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Offshore petroleum exploration and mining

by

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SUMMARY

In December 2010, the first offshore petroleum exploratory well off the coast of NSW was drilled in Petroleum Exploration Permit 11. This well was located primarily in Commonwealth waters 61km east of Newcastle. However, at this point in time, no gas has been found. Facts and figures on gas exploration, production and consumption in NSW, along with information on Petroleum Exploration Permit 11, provide the context for an overview of Commonwealth and NSW regulation of the offshore upstream petroleum sector.

Gas in NSW: exploration

Gas is Australia's third largest energy resource after coal and uranium. However, as of December 2008, gas resources formed a relatively small component of NSW's total economic demonstrated energy resources. **[2.1]**

Total petroleum exploration expenditure in NSW reached almost record levels in the four quarters between December 2009 and September 2010. Acreage release also reached record levels in 2009-10. A significant proportion of the State is now covered by petroleum exploration titles. **[2.2]**

Gas in NSW: production and consumption

NSW produced 5 petajoules of gas in 2007-08, all of which was coal seam gas. In comparison, in the same time period, 2,040 petajoules of gas was produced Australia-wide. **[2.3]**

NSW consumed 128 petajoules of gas in 2007-08, therefore making it a net importer of gas from other States. In 2007-08, gas comprised 8.4% of NSW's total energy consumption. NSW's total primary energy consumption is predicted to increase at 1.2% per annum over the next 20 years. In addition, over 8,000 MW of gas-fired power generation is soon expected to come online. **[2.4]**

Petroleum Exploration Permit 11: location, exploration and ownership

Petroleum Exploration Permit 11 (PEP 11) is located primarily in Commonwealth waters off the NSW coast between Newcastle and Wollongong, and covers over 8,200 km². It covers a portion of the offshore part of the Sydney Basin – a proven hydrocarbon basin in which the Hunter coalfields are located. Prior to December 2010, no offshore exploratory wells for petroleum had been drilled in the Sydney Basin. However, over 70 wells had been drilled in the onshore sector, almost all of which had found gas. **[3.1]**

PEP 11 was first surveyed in 1981. The most recent survey involved the construction of an exploratory well by Advent Energy, which has an 85% share in the title. The well was drilled in December 2010, 61km east of Newcastle. In late December, Advent Energy released an independent report which concluded that PEP 11 may be covering a 'potential Giant Gas province'. However, on 29 December 2010, Advent Energy announced that the exploratory well had failed to find gas. Advent Energy plans to drill more exploratory wells in the near future. **[3.1 and 3.2]**

Petroleum Exploration Permit 11: key issues

For every action undertaken in PEP 11, Advent Energy was required to have an Environment Plan approved under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) by the NSW Government. Each Environment Plan had to identify possible environmental impacts and risk management procedures for each impact identified. The northern part of PEP 11 is located within the Hunter Area for Further Assessment – an area identified by the Commonwealth Government for possible inclusion in a nationally representative network of marine protected areas. The northern part of PEP 11 is also located offshore from the NSW Great Lakes Marine Park. **[3.3]**

According to the Environment Plan for the exploratory well, few socio-economic impacts were expected by Advent Energy. However, most of the media coverage in newspapers like the *Newcastle Herald* has identified community concerns regarding offshore drilling. Objections raised by those opposed to the drilling include concerns about the potential for environmental damage. Further concerns cited in media coverage include the lack of community consultation conducted by Advent Energy. **[3.4]**

Regulatory regime: history and overview

The regulatory regime employed by the Commonwealth and NSW Governments for the offshore upstream petroleum sector is a sector-specific legislative system. In essence, this means that, as established under the Offshore Constitutional Settlement 1979, Commonwealth and NSW Government offshore petroleum regulation involves legislatively predetermined conditions under which petroleum titles are granted for all offshore petroleum activities. The 1979 Settlement established NSW's rights over all its coastal waters, which generally extend three nautical miles from the low water mark. The Commonwealth Government retained the rights for all other Australian waters, known commonly as 'Commonwealth waters'. **[4.1 and 4.2]**

Offshore petroleum exploration and mining in Commonwealth waters is regulated solely by Commonwealth legislation. The two most important Commonwealth Acts are the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and the *Environment Protection and Biodiversity Conservation Act 1999*. In contrast, both Commonwealth and NSW legislation apply to offshore petroleum regulation in NSW coastal waters. The most important NSW Act, which serves as a 'mirror' Act to the Commonwealth offshore petroleum Act, is the *Petroleum (Offshore) Act 1982*. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* may also apply to activities in NSW coastal waters. All offshore petroleum activities require environmental approval under the aforementioned Commonwealth and/or NSW legislation according to the jurisdiction in which they are located. A raft of other NSW and Commonwealth statutes may also apply. **[4.3 and 4.4]**

PEP 11 lies primarily in Commonwealth waters off the NSW coast. As such, it is regulated and taxed under Commonwealth legislation. However, prior to the proposed introduction of a Commonwealth national offshore petroleum regulator by January 2012, the NSW Government has an important role to play in jointly

...
administering all petroleum activities conducted off the NSW coast under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). [4.0]

Regulatory regime: petroleum royalties and taxation

Petroleum resources in Commonwealth waters are subject to the Commonwealth Petroleum Resource Rent Tax. Petroleum resources in NSW coastal waters may be subject to the Commonwealth crude oil excise and NSW royalty provisions. NSW petroleum royalties are calculated at 10% of the well head value, less allowable deductions. The Commonwealth Government receives a portion of this royalty according to a formula set in the *Petroleum (Offshore) Act 1982* (NSW). Given that the majority of PEP 11 is located within Commonwealth waters, any gas recovered from PEP 11 will most likely be taxed under the Commonwealth Petroleum Resource Rent Tax. [4.5]

Regulatory regime: incident response

The Commonwealth and NSW Governments share responsibility for responding to offshore petroleum incidents. Should an offshore petroleum incident occur in PEP 11, the first authority to respond would be the Australian Maritime Safety Authority. The NSW authorities most likely to be involved in such an event, were the oil to spread to NSW coastal waters, would be the Newcastle Port Corporation and the Sydney Ports Corporation. [4.6]

Commonwealth regulatory framework: overview

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* regulates all petroleum exploration and mining activities and all greenhouse gas storage activities in Commonwealth waters. Administration of the Act is currently shared by the Commonwealth and NSW Governments according to a division of responsibilities between a Joint Authority (the relevant Commonwealth and NSW Ministers) and a Designated Authority (the relevant NSW Minister). The Designated Authority is responsible for day-to-day administration of the OPGGSA. [5.1.1]

The Commonwealth Government administers Commonwealth OH&S laws in Commonwealth waters through the National Offshore Petroleum Safety Authority. While the Authority also administers State OH&S laws in several Australian States, the required provisions for it to do so in NSW do not exist in the NSW 'mirror' Act – the *Petroleum (Offshore) Act 1982*. [5.1.5]

