

Offshore Petroleum Retention Licencing Policy Benchmarking Report

Prepared For

The DomGas Alliance

Prepared by

Glen Gill, Managing Director



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This report has been prepared by Innovative Energy Consulting Pty Ltd (“IEC”) for the DomGas Alliance to assist in their review of the Offshore Petroleum Resource Management Review Interim Report (“Interim Report”) released November 2015 by the Department of Industry, Innovation and Science. The DomGas Alliance plans to make a submission to Department of Industry, Innovation and Science commenting on the aforementioned Interim Report and in order to facilitate a more effective and informed participation in that process, the DomGas Alliance commissioned this offshore petroleum licencing benchmarking report supplemented with commentary.

The objective of this report is to compare Australia’s offshore retention lease policy and practices to other major offshore licencing policies and practices used by other comparable jurisdictions, namely Canada, the USA, the UK, Denmark, the Netherlands, Norway, New Zealand, Malaysia, India and Thailand, in their major offshore petroleum producing basins. Furthermore this report also provides a brief commentary on the drivers behind Australia’s petroleum leasing retention policies, the effectiveness of those policies, their enforcement by the Joint Authority, and on the most likely impact, if any, on Australia’s national interest related to recommended changes contained in the Interim Report to that policy.

The author of this report has 35 years of experience in the petroleum industry and has served as a senior executive with many large petroleum companies with worldwide operations, including BHP Petroleum. Commenting on gas related government policy via the submission process has been an ongoing and important aspect of Mr. Gill’s career both in his former executive role for various corporations and as an advisor/consultant to various IEC clients.

IEC is an Australian-based energy advisory firm, which specialises in gas related matters and issues in the wholesale gas market focussing primarily on the upstream and midstream sectors of the industry. IEC staff has significant international experience and its clients include public companies, governments, industry associations and investors. IEC has been serving clients operating in Australia and North America’s petroleum industry for nearly 20 years.

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PO Box 1008, Maleny, Qld, 4552
63 Bytheway Lane, Curramore, Qld
Phone (07) 5435 8288
glen@innovativeenergy.com.au
www.innovativeenergy.com.au

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Contents

Executive Summary	5
Introduction.....	7
Offshore Petroleum Licencing General Background Info.....	9
Australia’s Offshore Petroleum Licencing Process	15
International Offshore Petroleum Licencing	20
The U.S. Regulations Affecting Its Offshore Petroleum Activity.....	22
Canada’s Regulations Affecting Its Offshore Petroleum Activity.....	23
The UK’s Regulations Affecting Its Offshore Petroleum Activity	25
Norway’s Regulations Affecting Its Offshore Petroleum Activity.....	27
New Zealand’s Regulations Affecting Its Offshore Petroleum Activity	29
Netherland’s Regulations Affecting Its Offshore Petroleum Activity	30
Denmark’s Regulations Affecting Its Offshore Petroleum Activity	31
Germany’s Regulations Affecting Its Offshore Petroleum Activity	32
India’s Regulations Affecting Its Offshore Petroleum Activity	33
Thailand’s Regulations Affecting Its Offshore Petroleum Activity	34
Malaysia’s Regulations Affecting Its Offshore Petroleum Activity.....	35

Executive Summary

While Australia's onshore petroleum industry is relatively young compared to North America and Europe, its offshore exploration and production sector has very little, if any, age disadvantage. Australia has historically adopted what is known as a discretionary system for the allocation and retention of offshore petroleum exploration and production licences and the Commonwealth has applied a similar system to offshore exploration and production tenements. Clear guidelines either don't exist, or in the case where they do exist, they are seldom enforced. This casual approach grants special privileges to petroleum companies as indicated by the following:

The Offshore Petroleum and Greenhouse Gas Storage Act 2006 provides that a hybrid work program/cash bidding regime may be used to transfer/allocate a special petroleum permit or a petroleum production licence over blocks from a surrendered, cancelled, or terminated petroleum production licence, retention lease or exploration permit, in which the administering authority considers there is petroleum. This mechanism has never been used to allocate a petroleum production licence in Australian offshore areas. It has been used only once to allocate a special petroleum exploration permit, over an area off the Victorian coast in 1986.¹

The objective in designing the licence award process is to find the best candidate, maximise potential revenues resulting from the award of petroleum licences, and avoid any distortion of incentives to perform (i.e. explore for and produce hydrocarbons). While both the Carnarvon Basin offshore Western Australia and the Gippsland Basin offshore Victoria have been 'successfully' explored for several decades and have produced by far the majority of Australia's petroleum (oil and gas), in comparison to the Gulf of Mexico and the North Sea the level of competition is very low, the cycle time from first discovery to production is extremely long, the term of licences is extremely long, the discovered gas reserves to production ratio is very high and access to gas related infrastructure is very poor. These poor performance indicators would lead one to question the effectiveness of the current offshore petroleum licencing system and process in meeting the aforementioned objective. "Data compiled by Geoscience Australia show that out of 385 offshore petroleum discoveries made between 1965 and 2009, only 83 had been brought into production."²

The introduction of retention licences in Australia increased the security of tenure for petroleum companies over a range of petroleum discoveries and exploration acreage. This intermediary step in the licencing process or bridge from an exploration licence to a production licence was driven by the goal of accelerating petroleum recovery but it appears as if exactly the opposite has occurred. The unintended consequence has been that gas development and production has often been delayed for some time as petroleum

¹ ACIL Tasman, Review of Australia's Offshore Petroleum Exploration Policy, 3 January 2012

² ACIL Tasman, Review of Australia's Offshore Petroleum Exploration Policy, 3 January 2012.

² ACIL Tasman, Review of Australia's Offshore Petroleum Exploration Policy, 3 January 2012.

companies aggregate sufficient offshore resources in a large area in order to justify a large vertically integrated LNG export mega project. Such large gas development and gas export projects create dominant positions or excessive market power in offshore regions and this is generally discouraged by Governments globally unless it involves state owned petroleum companies. Resource development delays are typically a detriment to the national interest and this is particularly the case for gas due to the fact that gas is, at best, a continental market and more often than not a regional market with very limited import options. It has been recommended in the Offshore Petroleum Resource Management Review Interim Report (“Interim Report”) that further flexibility be granted to petroleum companies within the retention licencing framework. A tightening of the offshore retention licencing framework, particularly in geological basins such as the Carnarvon, Gippsland and Otway basins, appears to be warranted in order to achieve a better balance between the public or national interest and the desires of the upstream sector of the petroleum industry.

Benchmarking to other offshore regions administered by Canada, the USA, the UK, Denmark, the Netherlands, Norway, New Zealand, Malaysia, India and Thailand indicates that Australia’s current licencing system and, in particular, the retention licence vehicle is extremely flexible and lenient. In Australia, the rules that petroleum companies have to abide by are not very clear and transparent and the enforcement of the few rules that exist is very discretionary with a track record of leniency in favour of the petroleum companies. This policy effectively rewards gas explorers for doing less and allows them to warehouse tremendous tracts of offshore acreage for possible future development.

Gas discoveries and resources are much more difficult than oil to commercialise due to the added complexities of marketing and transporting gas. Offshore exploration and production involves more capital and longer time frames than do similar activities conducted onshore. Benchmarking to other offshore regions of the world provides a reasonable basis to compare Australia’s existing and proposed licencing practices. The current retention licence policy in Australia does not seem to differentiate between relatively new and more mature offshore regions and it appears to be unnecessarily lenient for the offshore Otway, Gippsland, Perth and Carnarvon Basins compared to what is in place and working very effectively in other countries. The Browse and Bonaparte basins are relatively young basins from a production perspective.

Existing gas infrastructure, including a local domestic gas market, typically makes a gas prone offshore region more attractive for exploration for it has the potential to accelerate the commercialisation of any significant gas discoveries and to lower the discovery size threshold required for commercially viable gas production. Whether or not this becomes a reality reflects, among other things, the structure of the industry with respect to low cost access to infrastructure and gas market liquidity. The experience to date in Australia’s producing offshore basins has been exactly the opposite; that is, the first mover gas development project retains control of the basin and discourages other gas developments. This inefficient and non-competitive model has resulted in the destruction of in-situ gas resource value through development delays and also in value destruction across the domestic gas market due to inflated gas prices and onerous gas sale agreements.

