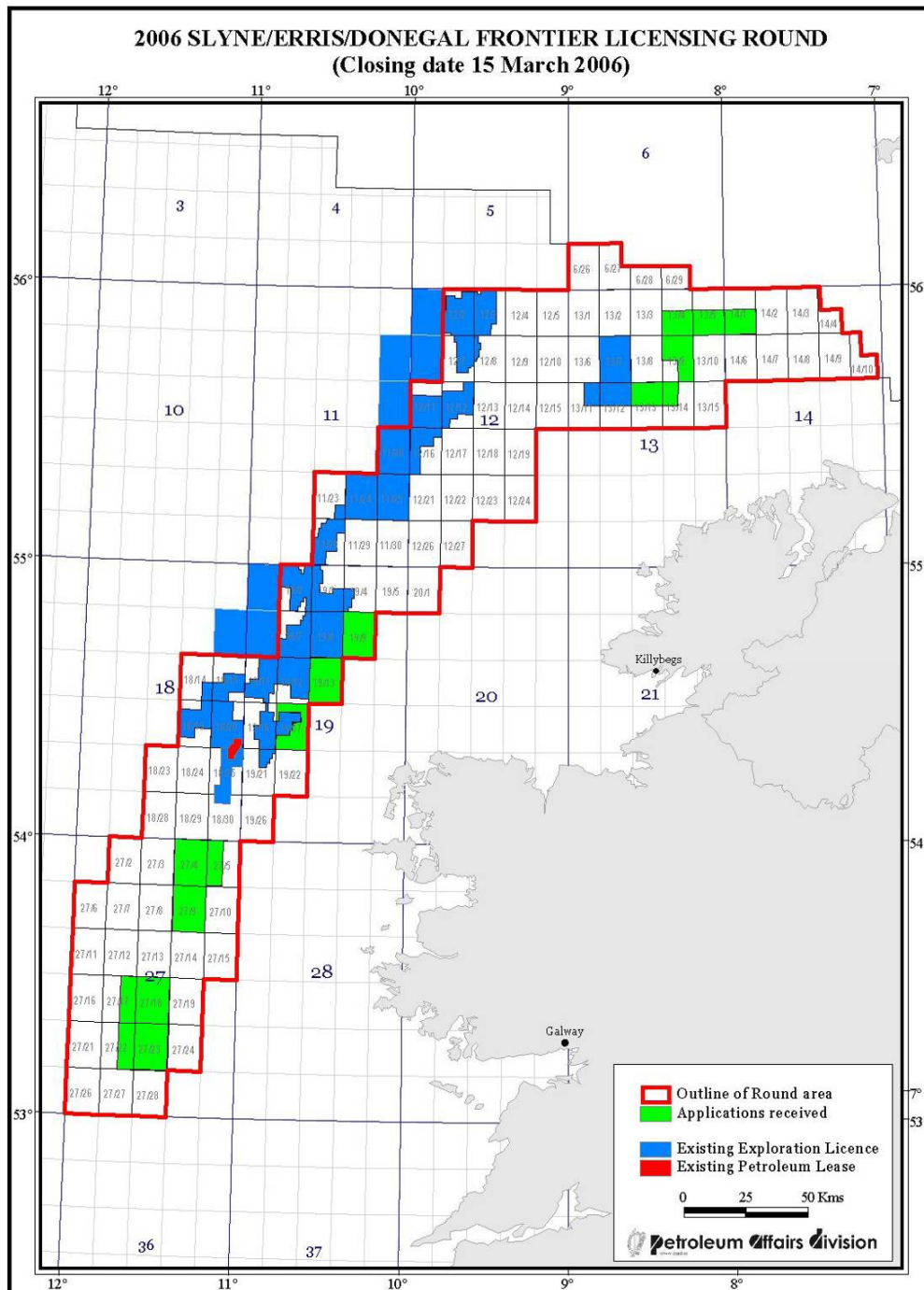
- 1) Statoil Exploration (Ireland) Ltd with Shell Exploration & Production, Ireland Ltd as a partner.
- 2) Serica Energy (UK) Ltd.
- 3) Island Oil & Gas plc with Lundin Exploration BV and Endeavour Energy (UK) Ltd as partners.

- 4) Island Oil & Gas plc with Lundin Exploration BV and Endeavour Energy (UK) Ltd as partners.
- 5) Grianan Energy Ltd.

The location of the blocks applied for is shown in Figure 1.3.

Development activities ie those carried out under a Petroleum Lease, will be the subject of further detailed assessment (see Section 3.3).

Figure 1.3 Location of areas applied for in the Slyne, Erris and Donegal Basin Frontier Exploration Licensing Round (Source: PAD website)



1.5 Organisation of the environmental report

The SEA Directive states outlines what needs to be covered in the environmental report (summarised in Section 1.2.2) and the contents are presented as follows:

Non-technical summary – a summary of the environmental report using non-technical language.

- Section 1 Introduction and background** – an introduction to the proposed plan within the context of the SEA Directive and current policies.
- Section 2 SEA process** – introduces the reader to the SEA process, summarises studies and surveys that have been undertaken and describes the consultation process.
- Section 3 Regulatory context** – this section places the IOSEA1 in context with other environmental regulation and the relationship with other plans and programmes.
- Section 4 Draft Plan and alternatives** – describes the proposed plan after consideration of alternatives.
- Section 5 Summary of environment baseline** – a description of the environment in the Slyne, Erris and Donegal Basins area comprising the physical and chemical environment, the ecology, conservation interests and others sea users, followed by a summary of sensitivities and identification of data gaps.
- Section 6 Identification of potential impacts and concerns** – describes the methods used to identify potential environmental impacts and concerns associated with the proposed plan.
- Section 7 Impact assessment for seismic activities** – a detailed assessment of each activity considered in Section 6 to have the potential for a significant environmental impact.
- Section 8 Impact assessment for exploratory and appraisal drilling activities** – a detailed assessment of each activity considered in Section 6 to have the potential for a significant environmental impact.
- Section 9 Cumulative impacts from implementing the Draft Plan** – an assessment of the potential for cumulative effects.
- Section 10 Mitigation and monitoring** – brings together mitigative measures and describes the overall management and monitoring procedures including any licensing conditions that may be applied.
- Section 11 Conclusions and recommendations** – provides an overall conclusion regarding the likely environmental implications of the proposed plan and makes recommendations.
- Section 12 References** – a list of all the references cited in the report.
- Section 13 Abbreviations** – definitions of acronyms mentioned in the report.
- Section 14 Glossary** – definitions or explanations of technical and jargon terms used in the report.
- Section 15 Acknowledgements**
- Appendix 1 The Draft Plan** – Official version as used to notify the Environmental Authorities, with full description of the area covered.
- Appendix 2 The SEA Directive, and Statutory Instrument 435 of 2004** – The full text of Directive 2001/42/EC of the European Parliament, and relevant enacting statute.
- Appendix 3 The Harmonised Offshore Chemical Notifications Format (HOCNF) Schemes** – Details of how chemicals are tested and classified under the HOCNF scheme.
- Annex First Strategic Environmental Assessment for Oil and Gas Activity in Ireland's Offshore Atlantic Waters: IOSEA1 Slyne, Erris and Donegal Basins - Environment baseline** – a more detailed description of the environment in the Slyne, Erris and Donegal Basins than that given in Section 5 of the main report.