Commonwealth regulatory framework: petroleum titles

Eight petroleum titles are provided for by the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). A typical offshore petroleum project may require five of these at various stages of the project. Initially, a petroleum exploration permit is required for any exploration activities. A petroleum retention lease must be acquired should any discovered petroleum prove commercially unviable initially, but is likely to become so within 15 years. Where a commercially viable source is found, the operator must acquire a petroleum production licence, infrastructure licence and pipeline licence prior to petroleum mining. [5.1.2]

Commonwealth regulatory framework: regulatory requirements

Along with requiring an appropriate title, all petroleum activities also require either an Environment Plan and/or a Well Operations Management Plan. In addition, the construction of a pipeline may only take place once a pipeline management plan is approved by the Designated Authority. The Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 outline the requirements of every Environment Plan. Each Plan must describe all environmental risks; specify management strategies for each risk; and identify suitable environmental performance objectives and standards. Well Operations Management Plans are currently regulated by the Petroleum (Submerged Lands) (Management of Well Operations) Regulations 2004. These regulations will soon be replaced by the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2010. **[5.1.2, 5.1.6 to 5.1.8]**

All offshore petroleum activities may require approval under the *Environment Protection and Biodiversity Act 1999* if the proposed activity has the potential to impact upon a matter of National Environmental Significance. **[5.2]**

NSW regulatory framework

The *Petroleum (Offshore) Act 1982* is the 'mirror' Act to the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. As such, it establishes the jurisdiction of the NSW Designated Authority with regard to Commonwealth waters, and provides for a series of equivalent petroleum titles. Each title may be awarded, subject to meeting certain conditions, by the NSW Minister for Primary Industries. This Act also dictates that all NSW laws and statutory instruments under those laws apply to NSW coastal waters. The following Acts may therefore apply in the event that offshore petroleum activities take place in the coastal waters of the State: *Coastal Protection Act 1979*; *Environmental Planning & Assessment Act 1979*; *Fisheries Management Act 1994*; *Heritage Act 1977*; *Marine Parks Act 1997*; *Marine Pollution Act 1997*; *National Parks and Wildlife Act 1987*; and the *Protection of the Environment Operations Act 1997*. **[6.0]**

Recent reviews of the offshore upstream petroleum sector

Two reviews of the offshore upstream petroleum sector have recently been conducted. The Productivity Commission reviewed the regulatory burden on the upstream petroleum sector. One of its most significant recommendations was for the establishment of a national offshore petroleum regulator. The second review was a Commission of Inquiry into the blowout at the Montara rig off the north-west coast of Western Australia in 2009. The findings of the Inquiry reiterated the Productivity Commission's recommendation for the creation of a national offshore petroleum regulator. At the COAG meeting on 13 February 2011, in-principle agreement was given to the creation of a national offshore petroleum regulator. However, the Western Australian Government remains opposed to the proposal. **[7.0]**

1.0 INTRODUCTION

The first offshore petroleum exploratory well off the coast of NSW was drilled in December 2010. Although no gas was found, the well operators, Advent Energy and Bounty Oil & Gas, remain confident that gas will be found in Petroleum Exploration Permit 11 (PEP 11) – a potential "Giant Gas province" with an estimated 15.9 Tcf of recoverable gas, according to an independent review. The discovery of gas off the NSW coast would have significant ramifications for the NSW economy and the NSW energy sector. The regulatory regime currently in place provides a process by which any gas found may be mined. The regime also incorporates requirements for managing the environmental risks associated with the offshore upstream petroleum sector.

While gas is Australia's third largest energy resource after coal and uranium, it remains a relatively small component of NSW's energy resources and energy production. This is the case despite a significant proportion of the State being covered by petroleum exploration titles. Petroleum exploration has increased rapidly over the past 12 months in NSW, most of it focused on finding coal seam gas. NSW is currently a net importer of gas. Any significant discoveries of gas would therefore go some way to reversing this status, along with providing a local source for the over 8,000 MW of gas-fired power generation expected to come online in the near future.

PEP 11 is located in the Sydney Basin, a geological formation which is a proven hydrocarbon basin and in which the Hunter coalfields are located. Although the first exploratory well in PEP 11 found no gas, the majority of over 70 wells drilled in the onshore sector of the Sydney Basin have found gas. PEP 11 lies primarily in Commonwealth waters off the NSW coast between Newcastle and Wollongong. As such, it is regulated and taxed under Commonwealth legislation. However, prior to the proposed introduction of a Commonwealth national offshore petroleum regulator by January 2012, the NSW Government has an important role to play in jointly administering all petroleum activities conducted off the NSW coast under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

This paper starts by presenting facts and figures on gas exploration, production and consumption in NSW. A description of PEP 11 follows, within which its location and characteristics are outlined. Also included are the environmental and socio-economic issues identified during the lead-in to drilling the exploratory well in PEP 11. A summary of the Commonwealth regulatory regime is provided, along with an account of the 'mirror' regime established for NSW coastal waters under NSW law. The paper finishes with a brief account of two recent reviews into the offshore upstream petroleum sector and their recommendations: a Productivity Commission review of the regulatory burden on the sector; and a Commission of Inquiry into the blowout at the Montara rig off the north-west coast of Western Australia in 2009.

2.0 BACKGROUND: GAS IN NSW

Although gas is Australia's third largest energy resource after coal and uranium, until recently it has been a relatively insignificant energy resource in NSW. Gas production is forecast to increase substantially in NSW, primarily in the form of coal seam gas.¹ Should gas reserves be discovered in Petroleum Exploration Permit 11 (PEP 11) off the coast of NSW, a further substantial source of gas may become available. Gas consumption is also forecast to increase in NSW, especially if all of the proposed 8,339 MW of gas-fired power plants are established. This section of the paper reviews petroleum exploration, gas production and gas consumption in NSW within the broader Australian context.

2.1 Australian energy resources

Gas is Australia's third largest energy resource after coal and uranium (see Table 1). Gas makes up 6% of Australia's total economic demonstrated energy resources. However, as at December 2008, conventional gas resources formed a relatively insignificant component of NSW's total economic demonstrated resources (see Table 1). A discovery of significant gas reserves in PEP 11 would significantly change this situation (see section 3.0 of this paper).