Introduction

The subject of granting and administering offshore petroleum retention leases has been a subject of ongoing debate in Australia. The current policy of three consecutive five year terms with renewal rights is effectively a rolling 15 year window of commerciality with no formal limit to the number of renewals. Consequently, offshore tenement holders have the ability to delay the development and production of petroleum resources for protracted periods of time. Historically, the entire process of obtaining exploration licences and retention leases offshore Australia may be described as fairly 'discretionary' and 'lenient' compared to the process used by other countries that tend to be more prescriptive and rigid.

Allegations of petroleum companies 'hoarding' or 'warehousing' gas discoveries without making material progress towards the commercialisation of those resources have existed for some time with very little or no pressure to release acreage. The source of these allegations includes State Governments, gas users, gas transmission companies and even some petroleum companies operating offshore Australia.

In 2009, the Commonwealth Department of Resources, Energy and Tourism (DRET) released an options paper entitled *Review of Policy Relating to the Grant and Renewal of Retention Leases*. This protracted process involved submissions from industry but has only resulted in a draft final report which instigated more comments from industry. The DRET has yet to release a final report and yet a new evaluation process is underway.

In response to concerns raised by exploration and production ("E&P") petroleum companies over the high cost of retention lease renewals and the desire for greater retention lease term flexibility, the Offshore Petroleum Resource Management Review Interim Report (Interim Report) released November 2015 by the Department of Industry, Innovation and Science recommended the following:

Action 4.14

"The Department of Industry, Innovation and Science will work with industry and other stakeholders to build a transparent decision-making framework. Criteria will be developed for the Joint Authorities to issue and renew retention leases for a minimum of three years to a maximum of 15 years, with the current five-year term to remain as a default position."

Action 4.15

The Department of Industry, Innovation and Science will work with industry and other stakeholders to develop transparent decision-making frameworks and criteria that provide for:

- 1. A “project development” concept to be established which enables the Joint Authorities to treat identified retention and production leases as a single project – thereby streamlining administration and encouraging a more holistic approach to resource development and management.**
- 2. The framework only being available to titleholders who have demonstrated to the Joint Authorities that commercialisation of the identified resources held under retention leases through a single development concept is the most optimal and delivers the earliest commercial development for those resources.**

The DomGas Alliance is concerned that increasing flexibility in the offshore petroleum retention lease framework is a lessening of the Government’s responsibility for ensuring timely development of Australia’s offshore oil and gas resources and any outcome in that regard fails to comply with the national interest. Furthermore, the suggested changes appear to be contrary to the Government’s stated objective:

“The offshore petroleum resource management framework seeks to promote the timely discovery and development of petroleum resources for the economic benefit of the Australian community while also ensuring that activities are undertaken safely and in an environmentally responsible way and in accordance with good oil field practice principles.”³

In order to meet this stated objective Government should ensure that licences are allocated in a climate of transparency and openness and meet the highest standard of professionalism and adherence to international best practice. Adherence to this objective would most likely result in lessening the flexibility available within the retention lease framework in a number of offshore basins. Reducing the flexibility available within the retention licencing framework, incorporating meaningful criteria for the granting and retention of retention licences and strict enforcement is recommended at this time given the exploration and production age and maturity of several key offshore basins.

Benchmarking or comparing Australia’s offshore petroleum licencing policies to other countries is a reasonable way to better assess whether Australia is a leader, follower, or laggard in this regard. Most petroleum companies operating offshore Australia operate globally; consequently, adopting world’s best practice in balancing their interests and objectives with those of the host nation, Australia, is generally sought after by all stakeholders. Parochial behaviour and policies in this regard only serve a few incumbents and not the entire gas industry nor does it serve the national interest of Australia.

³ Australian Government Department of Industry, Offshore Petroleum Resource Management Review Consultation Paper, November 2014.

Offshore Petroleum Licencing General Background Info

All offshore petroleum rights beyond a country specific distance from shore are owned by respective national governments. Most national governments have historically relied on private and publicly owned petroleum companies to lease the rights to explore for and then produce hydrocarbon resources. Australia is no exception in this regard. National (stated owned) petroleum companies are increasingly being formed and granted special privileges and rights to offshore petroleum resource exploration and production by their respective national owners. This is an increasingly popular vehicle to ensure that the national interest is preserved concerning the development and sale of petroleum resources.

Wherever they are carried out, exploration and development activities present delicate legal, technical, financial, and political problems and any solution to these problems requires a balancing act between the respective interests of host governments (i.e. the national interest) and that of investors (i.e. petroleum companies).

Governments often select a model that is most suitable for the country's opportunities and conditions from several allocation strategies. They can also select from a spectrum of fiscal instruments when deciding which combination is believed to provide the nation a fair share of the hydrocarbon wealth and encourage investors to ensure optimal economic recovery of the resource.

Enhancing oil and gas exploration and exploitation activity is a common goal for most, if not all, governments. The strategies employed to achieve that goal vary significantly from country to country, starting with the awarding of oil and gas rights. Typically, awards are made for the exclusive right to explore and, if certain conditions are satisfied, exploit (develop, produce and sell) any commercial discovery. In order to exploit their hydrocarbon resources efficiently, many governments rely on the involvement of international oil companies (IOCs), often in cooperation with a host country's national oil company (NOC). Governments, however, face a challenging task in deciding which companies should be awarded the exclusive rights to explore, develop, and produce their hydrocarbon resources, and on what conditions such rights should be awarded.

Options to Allocate Oil and Gas Rights

Countries assign petroleum exploration and production rights in different ways. Irrespective of the choice, the objective in designing the award process is to find the best candidate, maximise potential revenues resulting from the award, and avoid any distortion of incentives to perform. The allocation strategies are typically grouped under two categories:

- Open door/informal process; and
- Licencing.

The informal process is based on one-on-one negotiations and encompasses two sub-types: 'First-come, first-serve' and direct negotiations. Exploration and production rights are

allocated as a result of negotiations between the government (the grantor) and interested investors (the grantee) through a solicited or unsolicited expression of interest.

Licensing entails administrative procedures and auctions. Administrative procedures is known as a discretionary system that is based primarily on the proposed work program. Companies present plans for exploration and development according to a formal process. A government committee assesses various proposals against a defined number of criteria. The licence is awarded to the plan that has the best 'mix' of those criteria. More often than not the work program is modified and re-negotiated during the licence term and during extensions to that term.

Under the auction procedure, blocks are awarded on the basis of competitive bids whereby rights go to the highest bidder. Auctions are becoming the most preferred and adopted process. According to a survey of petroleum agreements made in the early 1980s, only 22 of the 103 petroleum legal systems selected used bidding to award rights for oil exploration and development. Now the majority of countries award petroleum agreements through competitive bidding, which benefits from the competitive instinct between IOCs and has the potential to raise millions of dollars in upfront cash.

The superiority of auctions resides in the fact that, in principle, they are the most transparent way of allocating rights. A central limitation of informal processes, such as negotiation on a first-come-first-serve basis, is that they lack transparency. The criteria for awarding rights are often not pre-defined and known to market participants and the government retains considerable discretionary power and flexibility in awarding exploration and production rights. Informal processes are vulnerable to favouritism and corruption, which in turn undermines competition. The reduced competition inherent in an informal process reduces both the efficiency of the assignment and potential revenues. Auctions, however, require rules to be clearly established before the start-up process, offering transparency benefits for both bidders and auctioneers, mitigating potential corruption, and encouraging competition through a fair process.

Australia has and continues to use a rather informal process in the allocation and review of offshore petroleum licences.

Licence Duration and Size

There are significant variations between licence durations and extensions as well as relinquishment rules between various countries. Furthermore there is also a wide range of licence size. It is recommended that the duration and size of petroleum exploration and retention licences must be limited in order to provide good stewardship of Government owned petroleum resources but not so limited that large scale E&P companies who are capable of working in offshore basins are not interested in participating. These companies typically operate globally and therefore tend to compare prospects on that basis.

The Federal Government has in the past been very liberal in the granting of licences in terms of both size and duration. This reflects pressure by petroleum companies operating offshore Australia that wish to accumulate sufficiently large reserves of gas in close

proximity in order to ultimately justify the development of a mega vertically integrated LNG export project with sufficient upfront known reserves to support at least a 20 year life without any additional exploration activity or the need to source gas production from other petroleum joint ventures. This stand-alone vertically integrated project mentality is one of the major drivers behind the current petroleum licencing system and structure for offshore Australia. Furthermore, the petroleum companies hope to accrue sufficient retention licences in order to ultimately expand the original LNG export facility several times in the future, again without sourcing third party gas supplies. This hoarding of gas resources and access to gas production to LNG liquefaction facilities results in outcomes that are detrimental to the national interest for it discourages upstream competition, frustrates other petroleum companies by prolonging the stranded gas timeframe and is an inefficient use of gas resources by delaying gas development and production to suit the long term requirements of one dominant incumbent joint venture who invested in an LNG export project. There are numerous other unintended consequences such as starving the local domestic gas market in favour of enhancing security of proprietary gas supply to future LNG export sales.

Linking Licencing Policy to Offshore Petroleum Prospectively & Commercial Development Opportunities

The entire petroleum licencing process that is most appropriate for any offshore region is one that is tailor made for the geological and commercial environment that exists from time to time. While the geological environment does not vary much between gas and oil prospective offshore regions, the commercial environment is drastically different for offshore regions that are primarily gas prospective such as the Carnarvon Basin to that of primarily oil prospective offshore regions such as the Gippsland Basin.

The geological risk and understanding of any geological basin improves significantly with time from first opening up of that basin to exploration to a basin that has substantial drilling activity over a subsequent time period. An effective petroleum licencing framework has to be more flexible when geological basins are first opened to or promoted for petroleum exploration but that flexibility tends to decrease with improved quality and quantity of exploration data. For example, the appropriate amount of flexibility and prescription regulation for offshore Australia in the 1960's would be significantly different than that which is appropriate today.

It is much easier and faster to monetise petroleum liquids than gas. Unlike oil, the gas market is very difficult to access in terms of both demand and access to infrastructure such as gas processing plants, LNG liquefaction plants and gas transmission pipelines (both offshore and onshore). The barriers to entry for gas production and sales are much higher than for petroleum liquids but these barriers can and should decrease as gas related infrastructure expands both offshore and onshore. Vertically integrated mega-gas projects are often discouraged and even in many cases prohibited globally as those infrastructure owners have a conflict of interest and therefore tend to hoard the capacity in an attempt to control the regional gas development including the value of exploration and production

licences and the in-situ resource. The ability to hoard offshore petroleum licences for long periods of time only exacerbates this market power issue. This has been the case to date in both the offshore Carnarvon and Gippsland basins – the two most prolific petroleum basins discovered to date in Australia. The barrier to entry in these two prominent offshore petroleum basins in Australia is extremely high, discouraging participation by petroleum companies outside of the existing North West Shelf and BHP Billiton/Exxon joint ventures.

The argument presented by many large petroleum companies that they need to accumulate vast tracts of exploration and production leases in a concentrated area in order to ultimately develop a mega vertically integrated LNG export project and that such a project is the only way to monetise offshore gas resources appears to be self-serving rather than best practice gas resource development policy. Other much more successful offshore basins overseas have taken a very different approach. Co-operation in terms of access to gas infrastructure between various joint ventures operating in the area is a much better approach for it encourages competition and innovation in the upstream sector and it accelerates the exploration and production of gas resources. It is very difficult to imagine how the market power granted to the Exxon/BHP Billiton joint venture in the Gippsland Basin and to the North West Shelf joint venture in the Carnarvon Basin is in the national interest or in the interest of anyone except those few aforementioned companies. That is what drove Apache Energy to comment so adamantly against the current retention licencing policy in Australia for it essentially excludes new entrant companies from participating. Apache's comments are provided on page 20 of this report.

Termination

When a petroleum licence is granted, the petroleum company or joint venture is typically given a limited time for the exploration of the licence. If after the limited time, the company has not discovered or performed its minimal obligations (usually agreed with the government as a minimum number of exploration wells and investment on seismic) the licence will be relinquished (terminated with no further rights to the grantee and ownership returned to the crown or grantor). Relinquished licences can be re-attributed in next licencing rounds, or even kept as relinquished if the government believes there is little interest on that area for petroleum exploration. Governments who conduct upfront cash-bidding and allocation system for exploration rights as opposed to the much more discretionary work program system adopted by Australia are more aggressive in relinquishment since they typically re-sell the licence to another interested party for a substantial fee. These cash bidding fees are often comparable to royalty revenues for Governments and therefore there is an impetus to be transparent but strict in the exploration licence granting and relinquishment cycle. This is not the case offshore Australia where exploration licences are not allocated according to a cash bidding process but rather a work program that often is revised in the future after the permit is granted or largely suspended due to various excuses.

Licences terminate typically due to any one of the following events: expiry, relinquishment, lapsing or revocation by the grantor of the licence. A reasonable turnover of exploration acreage is the objective of most governments for it encourages greater participation and

innovation. Furthermore, under a cash bidding system it generates significant additional revenues for government. Revocation of licences or areas within a licence is a strong deterrent against inaction by the licence holder or grantee.

National Interest

Post the discovery of commercially recoverable petroleum by a petroleum exploration company, that company is typically granted a production licence over the prospective area and thereby earns the right to develop and produce the resource. It is important to remember that the petroleum company does not yet own any in-situ petroleum for it only earns a share of any petroleum upon its production (i.e. at the well head). The Federal Government, as owner of the offshore petroleum resource, has a stewardship role and responsibility on behalf of the citizens of the country to ensure that the commencement of petroleum production is not delayed and that best production practice is adhered to in order to maximise the recoverable petroleum from that accumulation or deposit. It is very difficult to imagine how increasing the flexibility and leniency of the existing retention licencing policy is in the national interest. Incentives to accelerate the development and production of gas complies with the stated objective while incentives to delay development and production are in opposition to the objective.

The ‘warehousing’ of offshore licences and the associated petroleum resources by petroleum companies operating in a flexible and lenient licencing environment is behaviour that is consistent with the ‘low cost option’ associated with long term retention licences. The following statement by APPEA describes the detrimental impact on the national interest from allocating low cost ‘exploration options’ to petroleum companies but fails to address the same detrimental impact on the national interest from granting low cost ‘development options’ to petroleum companies: **“A cash bidding system gives the permit holder the ‘option’ to explore rather than the obligation to conduct a nominated minimum level of activity. This would result in less activity due to cyclical changes in business conditions and company strategy. There are a numerous anecdotal examples of discoveries resulting from wells that were committed but reluctantly drilled (for example, Bayu-Undan)”**.⁴ While it has been proven in North America that a cash bidding system for exploration rights does not lead to reduced exploration activity but actually to more activity, the statement by APPEA that prescriptive or forced exploration activity has positive results does hold true for prescriptive or forced gas development. It follows that a flexible, lenient retention licencing framework most certainly reduces gas development and production activity.

The following statement released by the Norwegian Government illustrates how important it is to balance the national interest with the interests of petroleum exploration and production companies:

“Given society’s large vested interests in the development and operation of oil and gas fields, the authorities have established a framework for these activities. The authorities

⁴ACIL Tasman, Review of Australia’s Offshore Petroleum Exploration Policy, 3 January 2012.

have created a model that is characterised by both competition and cooperation between the players. The purpose of this is to create a climate for good decisions that serve the companies as well as society as a whole.”⁵

This mutually beneficial interest is held in high regard in most countries and sought after with respect to petroleum exploration, production and sales. A national interest test is either implicit or explicit given the ultimate owner of the offshore resources. Note that this is not always the case for onshore resources as they can be held privately as opposed to state ownership. Australia has to date been fairly causal in the administration of a rigorous national interest test compared to most other developed countries. Security of supply and the price of gas has been an ongoing issue in Australia because of this lax policy. Historically this issue was only occasional as the case when large unexpected gas supply outages unveiled the poor resiliency of the overall gas supply chain but more recently it has become an ongoing and constant issue as the LNG export business has become a much higher priority for many large gas producers than serving the domestic gas market. It is difficult to understand how domestic gas demand destruction and high delivered gas prices in Australia is in the national interest. Most other developed nations would certainly say that it is not.