Table 1: Australia's energy resources: December 2008²

Resource	NSW		Australia	
	Economic demonstrated resources (PJ) ³	Economic demonstrated resources (PJ)	Export value 2008-09 (\$ million)	Reserves to production (years)
Black coal	353,360	883,400	54,671	90
Brown coal	-	362,000	-	490
Conventional gas	12	122,100	10,086	63
Coal seam gas	877	16,590	-	100
Condensate	-	12,560	Included in crude oil	31
Crude oil	-	6,950	8,755 (-5,966 net exports)	10
LPG	-	4,614	1,044	20
Oil shale	-	Economic valuation in progress	-	-
Uranium	-	651,280	990	140
Total	354,249	2,059,494	75,543	n/a

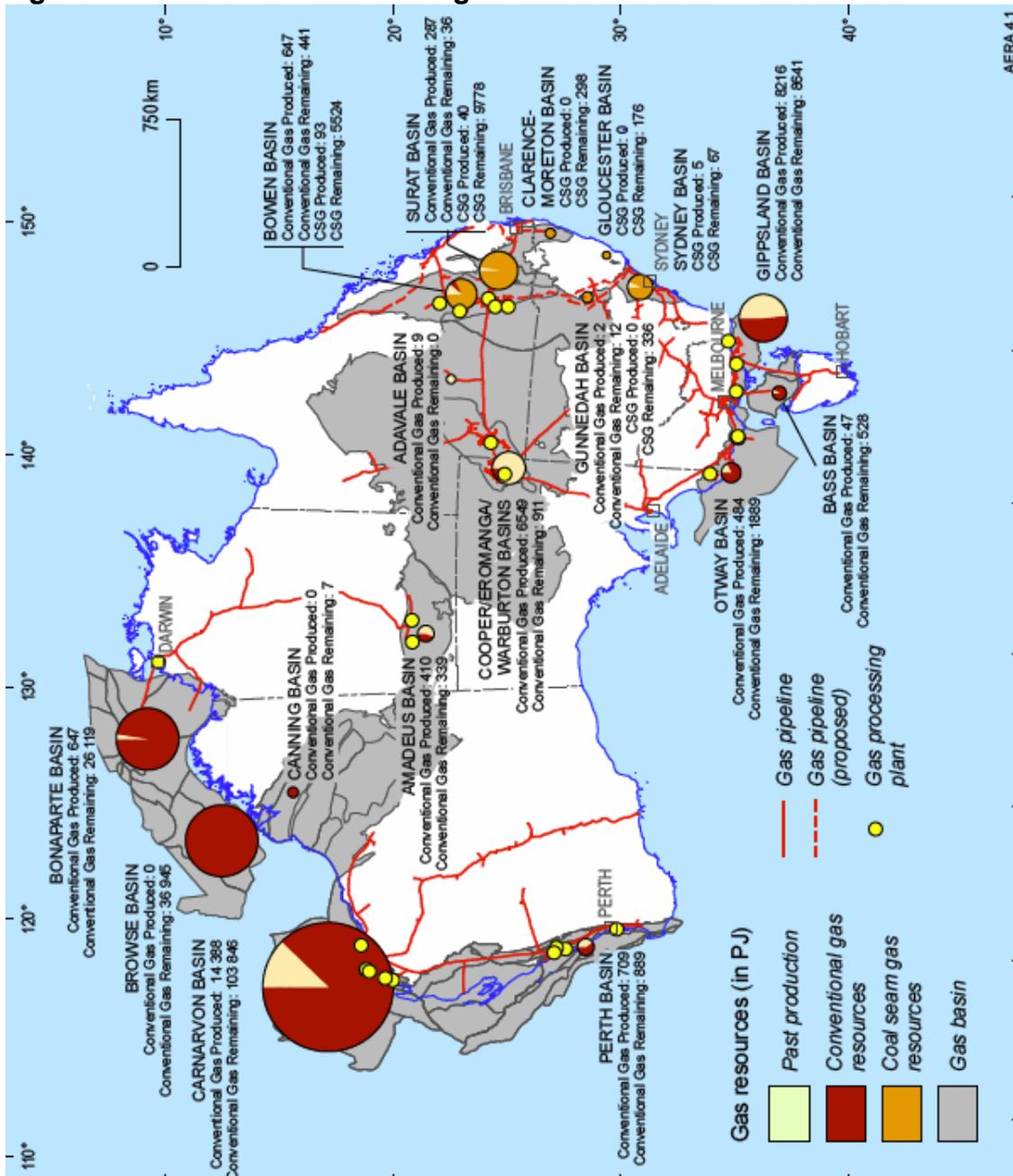
¹ For a summary of the coal seam gas regulatory regime in NSW, see: Roth, L., 2011. [Regulation of the coal seam gas industry in NSW](#), NSW Parliamentary e-brief 01/2011.

² Sources: Geoscience Australia and ABARE, 2010. [Australian Energy Resource Assessment](#), Canberra; ABARE, 2010. [Energy in Australia 2010](#), Canberra.

³ PJ: Petajoule – 10¹⁵ joules

Figure 1 shows the distribution of conventional and coal seam gas resources across Australia as at December 2008. Approximately 92% of Australia's conventional gas resources are located off the Western Australia coast. On the other hand, the majority of Australia's coal seam gas resources are located in Queensland and NSW.

Figure 1: Location of Australia's gas resources and infrastructure⁴



⁴ Geoscience Australia and ABARE, 2010. [Australian Energy Resource Assessment](#), Canberra, p84.

2.2 Petroleum exploration

The four quarters from December 2009 to September 2010 have seen a marked increase in petroleum exploration expenditure in NSW (see Table 2). Higher investment has been driven in part by increased interest in investigating potential coal seam gas (CSG) reserves. According to [Industry & Investment NSW](#), the combination of expenditure on conventional petroleum exploration and exploration for CSG has raised cumulative exploration expenditure in NSW to near record levels.⁵ Acreage release also reached record levels in 2009-10. A total of 44 petroleum exploration licences, six petroleum production leases, one petroleum assessment lease, one petroleum exploration permit and nine petroleum special prospecting authorities were approved by Industry & Investment NSW.⁶

Table 2: Petroleum exploration expenditure in Australia: 2008 to 2010⁷

Quarter	NSW (\$ million)	Australia (\$ million)
December 2008	9.3	1,013.4
March 2009	4.4	998.6
June 2009	5.5	1,017.4
September 2009	8.2	797.7
December 2009	21.3	827.0
March 2010	39.5	863.5
June 2010	39.9	1,005.9
September 2010	20.9	850.4
Total	149	7,373.9

Despite record levels of expenditure in NSW in 2009-10, petroleum exploration in this State is a relatively small component of total Australian petroleum exploration. According to the ABS figures in Table 2, only 2% of all petroleum exploration expenditure between December 2008 and September 2010 was spent in NSW.

A different picture emerges, however, when the focus is on petroleum exploration titles. A significant proportion of the State is covered by such titles.⁸ These are located across every potential sedimentary basin in NSW except for the Middleton, Lord Howe and Gower basins (see Figure 2).