Nationalised or state-controlled gas industries dominate many parts of the world and there is a trend globally to increased state ownership of petroleum resources and the development of those resources. Consequently, the regions where petroleum companies are welcome globally has shrunk, and will most likely continue to do so, as nations escalate their concerns over energy security and therefore tend to not trust petroleum companies regarding the development, production and sale of indigenous energy resources. NOCs are now major forces in the global exploration, production and trade of global oil and gas. It is estimated that over 100 NOCs exist today and that of the top 25 oil and gas reserves holders and producers, 18 are NOCs. The importance and size of NOCs has grown rapidly over the past decade and NOCs are increasingly investing outside their national borders as is the case with many investing in Australia’s vertically integrated gas to LNG export industry (Petronas, PetroChina, Eni, KOGAS, & CNOOC) and others in strictly E&P activity (Statoil & TTEP).

The proliferation of NOC’s operating in Australia’s offshore basins is but one of many changes that demand a revisiting of the offshore petroleum licencing framework. These companies introduce another dimension to the balancing equation as they are not publicly nor privately held companies and they often have special entitlements granted by their state owners. Examples of some of these entitlements are presented in the sections of this report titled Malaysia’s Regulations Affecting its Offshore Petroleum Activity and Norway’s Regulations Affecting its Offshore Petroleum Activity.

⁵ Norwegian Petroleum Directorate & Ministry of Petroleum and Energy, The Norwegian Petroleum Sector, March 2013.

Australia's Offshore Petroleum Licencing Process

The Offshore Petroleum and Greenhouse Gas Storage Act 2006 allows the issue of petroleum exploration permits, retention leases or production licences located outside the three nautical mile zone to be 'subject to whatever conditions the Joint Authority thinks appropriate'. Most commonly, these conditions involve a requirement that the permit holder carry out a minimum level of work on, or in relation to, the relevant acreage.

Exploration Licences

Exploration licences have an initial term of six years with potential for two five-year renewals for a total maximum term of 16 years. There were 188 active offshore exploration licences in place as of 2014.

Retention Licences

The Commonwealth Government's policy objectives through the *Offshore Petroleum and Greenhouse Gas Storage Act* are to promote development of commercial discoveries and that the lessee actively seeks to address those matters inhibiting the commercialisation of the discovery.⁶ However, in some instances, retention leases may provide companies with a mechanism to delay the exploitation of gas ('warehouse' gas) if they can show the Joint Authority that a reserve is uncommercial.

The Joint Authority has the power to cancel a lease or licence for non-compliance with 'minimum work' or 'minimum expenditure' conditions, but it has a track record of leniency in this regard.

If, and when, a petroleum discovery occurs, a petroleum explorer has the right to apply for a production licence to exploit (develop and produce) the discovery. However, in most, if not all, cases involving offshore gas discoveries the explorer elects to apply for a retention licence enabling it to maintain security of title over the acreage or tenement until such time the commercial viability of the discovery is confirmed by a development application. As of 2014 there were 58 active retention licences.

Retention leases (sometimes referred to as assessment leases) have an initial term of five years and may be renewed by application, provided that the resource is still deemed non-commercial. The lessee or grantee may also be required to undertake a re-evaluation of the commercial viability of the resource once during the term of the retention lease.

Under the existing system, a retention lease applicant is required to demonstrate the following to the satisfaction of the Joint Authority:

- an area specified in an exploration licence contains petroleum; and
- the petroleum is not commercially viable at the time of application but will become commercially viable within 15 years.

⁶ Department of Resources, Energy and Tourism, Offshore petroleum guideline for grant and administration of a retention lease, 12 May 2012.

This criteria reflects the discretionary nature of the process since the definition of ‘contains petroleum’ and ‘commercially viable’ is left to the discretion of the applicant.

Commercially viable gas is interpreted to mean that the gas could be developed:

- **Given existing knowledge of the field**
- **Having regard to prevailing market conditions**
- **Using proven technology readily available within the industry such that the commercial rates of return from recovery of the petroleum meet or exceed the minimum return considered acceptable – typically the Joint Authority considers 12% to be the hurdle rate.**

The Joint Authority, however, may also agree that an otherwise commercially viable gas project (assuming current prices) is not commercially viable due to an inability to obtain offtake contracts at prevailing market terms and conditions.⁷

Whether or not a petroleum discovery in Commonwealth waters (outside of a three nautical mile zone) is commercially viable is assessed by the Joint Authority—an Authority comprising of a Commonwealth Minister (currently the Minister for Industry) and the relevant state or Northern Territory Minister.

The application of a commercial viability test to determine whether or not a gas discovery is deemed to become commercial within a 15 year horizon is a rather interesting concept, especially given the fact that gas reserves by the very definition must be both technically and commercially recoverable at the time of their re-classification from a gas resource to a gas reserve. Petroleum companies will book gas reserves for purposes of building their ‘assets’ and yet claim that they are uncommercial for the purposes of obtaining a retention licence. This self-serving behaviour has to be investigated and questioned by the Joint Authority.

The commercial viability of any underground resource and gas in particular is company specific as much as it is specific to abstract economic modelling. A good example of this is the fact that unconventional oil and gas development in North America was successfully pioneered by companies that had very little to no experience in conventional petroleum exploration and production. The large established petroleum companies had no interest in unconventional petroleum resources in North America until it was proven to be both technically and commercially viable by essentially new entrants to the upstream petroleum sector who specialised in unconventional gas and oil. The established petroleum companies have only recently entered the unconventional oil and gas space in North America. There are many factors that determine economic viability of any gas resource and it is very naïve to suggest that the Joint Authority can distinguish between commercial viability and non-viability. Floating LNG is but one of many innovative concepts that significantly enhances the commercial viability of offshore gas development and many of these technological advantages are company specific, at least initially. Many other variables such as access to infrastructure under commercially attractive terms and access to a liquid LNG or domestic gas market are as important as new technology.

⁷ Deloitte Access Economics, Western Australia Gas Sector Analysis Report, 16 May 2014.

Apparently, simply demonstrating a 'reasonable' but unsuccessful attempt to capture long term gas sales agreements with potential buyers is sufficient to obtain a favourable decision by the Joint Authority. This criteria is nonsense for a petroleum company can be, and indeed often is, unreasonable in their expectations regarding the terms and conditions of a long term gas sale contract. The onerous one sided gas sale contracts that exist in Australia's gas industry disappeared long ago in North America and are becoming less popular in Europe.

There is no prevailing gas market price in Australia at this time due to a lack of short term market liquidity and transparency and most petroleum companies refuse to underpin an LNG export project based on the prevailing spot LNG market. The futures market for oil is only credible for a rolling three-year period and there is no global price for long term LNG sales; only supplier and buyer specific prices that are embedded in highly confidential, long term offtake sale contracts.

The criteria of demonstrating economics is also vague and abusive. Petroleum companies run economics based on a huge range of inputs and these are extremely subjective. Furthermore, petroleum companies live in a world where sunk costs to date are simply ignored in decisions to proceed or not with further development. Therefore, developing a vertically integrated gas development project has much poorer economics than utilising capacity on existing infrastructure for a fee for service or for brown field expansions done by other operators in the vicinity. Australia has not been very good at commercialising gas discoveries and that reflects the use of poor modelling and poor business practices as opposed to 'market conditions'. The long construction period for these projects results in, at best, a scenario of commercial outcomes that have a wide range of possible financial outcomes to the owners. To suggest otherwise is complete foolishness. Capital cost overruns and exchange rate volatility alone can drive a project from an acceptable rate of return on the investment to an unacceptable one.

Commercially, the retention licence process is a low cost, long term option over a petroleum resource by a petroleum company who made an exploration discovery. Such a company can then, not only exclude other petroleum companies from participating in the offshore area, but it can also allocate its internal resources to other regions of the world where such low cost options on licences does not exist. Optimising its global risk/reward portfolio of offshore petroleum licences and assets is a priority for all IOG's, NOC's and super major petroleum companies. NOC's may simply have a strategy of aggregating control over secure energy supplies with less regard to the financial cost of that strategy.

The current review underway by the Federal Government is not the first such review. Comments and concerns have been expressed in the past by a number of parties in addition to the DomGas Alliance. The following comments from Australia's pipeline association, formerly APIA, now referred to as APGA, in their submission to the Government highlights some major concerns over retention licences:

APIA considers the most significant problem with the current retention lease system is that it facilitates an ability to 'warehouse' gas reserves indefinitely through continual

renewal of a lease. This allows gas title holders to delay development, perhaps longer than appropriate, until a time of their choosing.

APIA considers that it is in the best interests of the development of Australia's oil and gas reserves that a limit is set on the number of renewals a retention lease may have.

APIA does not hold a view on the appropriate total duration of a retention lease. It is reasonable to consider that a finite duration will focus a title holder's efforts in bringing a retention lease to commercial viability; a motivation that does not exist under the current system. This is an important point, as the commerciality of a gas reserve is not solely subject to market conditions, often it depends on a proponent's willingness and efforts to bring it to development.⁸

Western Australia has previously expressed a concern over the increasing inventory of offshore retention licences and has identified the current retention lease management process as an item that required a review by the Commonwealth.

The Western Australian Parliament's 2011 inquiry into domestic gas price observed that: **A common criticism of the current retention lease regime was that it was sufficiently lax as to enable producers to "warehouse" or "hoard" reserves, many of which could be commercially developed already for domestic markets. Other critics argued that the commercial viability parameters lacked transparency, were only reliant on the input of the producer and should be subject to greater independent scrutiny. Another concern was that the current approvals process "...creates significant barriers to entry for new players and protects larger incumbent producers."⁹**

The Western Australian Government concluded that: 'The current process underpinning the application for a renewal of retention leases lacks sufficient rigour and enables the stockpiling of gas reserves by incumbent producers. These reserves may include fields that are suitable for the development of domestic supplies.'¹⁰

For some time, Australian governments have outlined their intentions to apply the retention lease policy more rigorously to prevent warehousing of reserves. Most recently, in 2013, the Coalition outlined that it 'will verify that companies seeking to retain a lease over oil or gas fields have a legitimate need to secure gas for long-lived production projects and are not simply seeking to obtain a competitive commercial advantage by their retention.'¹¹

Further comments about the inadequacies of the existing system from Apache Energy and Deloitte Access Economics are provided in the next section of this report.

Production Licences

⁸ Australian Pipeline Industry Association Ltd, Submission to DRET, 13 August 2009.

⁹ Economics and Industry Standing Committee, Inquiry into Domestic Gas prices, 2011

¹⁰ Deloitte Access Economics, Western Australia Gas Sector Analysis Report, 16 May 2014

¹¹ The Coalition's Policy for Resources and Energy, September 2013.

AS of 2014 there were 116 offshore production licences with the majority of them located in the offshore Gippsland and Carnarvon Basins. That is a large number of licences per production facility. Production licences tend to cover the life of the reserves under those licences. Unlike many other countries, there is no stratification of the geological column in Australia so the holder of a petroleum licence holds the rights to all petroleum in all geologically prospective zones under that acreage. This policy leads to even greater hoarding of petroleum resources by a relatively few companies in the vicinity of gas production infrastructure and facilities.

International Offshore Petroleum Licencing

As one would expect, offshore petroleum licencing policies and procedures vary considerably from nation to nation. The objective is typically to create wealth from natural resources and to encourage private petroleum companies to explore for and develop those resources in a best practice manner and as soon as is practicable.

Deloitte Access Economics in a report done in 2014 for the Fortescue Metals Group provided the following comments in relation to Australia's retention lease policy:

“Internationally, policies akin to the Australian retention lease policy exist. However, such international policies typically treat companies holding gas reserves less generously. ... It appears that Australia may be out of step with other countries and the application of the Australian retention lease policy potentially allows companies to warehouse gas.”¹²

In 2010 Apache Energy broke rank from the APPEA endorsed rhetoric regarding retention licences in Australia and stated the following during its submission to the Western Australian parliament inquiry on domestic gas prices:

... Tenure of exploration acreage in Australia is very long by worldwide standards...By contrast in Egypt, another country in which Apache is an active explorer, the maximum duration of a petroleum title is 35 years and in this period the title holder must explore, appraise, develop and produce any discoveries it makes.

...The situation in the UK was comparable [to that in Australia]; it was felt that certain companies had made potentially commercial discoveries but that they were failing to develop them and that this failure was against the national interest...A policy known as the Fallow Blocks / Discoveries Initiative was introduced which had the effect of moving both exploration acreage and discoveries into the hands of companies more motivated to commercialise these assets.

... This [retention lease] policy is a market distortion unique to Australia. Acreage prospective for gas fields suited to supply the domestic market in WA, in many cases containing gas discoveries, is being “warehoused” by companies to supply the LNG market many years in the future. In any other country in the world such acreage would be released to be licenced to companies which could more rapidly exploit it.

Abolition of the retention lease policy and stringent application of the commerciality requirements on existing retention leases would result in acreage prospective for gasfields suited to supply the WA domestic market being released for exploitation by companies qualified and motivated to supply that market. This increased supply would result in downward pressure on gas prices to the consumer.¹³

Of course Apache is a U.S. based petroleum company who is used to the very strict ‘produce it or lose it’ licencing policy which is fairly widespread and harsh in both Canada and in the U.S. where Apache Energy is a major operator. Apache Energy has since exited Australia but was a long time operator in offshore Western Australia. Unlike many other critics of

¹² Deloitte Access Economics, Western Australia Gas Sector Analysis, 16 May 2014.

¹³ Apache Energy, Submission to the parliament inquiry on domestic gas prices, 25 June 2010.

the retention licence framework who have limited, if any, experience operating in offshore Australia's petroleum sector and elsewhere in the world, Apache Energy is very informed on this subject. In its 2010 submission, Apache further commented that:

“companies ... allocate capital preferentially to those overseas discoveries in their worldwide portfolios which are subject to more stringent requirements by host governments to commercialise those reserves rapidly or to forfeit them.”¹⁴

Apache Energy has basically stated that the Commonwealth Government and the Joint Authority are very naïve in their understanding of most matters pertaining to retention licences and the abuse of the system by petroleum companies.

The following sections in this report describes the offshore petroleum licencing framework in place for 10 other countries; namely the U.S., Canada, the UK, Norway, New Zealand, Netherlands, Denmark, Germany, Thailand, India and Malaysia. Among this group, only Canada appears to have an equivalent to Australia's retention licence vehicle and most of these countries appear to have much shorter terms and less flexible conditions pertaining to exploration licencing. Canada's offshore regions, except for offshore Nova Scotia, are extremely remote relative to gas markets and gas infrastructure. Offshore Nova Scotia is not a vibrant petroleum exploration area, is gas prone and has relatively small production. Australia appears to be a laggard in its offshore petroleum licencing policies for they appear to favour a few large petroleum companies at the expense of Australia's domestic energy sector and Australia's society in general (the national interest).

The North Sea and the offshore Gulf of Mexico region of the U.S. stand out as success stories for the exploration and development of offshore petroleum production. While all of the reports released by the Australian Government to date have stated that the existing offshore petroleum licencing framework and policies are “leading practice” and have served Australia well to date, benchmarking to other countries would lead one to question the merits of such statements. Confident statements without factual evidence does not constitute reality and is not helpful in any process of examination and reform.

The Interim Report states **“Our great success to date in commercialising offshore resources – with markedly few failures – suggests that Australia has struck the right balance with its retention lease framework”¹⁵**. This is a rather incredible statement given the very long time period from discovery to production for a number of Carnarvon and Gippsland Basin significant gas discoveries by joint ventures that were not identical to the Northwest Shelf JV and the Exxon/BHP Billiton JV. The Gorgon gas project is the best example of extremely unreasonable delays in commercialising gas. The ‘right balance’ is sought after by nations worldwide and many seem to be much closer to that goal than Australia. Key performance indicators are required followed by accurate measurement and reporting with results compared to best in class; not just hollow self-serving statements.

¹⁴Apache Energy, Submission to the parliament inquiry on domestic gas prices, 25 June 2010

¹⁵Australian Government Department of Industry, Innovation and Science, Offshore Petroleum Resource Management Review Interim Report, November 2015.

The U.S. Regulations Affecting Its Offshore Petroleum Activity

Offshore petroleum activity is permitted in portions of the Gulf of Mexico and offshore Alaska. Offshore exploration and production activity commenced in the Gulf of Mexico (GOM) during the late 1940's and the first petroleum exploration lease sale in offshore Alaska was held in 1976. Most of the offshore gas pipelines serving the Gulf of Mexico are owned and operated by independent midstream companies who also own some of the offshore production platforms. The GOM has been arguably the most successful offshore petroleum region in the world based on level of competition, cycle time from discovery to first production and access to low cost infrastructure for gas producers. As of 2001, there were 44,218 km of offshore pipelines operated by 157 companies that connect wells to over 3,000 offshore production platforms and carry the gas to 51 onshore gas processing plants. Most of these pipelines and gas plants are owned by midstream companies who have no interest in petroleum exploration and production. They serve the upstream sector on a fee for service basis and offer capacity on a non-discriminatory basis to all petroleum operators at very competitive tariffs. The gas market served by all GOM offshore gas production has been, until recently the North American domestic gas market which has historically been offered prices much lower than that received from Australia's domestic market.