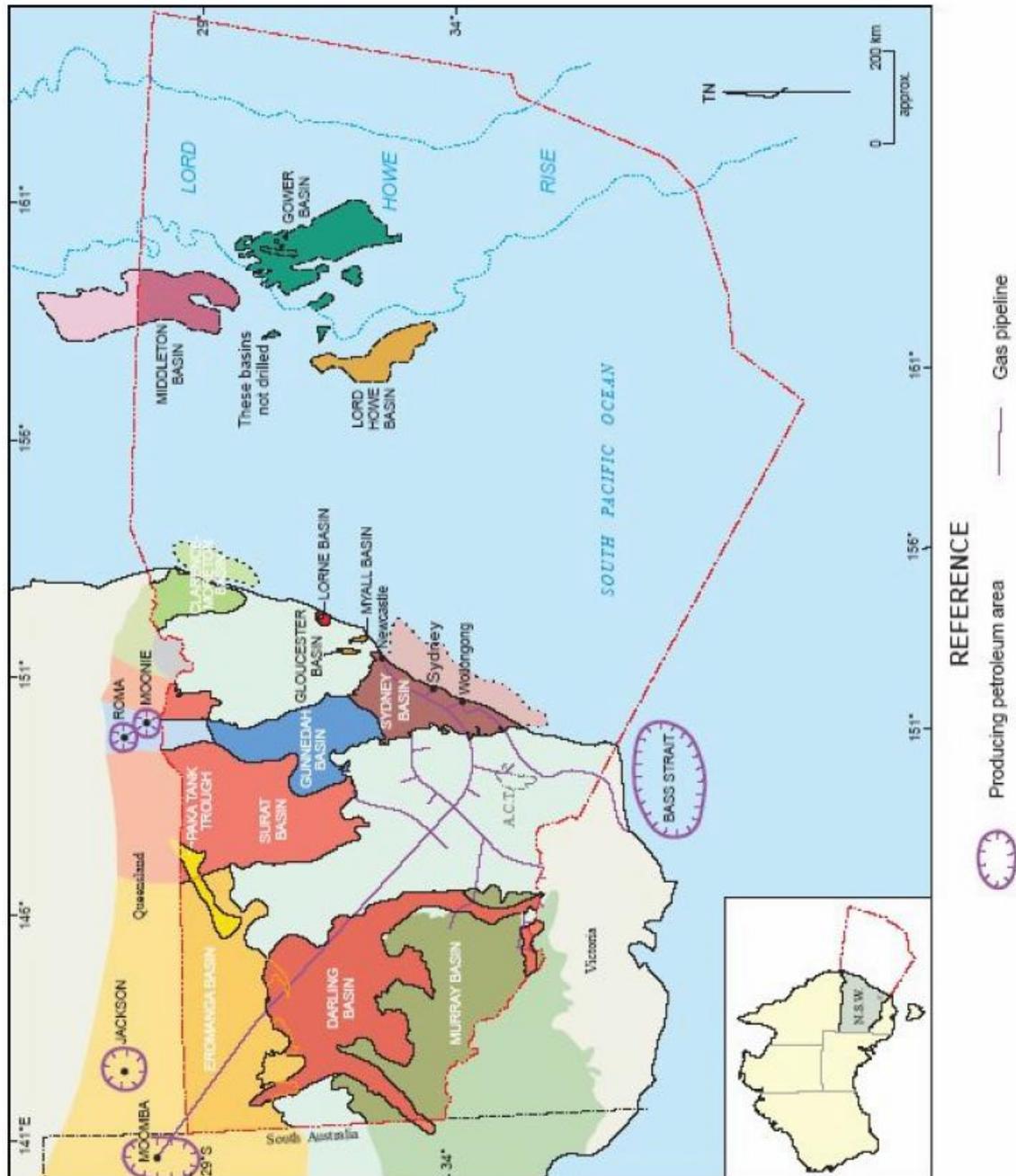
⁵ Industry & Investment NSW, 2010. [Industry & Investment NSW Annual Report 2009-2010](#).

⁶ Industry & Investment NSW, 2010. [Industry & Investment NSW Annual Report 2009-2010](#).

⁷ Source: ABS, December 2010. [Mineral and petroleum exploration, September quarter 2010](#), Series 8412.0, Commonwealth of Australia.

⁸ For a map of petroleum titles in NSW in 2009 see: NSW Department of Primary Industries, 2009. [TAS Map](#), accessed 17/01/2011.

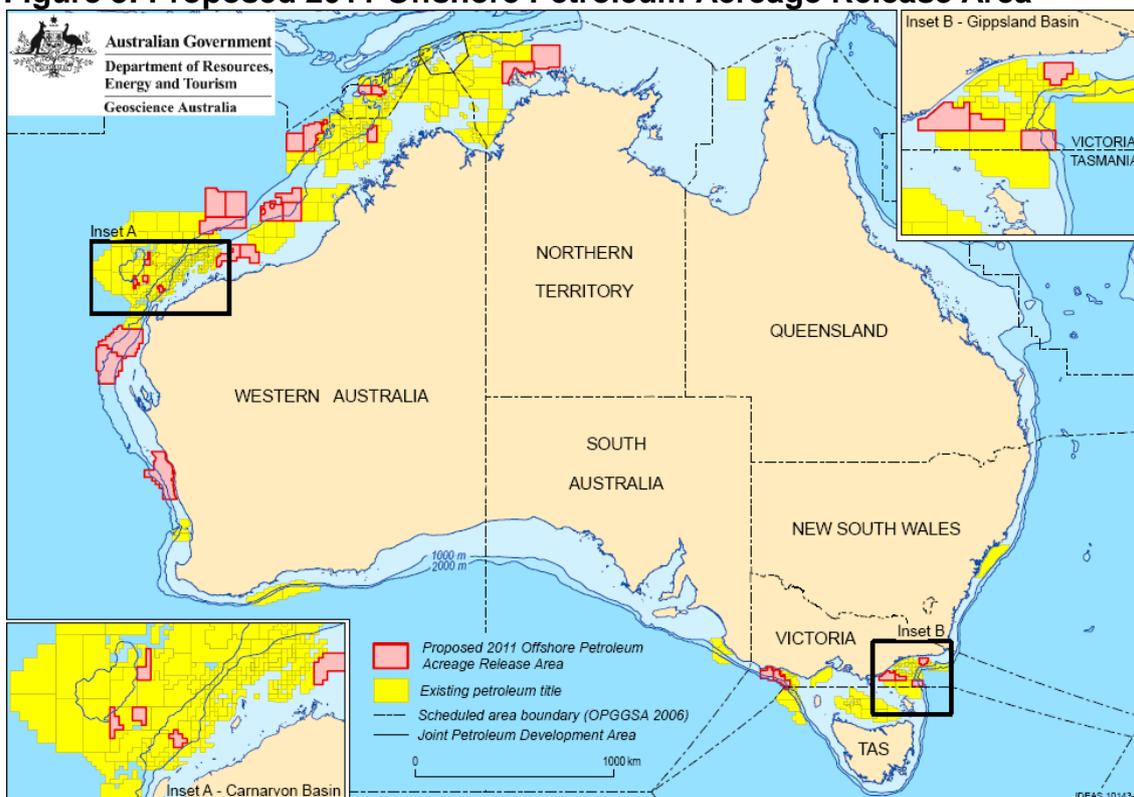
Figure 2: Principal sedimentary basins in NSW that may contain petroleum⁹



⁹ NSW Department of Primary Industries, 2005. [Resources & Investment – Principal sedimentary basins](#), accessed 17/01/2011.