The Outer Continental Shelf Lands Act (OCSLA) of 1954 provides for the issue of leases by the Federal Government for exploration for oil and gas for a specific period on a specific tract. These leases also allow development and production if a discovery is made and are extendable for these purposes. The OCSLA sets out several principles and factors to guide the Mineral Management Service (MMS) petroleum leasing program. These include: energy needs; economic, social and environmental values; resource potential and industry interest; benefits and risks; regional needs, fair market value and laws; and goals and policies affecting the individual states adjacent to the Gulf of Mexico offshore region.

Petroleum leases are issued for an initial period of 5 years or up to 10 years, if considered necessary to encourage exploration, normally because of deep water or other adverse conditions. For example in a lease sale held in 2008, the period was 5 years in water depth less than 400 metres, 8 years in water depth from 400 metres to less than 800 metres, and 10 years in deeper water. Also, the period could be extended from 5 to 8 years in the event of very deep drilling or safety problems. If a discovery is made within the initial period of the lease, the lease is extended for as long as oil and/or natural gas is produced in paying quantities or approved drilling operations are conducted.

Since 1975, the top eight E&P companies have not been allowed to bid jointly with other top eight companies for exploration leases.

IN 2001, there were 7,564 active petroleum leases in the offshore Gulf of Mexico and 27% of those leases were producing a petroleum substance. The market share of the top 10 U.S. gas producers among all Gulf of Mexico gas producers was 46% of the producing leases.

Canada's Regulations Affecting Its Offshore Petroleum Activity

The National Energy Board (NEB) has regulatory responsibilities under the Canada oil and Gas Operations Act and under certain provisions of the Canada Petroleum Act for petroleum exploration and production on frontier lands and for open to exploration areas off Canada's east, west and arctic coasts. Successful offshore petroleum activity to date exists only offshore Atlantic Canada, namely offshore the provinces of Nova Scotia and Newfoundland. There are typically three types of oil and gas licences issued by the Federal Government of Canada namely, Exploration Licences, Significant Discovery Licences, and Production Licences.

The Canada-Nova Scotia Offshore Petroleum Board is responsible, on behalf of the Government of Canada and the Government of Nova Scotia, for the management and administration of offshore petroleum licences and associated land rights.

The Canada-Newfoundland and Labrador Offshore Petroleum Board (Board) is responsible, on behalf of the Government of Canada and the Government of Newfoundland and Labrador, for petroleum resource management in the Newfoundland and Labrador Offshore Area.

Exploration Licence

Exploration Licences (EL) may be issued for Crown lands through an established Call for Bids process that is open and transparent. An EL has a maximum term of 9 years and provides licence owner(s) with the right to explore, the exclusive right to develop, drill and test for petroleum, and to obtain a production licence. It is important to note that an EL cannot be renewed. Upon its expiry, all lands to which the EL relates that are not subject to a Production Licence or a Significant Discovery Licence revert back to the Crown.

Significant Discovery Licence

Significant Discovery Licences (SDL) may be issued for lands within a declared significant discovery area. The SDL regime is aimed at encouraging exploration of resources in remote lands where there are no immediate prospects of commercial production. An SDL allows the licence holder to retain rights in the discovery until the resources become commercially reasonable to produce. The term of an SDL is indefinite as long as a Declaration of Significant Discovery is in effect. This intermediary licence was designed to maintain an explorer's rights during the period between first discovery and eventual production.

A significant discovery licence is effective from the application date and remains in force for so long as the relevant declaration of significant discovery is in force, or until a production licence is issued for the relevant lands. The Crown's position as resource owner is fully protected, notwithstanding this grant of open-ended tenure, by provisions empowering the making of drilling orders, and in the event the discovery is established to be a commercial discovery, development orders.

If a drilling program results in a significant discovery and a declaration of significant discovery has been made, an interest owner is entitled to a significant discovery licence. A declaration of significant discovery is a pre-condition to the issuance of the significant discovery licence. A significant discovery is defined in the Acts as:

"a discovery indicated by the first well on a geological feature that demonstrates by flow testing the existence of hydrocarbons in that feature and, having regard to geological and engineering factors, suggests the existence of an accumulation of hydrocarbons that has potential for sustained production. "

Upon receipt of an application for a declaration of significant discovery, the Board first determines whether a significant discovery has been made, and secondly, if so made, indicates the portions of the offshore area where there are reasonable grounds to believe the significant discovery may extend. The applicant is then notified of the Board's decision and, pursuant to the Acts, may request a hearing with respect to this decision.

Notwithstanding the above, and pursuant to the Acts, a declaration of significant discovery may be made by the Board on its own initiative.

A significant discovery licence confers the same rights as that of an exploration licence. It is the document of "title" by which an interest owner can continue to hold rights to a discovery area while the extent of that discovery is determined and, if it has potential to be brought into commercial production in the future, until commercial development becomes viable.

Significant discoveries are determined by the National Energy Board and not by the petroleum joint venture. The NEB has the right to require the petroleum company that has been granted a significant discovery licence to drill wells to further delineate the discovery and can reduce the term. The NEB may amend or revoke a declaration of significant discovery where, based on the results of further drilling, there are reasonable grounds to believe that a discovery is not a significant discovery or that the lands subject to the SDL differ from the significant discovery area.

Production Licence

Production Licence (PL) confers the right to produce petroleum in any area which is subject to a commercial discovery. In order to be deemed a commercial discovery, an operator must demonstrate that the discovery contains reserves that will justify the investment of capital and effort to bring the discovery to production. A PL has a term of 25 years but may be extended if commercial production is continuing or is likely to recommence.

The UK's Regulations Affecting Its Offshore Petroleum Activity

Gas was first discovered in the UK portion of the North Sea in 1965. UK oil exploration and production activity is predominantly conducted offshore.

The Petroleum Act 1998 governs oil and gas exploration and production activities in the UK. This Act vests ownership of petroleum in the United Kingdom Continental Shelf (UKCS) in the Crown and empowers the secretary of state for the Department for Energy and Climate Change (DECC) to grant licences for the exclusive right to search for, bore for and extract petroleum in the area covered by the licence.

The UK government has actively solicited new entrants to the UKCS via "promote" licencing rounds with less demanding terms and the 'fallow acreage initiative', where non-active licences have to be relinquished.

The DECC can grant licences that confer exclusive rights to 'search and bore for and get' petroleum. Each of these confers such rights over a limited area and for a limited period.

The DECC expects companies to work their licences. In recent years, the amount of acreage left untouched, and those exclusive rights unexploited, has become a matter of concern. This led PILOT (formerly the Oil & Gas Industry Task Force) to instigate the Fallow Initiative, which incorporated a process to ensure UKCS licences are optimally worked to maximise economic recovery of oil and gas. The Fallow Initiative has stimulated activity by placing still prospective acreage into the hands of new companies that want to develop it sooner than the previous tenement holder. Land blocks and discoveries held under licences are considered fallow after 3 years without significant activity. They receive a release status if the current licencees are no longer able to progress toward further exploration or development activity, as the case may be, due to either misalignment within the partnership, failure to meet economic criteria, other commercial barriers, or a combination of these. Fallow discoveries that have been released for 2 years, and fallow blocks released for 1 year, will be relinquished if there are no agreed plans for significant activity. This acreage is then offered to other companies for re-licencing pursuant to a competitive process.

There are currently two types of offshore licence awarded by DECC: the 'exploration' licence and the 'production' licence. Under a seaward petroleum exploration licence, seismic surveys and shallow drilling can be performed in acreage not already licenced. Other parties may hold an exploration licence over the same area and it is therefore a non-exclusive licence. Under a seaward petroleum production licence the licencee is granted the right to search for, bore for and extract hydrocarbons from the UKCS in the area prescribed under the terms of the licence for the full life of the field from the exploration phase and development to decommissioning. Three sub-categories of production licence exist. The most common of these is the 'traditional licence'.