In NSW, all but one petroleum exploration licence is located onshore. In comparison, total offshore exploration expenditure for Australia exceeded onshore exploration expenditure by approximately \$2 billion in 2009-10.¹⁰ New acreage for offshore petroleum exploration is released by the Commonwealth Government every year. Figure 3 shows the proposed 2011 offshore petroleum acreage release areas alongside existing petroleum titles, including the only NSW offshore title: Petroleum Exploration Permit 11.

Figure 3: Proposed 2011 Offshore Petroleum Acreage Release Area¹¹



2.3 Gas production in NSW

According to ABARE, NSW produced 5 petajoules (PJ) of gas in 2007-08, all of which was coal seam gas.¹² In comparison, in the same time period, 2,040PJ of gas was produced Australia-wide (see Table 3).

¹⁰ Total onshore exploration expenditure was \$748.6 million and total offshore exploration expenditure was \$2,745.6 million in 2009-10. ABS, December 2010. [Mineral and petroleum exploration, September quarter 2010](#), Series 8412.0, Commonwealth of Australia.

¹¹ Department of Resources, Energy and Tourism, 2010. [2011 offshore petroleum exploration acreage release](#), Canberra.

¹² ABARE, 2010. [Energy in Australia 2010](#), Canberra.

Table 3: Energy production by fuel in Australia: 2007-08 and 2029-30¹³

Fossil fuel	2007-08 (PJ)	2029-30 (PJ)	Average annual growth (%)
Black coal	8,696	13,875	2.0
Brown coal	610	452	-1.4
Gas	2,040	8,505	6.7
LPG	103	243	4.0
Oil	945	425	-3.6
Total	12,394	23,047	2.9

Over the next 20 years in Australia, gas production is projected to grow at a faster rate than any other energy source (see Table 3). Table 4 provides a breakdown of projected increases in gas production according to the three gas markets in Australia. Gas production in the Eastern market (Queensland, NSW, ACT, Victoria, South Australia and Tasmania) is projected to increase at 6.7% per annum. Coal seam gas is expected to comprise all of this growth as well as making up for a reduction in conventional gas production.

Table 4: Australian gas market production: 2007-08 and 2029-30¹⁴

Market	2007-08 (PJ)	2029-30 (PJ)	Average annual growth (%)
Eastern market (Queensland, NSW, ACT, Victoria, South Australia and Tasmania)			
Conventional gas	574	353	-2.2
Coal seam gas	118	2,507	14.9
Total	691	2,861	6.7
Western market (Western Australia)			
Gas production	1,091	4,968	7.1
Northern market (Northern Territory)			
Gas production	257	677	4.5
Australia	2,040	8,505	6.7

2.4 Gas consumption in NSW

NSW is Australia's largest energy consumer. In 2007-08, 27% of Australia's energy consumption took place in NSW (see Table 5).¹⁵ NSW consumed 128 PJ of gas in 2007-08, whereas it only produced 5 PJ of gas. NSW is therefore a net importer of gas from other States in the Eastern market.¹⁶

¹³ Syed, A., Melanie, J., Thorpe, S., Penney, K., March 2010. [Australian energy projections to 2029-30](#), ABARE Research Report 10.02, prepared for the Department of Resources, Energy and Tourism, Canberra.

¹⁴ Syed, A., Melanie, J., Thorpe, S., Penney, K., March 2010. [Australian energy projections to 2029-30](#), ABARE Research Report 10.02, prepared for the Department of Resources, Energy and Tourism, Canberra.

¹⁵ ABARE, 2010. [Energy in Australia 2010](#), Canberra.

¹⁶ KPMG, May 2010. [Gas Market Report](#), produced for the Australian Petroleum Production & Exploration Association Limited, 123pp.

Table 5: Energy consumption in NSW: 2007-08¹⁷

Fuel	NSW (PJ)	Australia (PJ)
Black coal	831	1,681
Brown coal	0	611
Natural gas	128	1,249
Petroleum products	527	1,941
Renewables	48	290
Total	1,534	5,772

Natural gas comprised 8.4% of NSW's total energy consumption in 2007-08. Gas consumption in Australia is predicted to grow at an annual average rate of 3.4% between 2007-08 and 2029-30.¹⁸ Figures for the predicted growth in NSW gas consumption were unavailable. However, total primary energy consumption in NSW is predicted to increase at 1.2% per annum to a total of 2,113 PJ in 2029-30 (see Table 6).

Table 6: Primary energy consumption in NSW: 2007-08 to 2029-30¹⁹

	2007-08 (PJ)	2029-30 (PJ)	Average annual growth (%)
NSW	1,640	2,113	1.2
Australia	5,724	7,715	1.4

NSW gas consumption is expected to increase as proposed gas-fired power plants come online. At the end of 2009, NSW has a combined total of 1,361.2 MW of installed capacity running on natural gas (see Table 7). Principal gas-fired generation plants totalled 1,295 MW in June 2009. Of 53 proposed new power stations and expansions in NSW, 20 are expected to run on natural gas with a combined total capacity of at least 8,339 MW. A further 3 will be fuelled by coal seam gas.²⁰

¹⁷ ABARE, 2010. [Energy in Australia 2010](#), Canberra.

¹⁸ Syed, A., Melanie, J., Thorpe, S., Penney, K., March 2010. [Australian energy projections to 2029-30](#), ABARE Research Report 10.02, prepared for the Department of Resources, Energy and Tourism, Canberra.

¹⁹ Syed, A., Melanie, J., Thorpe, S., Penney, K., March 2010. [Australian energy projections to 2029-30](#), ABARE Research Report 10.02, prepared for the Department of Resources, Energy and Tourism, Canberra.

²⁰ Energy supply association of Australia, 2010. *Electricity Gas Australia*, esaa, Melbourne, Victoria.

Table 7: Power plant capacity in NSW & ACT: 2009²¹

Plant type	Fuel type	NSW & ACT (MW)		
		Principal generation plant (June 2009)	Embedded and non-grid generation (December 2009)	Total
Hydro	Water	2,285	181.1	2,466.1
Pump storage	Water	240	-	240
Steam	Black coal	11,730	11.0	11,741
	Coal waste methane	-	6.0	6
	Waste gas	-	72.9	72.9
Gas turbine	Natural gas	640	46.0	686
	Oil products	50	50.0	100
Combined cycle	Natural gas	595	-	595
Reciprocating engine	Natural gas	-	19.7	19.7
	Oil products	-	28.8	28.8
	Coal waste methane	-	121.8	121.8
	LPG	-	0.1	0.1
Fuel cell	Natural gas	-	0.5	0.5
Non-hydro renewable	Various	-	219.4	219.4
Total		15,540	757.3	16,297.3

2.5 Gas markets and the upstream petroleum industry

Three gas markets exist in Australia: the Eastern market (Queensland, NSW, Victoria, ACT, Tasmania and South Australia); the Western market (Western Australia); and the Northern market (Northern Territory).²² Together these markets consumed 62% of Australia's gas production in 2007-08. The remainder was converted to liquefied natural gas (LNG) for export. Australia's major trading partners for LNG are Japan, China and the Republic of Korea. Total LNG exports were worth over \$10 billion in 2008-09.²³

Although Australian gas exports are predicted to increase in the near future,²⁴ the rate of growth is expected to be tempered by a current international 'gas glut'. According to the International Energy Agency, the world currently has a glut of gas which will take some time to be eliminated. World gas demand fell by an unprecedented 3% in 2009. Several factors have been identified in this drop

²¹ Energy supply association of Australia, 2010. *Electricity Gas Australia*, esaa, Melbourne, Victoria.