Petroleum Exploration and Development Licences, are valid for a sequence of three periods, called terms. These are designed to comprise the typical life cycle of a field: exploration,

appraisal, production. Each licence will expire automatically at the end of each term, unless the licensee has sufficiently progressed to warrant a chance to move into the next term.

Traditional Offshore Licences

For Petroleum Exploration and Development Licences, the duration of a traditional licence is split into successive terms of four, four and 18 years. In order to progress from the initial to the second term, the licensee must have completed a work program as approved by DECC and relinquished a minimum of 50 per cent of the acreage under the licence. The second term is intended for appraisal and development. If, during the second term, DECC has approved the development plan and all of the acreage outside that development has been relinquished, the licence may continue into the third term. The third term is intended for production. The DECC may exercise its discretion to extend the third term beyond the prescribed 18-year period if production is ongoing, but the DECC reserves the right to reconsider the provisions of the licence before doing so – especially the acreage and rentals (annual licence fee).

The DECC positively encourages the surrender of acreage if the licensee does not intend to work it, and a minimum relinquishment of acreage at the end of the initial term is a condition of most licences.

Partial surrenders are subject to restrictions, depending on the complexity of the area relinquished. The DECC does not wish to create unlicensed areas so irregular in shape to be unattractive to other companies.

Frontier licences

The duration of a frontier licence is split into successive terms of six (which is further subdivided into an initial two and then four year period), six and 18 years. By the end of the third year of the first term, the licensee must have relinquished 75 per cent of the licence area. At the end of the sixth year, the licensee must relinquish a further 50 per cent of the remaining acreage. This equates to a total relinquishment of seven-eighths of the original licence area by the end of the initial term. DECC may, in exceptional circumstances, where prospectivity can be demonstrated over more than 25 per cent of the licence area, allow, at its discretion, a licensee to relinquish only 50 per cent of the acreage by the end of the third year. However, the licensee would still need to relinquish all but one-eighth of the original licence area at the end of the initial term and must have completed the work programme in order to progress from the initial to the second term.

A new type of frontier licence for the areas west of Scotland was introduced in the latest licencing round announced in January 2010. The new frontier licence differs from the original frontier licence in that the first of its three terms is three years longer. This is in recognition of the particularly challenging nature of the geographical area where it applies and the relative scarcity of geophysical data.

Norway's Regulations Affecting Its Offshore Petroleum Activity

In May 1963, Norway asserted sovereign rights over natural resources in its sector of the North Sea. Petroleum production commenced in 1971 in Norway from the offshore Norwegian Continental Shelf (NCS) and has become the largest sector in the Norwegian economy. In addition to the North Sea, there is petroleum production from the Norwegian Sea and the Barents Sea with a fairly equal distribution of petroleum resources across all three offshore regions. There are no vertically integrated gas projects in Norway. All 8,100 kilometres of offshore gas pipeline infrastructure on the NCS is owned by a single joint venture and they offer open access capacity to all petroleum producers at economically regulated pipeline tariffs. The pipeline system is a natural monopoly, with significant infrastructure investments. Therefore, the tariffs for gas transport are regulated through separate regulations stipulated by the Ministry of Petroleum and Energy. This ensures that profits are extracted in the fields and not in the transport system. The oil companies have access to capacity in the system based on the need for gas transport. This infrastructure makes it possible to produce and market petroleum, and also lays the foundation for the development of additional resources in a cost-effective manner. Declining production from a field releases infrastructure capacity. Such capacity can provide efficient exploitation of resources that can be tied into this infrastructure. In some cases, the use of existing infrastructure is a precondition for the development of production from new deposits that are too small for profitable standalone development. Exploration for and development of resources in the vicinity of existing infrastructure can provide significant value for the Norwegian society.

All of Norway's gas production is from offshore gas fields located in the North Sea and petroleum production has occurred over the last 5 decades. As of 2013, 76 petroleum fields were in production on the Norwegian continental shelf. In 2011, Norway was the third largest exporter of gas in the world after Russia and Qatar, and the seventh largest exporter of oil. Since the start of the petroleum activities on the Norwegian continental shelf, vast amounts have been invested in exploration, field development, transport infrastructure and onshore facilities.

Norway has nationalised most of its gas industry in order to control it and to reap the considerable economic rent that it generates. As is the case with the oil sector, Statoil dominates gas production in Norway. Statoil, originally the Norwegian State Oil Company, is now an international petroleum company active in 35 countries and is 67% owned by the Norwegian Government. A number of international oil and gas companies, including ExxonMobil, ConocoPhillips, Total, Shell, and Eni have a sizable presence in the gas and oil sectors in partnership with Statoil. As of 1 January 2013, the State had direct financial interests in 158 production licences, as well as interests in 15 joint ventures in pipelines and onshore facilities.

All petroleum activities offshore Norway are pursuant to the Petroleum Activities Act (1996). The Norwegian Petroleum Directorate (NPD) reports to the Ministry of Petroleum and Energy and authorises petroleum exploration and production licences and related

activity. The Petroleum Act confirms that the property right to the petroleum deposits on the Norwegian continental shelf is vested in the State.

The Norwegian licencing system consists of two types of licencing rounds. The first is the numbered licencing rounds which comprise less mature parts of the shelf. These rounds have been used since 1965, and in recent years, they have been held every second year. The oil companies are invited to nominate blocks they would like to see announced and, on this basis, the Government determines a certain number of blocks for which companies can apply for production licences.

The other licencing round system entails award of production licences in predefined areas (APA) in mature parts of the continental shelf, and was introduced by the Government in 2003. This system entails the establishment of pre-defined exploration areas comprising all of the mature acreage on the shelf. Companies can apply for acreage within this defined area. The area will be expanded, but never reduced, within the framework set by the management plans, as new areas are matured.

An Exploration Licence (EL) provides a non-exclusive right to explore for petroleum in areas listed in the licence. It does not provide a preferential right to a production licence. An EL is granted for a period of 3 calendar years unless another period of time is stipulated. The maximum term of any EL is 10 years.

If a petroleum E&P company estimates that it is commercially viable to develop a field, they are required to carry out prudent development and operation of proven petroleum deposits. This means that the companies are responsible for the development of new projects, while the authorities grant the final consent to start the process.

A Production Licence is generally granted for up to 10 years. If the production licence is granted for a shorter period of time it can be subsequently extended within the 10 years limit. A licensee who has fulfilled the work commitment and the conditions otherwise applicable to the individual Production Licence, may request that the licence be extended after the expiry of the period stipulated. The extension period shall be stipulated in the individual production licence, and shall as a general rule be up to 30 years, but may in specific cases be up to 50 years.

In mature areas, the authorities have deemed it important that the industry is given access to a larger area, so that resources that are time-critical can be produced in a timely manner. It is also important that area awarded to the industry is explored rapidly and efficiently. For the authorities, it is important that an active effort is undertaken in the licenced area. The area covered by the production licence is tailored so that companies are awarded only those areas for which they have tangible plans. Relinquished acreage can be applied for by new companies that may have a different view on its prospectivity. This leads to faster circulation of acreage and more efficient exploration of the mature areas. After expiration of the initial period, companies could previously retain up to 50 per cent of the awarded area without committing to specific activity. Today, the main rule is that they can only retain the area for which they have plans to start production.

New Zealand's Regulations Affecting Its Offshore Petroleum Activity

In New Zealand the petroleum permitting regime is defined in the Crown Minerals Act 1991. Licences granted by New Zealand for offshore petroleum are prospecting, exploration and mining licences.

Prospecting Permits are granted to enable reconnaissance and general investigations of an area. The grant of prospecting permits is on the condition that the permit holder has no subsequent right to an exploration permit. An Exploration Permit is for geological and geophysical surveying, exploration and appraisal drilling and testing of petroleum discoveries.

Exploration Permits are granted with the right to a subsequent mining permit. Mining Permits are for mining operations relevant to the extraction, separation, treatment and processing of petroleum.

Prospecting Permits can last up to 1 year. Exploration Permits can last up to 5 years, with renewal of 5 years over a maximum of 50% of the original area. An appraisal extension of up to 4 years is also possible. Mining Permits can last up to 40 years. Duration is related to the size of the discovery and the rate of production.