²² For further detail on each of these markets, see the following publication: KPMG, May 2010. [Gas Market Report](#), produced for the Australian Petroleum Production & Exploration Association Limited, 123pp.

²³ ABARE, 2010. [Energy in Australia 2010](#), Canberra.

²⁴ Syed, A., Melanie, J., Thorpe, S., Penney, K., March 2010. [Australian energy projections to 2029-30](#), ABARE Research Report 10.02, prepared for the Department of Resources, Energy and Tourism, Canberra.

in global demand: a decline in OECD gas demand; a 50% increase in world LNG production over 5 years; and the unexpected boom in unconventional gas products (e.g. coal seam gas) in the USA and Canada.²⁵

The four largest Australian listed oil and gas companies at the beginning of 2010 were BHP Billiton, Woodside, Origin and Santos. Together, these four companies had a market capitalisation value of A\$197 billion in February 2010. According to the industry, the upstream petroleum sector produced oil and gas worth \$28.3 billion and contributed \$8.8 billion in total taxes and royalties to Australian governments in 2008-09.²⁶ The sector also employed 10,000 people in oil and gas extraction in 2007-08.²⁷

²⁵ Australian Petroleum Production and Exploration Association, 2010. [State of the Industry 2010](#).

²⁶ Australian Petroleum Production and Exploration Association, 2010. [State of the Industry 2010](#).

²⁷ ABARE, 2010. [Energy in Australia 2010](#), Canberra.

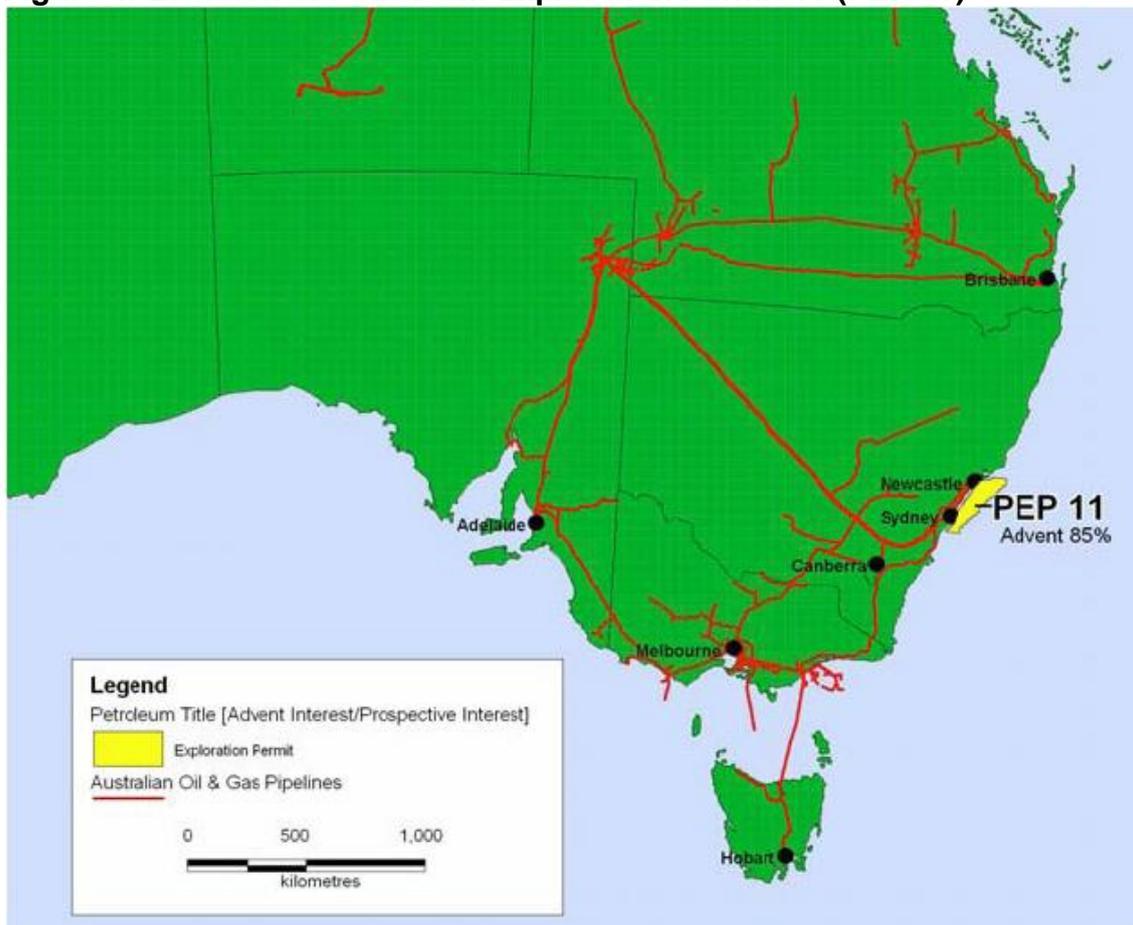
3.0 PETROLEUM EXPLORATION PERMIT (PEP 11)

Petroleum Exploration Permit 11 (PEP 11) is located almost entirely in Commonwealth waters off the NSW coast and covers over 8,200 km². It is part of the Sydney Basin, a geological formation which is a proven hydrocarbon basin and in which the Hunter coalfields are located. This section of the paper describes PEP 11 and its exploration to date, outlines its ownership, and summarises the environmental and socio-economic issues identified in the Environment Plan submitted by [Advent Energy](#) for its exploration drilling program conducted in December 2010.

3.1 Location and exploration timeline

PEP 11 is located in Commonwealth waters off the NSW coast and stretches from just north of Newcastle to half way between Sydney and Wollongong (see Figure 4). It is over 200km in length and covers over 8,200 km². PEP 11 is one of many petroleum titles in the geological region that includes the Hunter coalfields: the [Sydney Basin](#).