Netherland's Regulations Affecting Its Offshore Petroleum Activity

Although the Netherlands owns substantial gas reserves in the Dutch sector of the North Sea continental shelf, most of its gas production is from on-shore wells. The Netherlands is a major gas-producing country and the second largest gas producer in Europe.

The Dutch Minister of Economic Affairs (MEA) grants exploration and production licences pursuant to the Mining Act (2003).

'Fallow Acreage' or sleeping licences has been a large concern in the Netherlands and in 2010 the Mining Act was changed to include additional provisions to force petroleum companies to quickly make one of the following three choices:

- sell the licence; or
- relinquish the licence; or
- quickly execute significant activity on the licence.

This new legislation was designed to stimulate activity on licenced offshore fallow acreage held by petroleum companies as a low cost option for future development.

Pursuant to the Mining Act the licence term is to be fixed in the licence and may not exceed the time needed to carry out the work committed in the application. An exploration licence must state the periods, within the overall term, during which exploration activities must be carried out and may state a period (or periods) for carrying out prospecting. An exploration licence is automatically extended beyond the expiry date if, before that date, its holder has applied for a production licence and a decision has not yet been reached at the expiry date of the exploration licence. The term of production licences is equal to the life of field. The MEA may extend the term of a licence, provided the activities for which the licence had been granted have been carried out in accordance with the licence.

A production licence can only be issued if it is likely that the area to which the licence would apply contains economically recoverable reserves. In assessing whether this prerequisite is satisfied a number of parameters are taken into account, such as the extent and quality of the field, production cost (capital and operational expenditures), costs of decommissioning and sales price development.

Denmark's Regulations Affecting Its Offshore Petroleum Activity

The Danish Energy Agency (DEA) is the government body that is authorised to exercise all the regulations and the administration of petroleum related activities on the Danish continental shelf of the North Sea. There are 55 platforms and 19 operating hydrocarbon fields in the Danish portion of the North Sea.

In the latest round of areas offered for petroleum exploration licencing the Danish North Sea Fund on behalf of the Danish state will hold a 20% interest in any new licence and the petroleum company joint venture will hold the remaining 80% interest.

The Danish part of the North Sea is a so-called mature area with a well-developed infrastructure, but still holds exploration potential. To allow the existing infrastructure to be used in connection with the development of future discoveries and to give companies more predictability about when they can apply for un-licensed areas, the licencing rounds following the 7th Round will be held at about one-year intervals, i.e. one year after completion of the latest licencing round. The oil and gas offshore pipelines connecting production platforms to the Danish coast are not owned by petroleum companies and have non-discriminatory access at transparent, published terms and conditions.

The term of a licence granted for the exploration for and production of any substance located in the offshore Danish Continental Shelf (DCS) is fixed by the DEA and cannot exceed 50 years. Licences for hydrocarbon exploration and production in the DCS have an initial maximum term of 6 years and may be extended from time to time in increments of up to 2 years for the purpose of further exploration where warranted by special circumstances. The total term of exploration licences may only exceed 10 years in extremely exceptional cases.

A holder of an exploration licence has the right to apply for and be granted a production licence for up to a 30 year term over those parts of the exploration licence that contain commercial accumulations that the licensee plans to exploit.

Germany's Regulations Affecting Its Offshore Petroleum Activity

Germany holds the smallest portion of the continental shelf in the North Sea. The exploration and production of hydrocarbons in Germany is today regulated under the Federal Mining Law from 1982. The exploration licence and the production licence are the predominantly used licences in Germany.

There are no formal licencing rounds in Germany. Individuals, corporate bodies or commercial partnerships can apply for licences at any time. Within these applications the field proposed for exploration or envisaged for production must be specified, a work program has to be proposed and evidence of financial resources must be provided. In addition, the application for a production licence has to include information about the reservoir and a technical evaluation that demonstrates that the discovery can be developed.

The exploration licence covers an initial five-year period with possible renewals of maximum three-year duration. Every year the licence holder has to inform the relevant mining authority about their progress on the working program. The licence shall be revoked if, for reasons for which the licence holder is responsible, the exploration has not commenced within one year after the licence was granted or if the systematic exploration has been interrupted for more than one year.

The production licence is, in general, granted for a period that is determined by the applicant based on reservoir content, basic technical conditions, and economic calculations. The term of fifty years may only be exceeded if it is considered to be indispensable on account of the investments normally required for carrying out the production activities. The licence is revoked if the production has not commenced within a term of three years after the licence was granted or if the systematic production has been interrupted for more than three years. This will not apply as long as reasons of efficient technical or economic planning make it necessary to delay the commencement or resumption of the production in the field or if interruption was caused by other reasons outside the responsibility of the licence holder.

India's Regulations Affecting Its Offshore Petroleum Activity

India has a hybrid system involving elements of production sharing contract and concession systems. Indian offshore petroleum exploration is governed by the New Exploration Licencing Policy (NELP), under which Exploration Licences are granted.

The exploration phase is split into two parts. The first is the Initial Exploration Period, during which the mandatory minimum work program (exploration of block), as stated in the production sharing contract, must be completed.

After the Initial Exploration Period the licence holder must decide whether to relinquish the exploration block or retain it and commit to a Minimum Drilling Schedule.

After the exploration phase is completed, the block must be relinquished, apart from any areas where development of discoveries is proposed.

Exploration

There is only one Exploration phase of 7 years for shallow water blocks, and 8 years for deep water blocks. The Initial Exploration Period consists of the first four consecutive contract years in the case of contract areas in shallow water, and the first five consecutive contract years in the case of deep water areas.

There is no compulsory relinquishment after the Initial Exploration Period, during which the committed minimum work program is to be completed. Operators will have the option to relinquish the entire area after completion of a minimum work program or retain the block by committing to carry out drilling of one well per year in the case of shallow water blocks or one well in 3 years in the case of deep water blocks. The entire area (leaving aside Discovery Area and Development Area) must be relinquished at the end of 7 or 8 years of exploration, depending on the type of block.

Production

The development and production period will not exceed a period of twenty years in respect of crude oil and natural gas extracted in association with crude oil. The development and production period may be extended with mutual agreement between the Government and lessee up to a period of five years or such a period as mutually agreed based on the estimated economic life of the project.

Thailand's Regulations Affecting Its Offshore Petroleum Activity

In Thailand, exploration agreements are administered by the Ministry of Energy.

Licences can be granted for either exploration or production. Exploration Licences are granted on the basis of work program bids. Production Licences carry an obligation to produce within 4 years, although several deferrals for periods of two years are possible.

An Exploration Licence is valid for a 6 year period and has an optional 3 year renewal period. It is possible to retain a reserved exploration area (equal to 12.5% of the initial exploration area) for up to 5 years after the end of the exploration period. Relinquishments vary according to the block. Normally it is 50% after 4 years, but in deep water blocks the rate drops to 35%. The relinquishment rate increases to 75% after 6 years (or 40% in deep water blocks).

A Production Licence has a duration of 20 years from the end of the exploration period with an optional 10 year renewal period.

Malaysia's Regulations Affecting Its Offshore Petroleum Activity

In Malaysia, the main, relevant legislation is the Petroleum Development Act, 1976. Under the PDA, the National Oil Company, Petroliam Nasional Berhad (PETRONAS) is vested with the entire ownership of, as well as rights, privileges and benefits in relation to exploring and producing. Oil Exploration rights are granted under a Production Sharing Contract (PSC). Under the PSC the successful company explores for hydrocarbons on behalf of Petronas and if it finds commercial quantities of oil and gas during the duration of the PSC, it can proceed to develop and produce these hydrocarbons (again on behalf of the Petronas).

Exploration rights are usually granted for a limited period, typically a few years. In the case of an oil find in part of a block, that part automatically becomes a 'development area', which means that PSC partners have a limited time (usually four years) to proceed with development. If they fail to do so, the rights to the oil find revert to Petronas.

For a gas find, the approach is different, because gas is not as easily transportable and marketable as oil. The PSC framework offers PSC partners the opportunity to retain the rights to a gas find until a 'gas market' has been identified. Whilst waiting for a 'gas market', PSC partners are still expected to affirm, via additional drilling or studies, the quantities of gas to the level of certainty required to be able to prepare a 'gas field development plan'. Again, if PSC partners fail to do so, the rights to the gas find revert to Petronas.