Figure 4: Location of Petroleum Exploration Permit 11 (PEP 11)²⁸

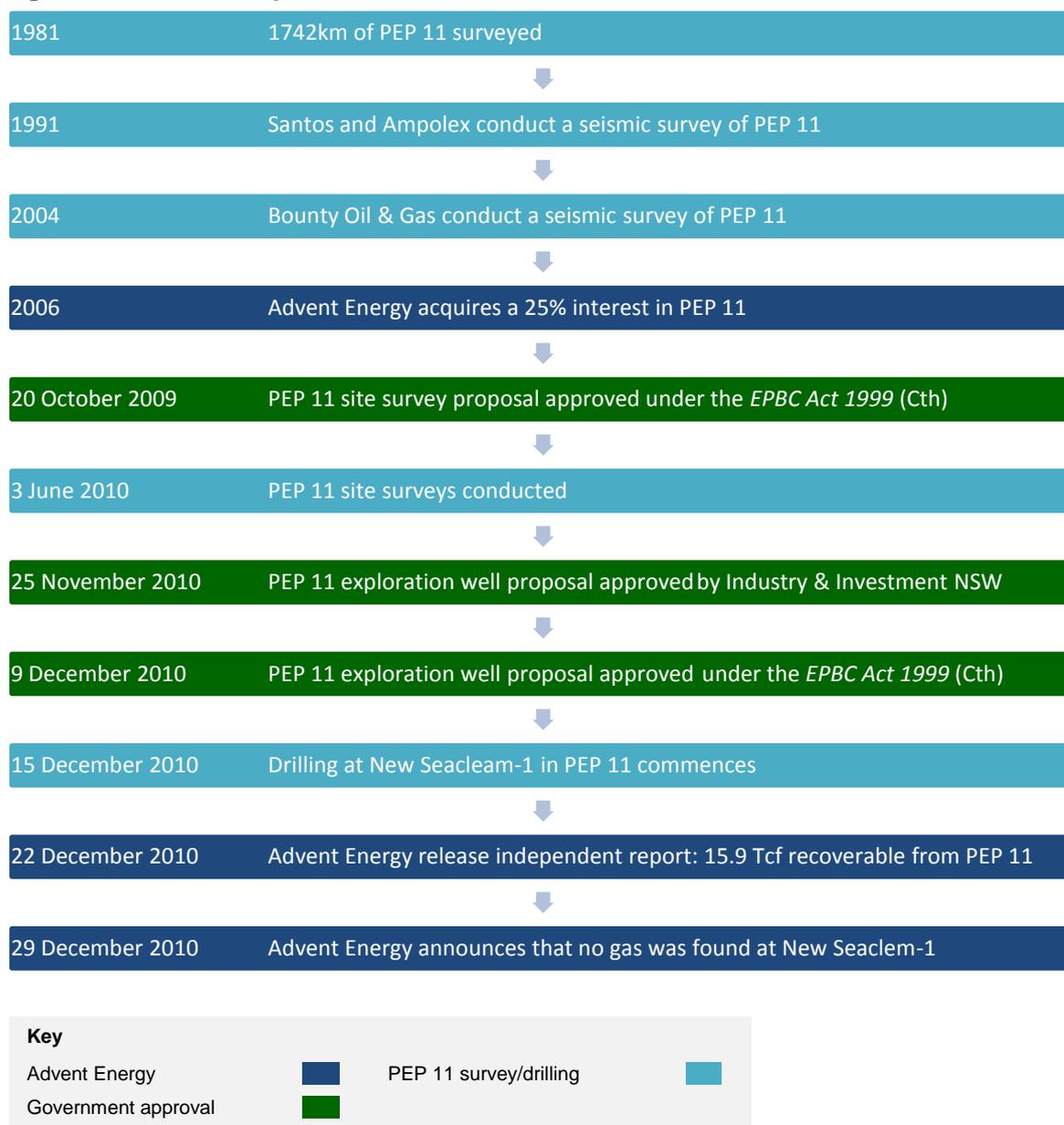


²⁸

Pangean Resources, November 2010. [Independent Expert Report: PEP11 Block Offshore Sydney Basin Australia](#), report prepared for Advent Energy Ltd, 32pp.

The Sydney Basin is part of the Sydney-Gunnedah-Bowen Basin, a major foreland basin system which extends from southern coastal NSW to central Queensland.³⁰ The onshore area of the Basin is approximately 37,000 km² and is the subject of several industry and NSW Government exploratory studies (see Figure 5).³¹ The offshore area of the Basin is 15,000 km² and contains only one petroleum title: PEP 11.

Figure 6: PEP 11 exploration timeline



³⁰ Industry & Investment NSW, 2005. [Sydney Basin – Geological Overview](#), accessed 19/01/2010.

³¹ See Industry & Investment NSW, April 2010. [Petroleum/Energy Projects & Exploration Highlights in New South Wales](#).

Prior to December 2010, no offshore exploratory wells for petroleum had been drilled in the Sydney Basin. However, over 70 wells have been drilled in the onshore sector, almost all of which had gas shows and over 40% of which were reported to have flowed gas (see Figure 5).³²

Three seismic studies of PEP 11 were conducted prior to [Advent Energy](#) acquiring a 25% interest in the permit in 2006. These were conducted in 1981, 1991 and 2004, the last of which was carried out by Advent Energy's current joint venture partner, [Bounty Oil & Gas](#) (see Figure 6).

Advent Energy assumed operatorship of PEP 11 in 2008. Since then, it has generated an extensive accumulation of data demonstrating an active hydrocarbon system in what is considered a proven petroleum basin. According to Advent Energy:

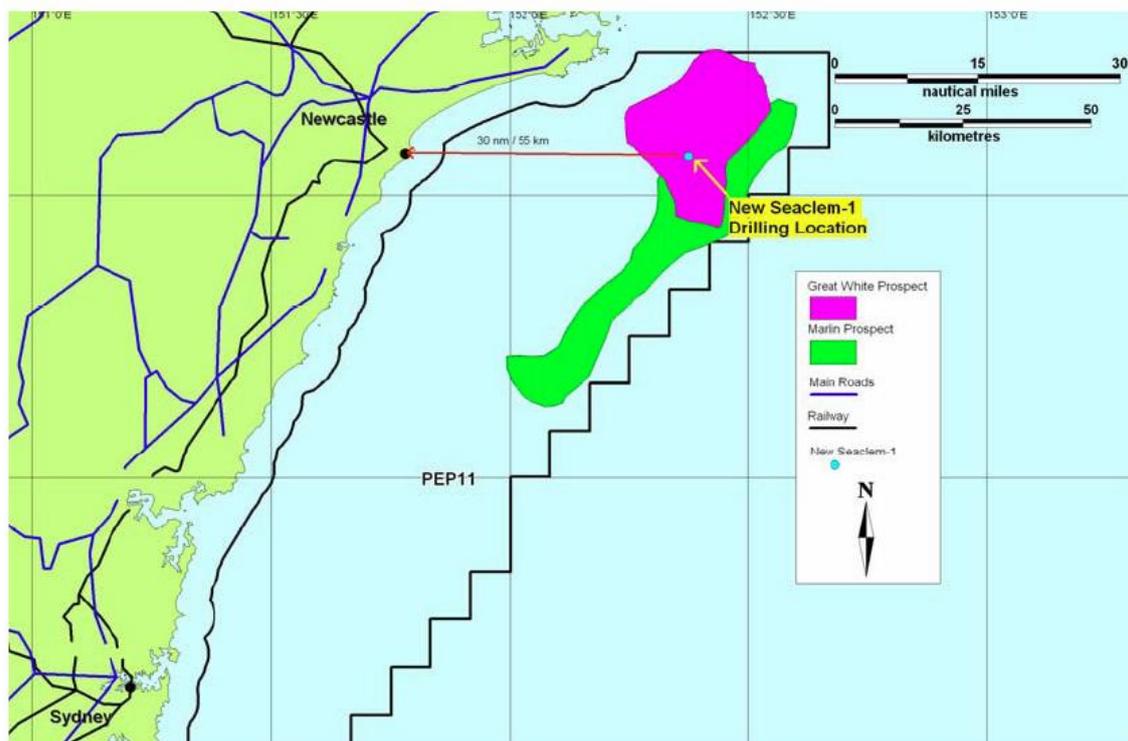
repeated LandSat observed sea surface slicks, inshore observed and sampled thermogenic hydrocarbon seepage, extensive historical shore hydrocarbon accumulations, very large pockmarks along the continental slope, echosounder and sub-bottom profile indications of gas, numerous hydrocarbon indications (anomalous AVO, HRDZ, gas chimneys, flat spots) observed in seismic data have considerably de-risked the exploration effort in PEP11. The Sydney Basin is a proven hydrocarbon basin with excellent potential for the discovery of natural gas.³³

On 3 June 2010, four site surveys for exploratory drilling were conducted in PEP 11 (see Figure 6). The final site chosen, named New Seaclem-1 by Advent Energy, is located 61km east of Newcastle and 30km from the nearest point on the NSW coastline (see Figure 7).

³² NSW Department of Mineral Resources, 2001. [Daytona Energy and Bounty Oil & Gas: PEP 11 Offshore Sydney Basin](#), *Exploration NSW: 2001 NSW Supplement*.

³³ Advent Energy, 2011. [Offshore Sydney Basin \(NSW\) PEP 11](#), accessed 20/01/2011. See also Figure 5.

Figure 7: New Seaclem-1 location and prospects³⁴



On 25 November 2010, Advent Energy acquired approval of its Environment Plan from Industry & Investment NSW (see Figure 6).³⁵ This was followed by Commonwealth Government approval under the [Environment Protection and Biodiversity Conservation Act 1999 \(Cth\)](#) on 9 December 2010. Drilling at New Seaclem-1 commenced on December 15 2010. Prior to completion of drilling, Advent Energy released an independent assessment that concluded that PEP 11 "has all the working components of a gas-charged Hydrocarbon system and is a potential Giant Gas province" with an estimated 15.9 Tcf of recoverable gas (see Box 1).³⁶

Box 1: Estimated recoverable gas reserves in PEP 11

PEP 11 contains up to 15.9 Tcf of recoverable gas. Two examples place this figure in context:

- (1) According to Advent Energy, this is equivalent to almost 100 years of gas supply for the entire NSW gas market
- (2) 15.9 Tcf = 16,695 PJ. This is almost 20 times the amount of coal seam gas demonstrated to be commercially viable in NSW in 2008

³⁴ MEC Resources, 10 December 2010. [ASX Announcement: PEP11 EPBC Act Approval Received](#).

³⁵ See section 3.3 of this paper for a brief summary of Advent Energy's Environment Plan.

³⁶ Pangean Resources, November 2010. [Independent Expert Report: PEP11 Block Offshore Sydney Basin Australia](#), report prepared for Advent Energy Ltd, p4. Box 1 sources: Advent Energy, 2011. [Offshore Sydney Basin \(NSW\) PEP 11](#), accessed 20/01/2011.

Advent Energy announced its findings on 29 December 2010. Gas was found neither in its primary targets, the Great White and Marlin prospects, nor the deeper secondary well objective. Nevertheless, on 3 January 2011, Advent Energy made the following report to the Australian Stock Exchange:

In the drilling of the New Seaclem-1 well, Advent has collected a significant volume of valuable and new information about a previously unexplored area offshore Sydney Basin ... results from the New Seaclem-1 well have not negatively impacted on the probabilities of encountering hydrocarbons at other mapped prospects and leads ... future intentions include conducting detailed seismic investigation and further exploration drilling.³⁷

3.2 PEP 11 ownership

Prior to the New Seaclem-1 well being drilled, Advent Energy had a 25% interest in PEP 11, through its wholly owned subsidiary Asset Energy, and Bounty Oil & Gas held the remainder.³⁸ Since the completion of the well, Asset Energy has acquired an 85% interest in PEP 11, while Bounty Oil & Gas retains the remaining 15%.³⁹

[Advent Energy](#) is a Perth-based public unlisted oil and gas exploration company with four major shareholders: MEC Resources; BPH Energy; Grandbridge; and Talbot Group Investments. Advent Energy owns 85% of PEP 11 through its wholly owned subsidiary Asset Energy. [Bounty Oil & Gas](#) is an independent Australian oil and gas explorer and producer.

3.3 Environmental issues

For each action it undertook in PEP 11, Advent Energy submitted Environment Plans for approval by Industry & Investment NSW and the Commonwealth Environment Department.⁴⁰ Once approved, summaries of the Environment Plans for its site survey in June 2010 and for the exploration drilling program were made publically available.⁴¹

³⁷ MEC Resources, 3 January 2011. [ASX Announcement: New Seaclem-1 and PEP11 update](#).

³⁸ Advent Energy, 2011. [Offshore Sydney Basin \(NSW\) PEP 11](#), accessed 20/01/2011.

³⁹ MEC Resources, 3 January 2011. [ASX Announcement: New Seaclem-1 and PEP11 update](#).

⁴⁰ This used to be called the Department of Environment, Water, Heritage and the Arts, but was renamed the [Department of Sustainability, Environment, Water, Population and Communities](#) on 14 September 2010.

⁴¹ See: Department of Sustainability, Environment, Water, Population and Communities, 2010. [Asset Energy Pty Ltd/Exploration \(mineral, oil and gas – marine\)/offshore Newcastle/Commonwealth Marine/ PEP11 Site Survey](#), accessed 25/02/2011;

3.3.1 Exploration drilling program: Commonwealth approval

Advent Energy submitted an Environment Plan for its exploration drilling program to the Commonwealth Environment Department in order for the Minister to decide whether the exploration drilling program was a "controlled action" according to sections 75 and 77A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).⁴² The Referral Decision concluded that "the proposed action is not a controlled action provided it is undertaken in the manner set out in this decision".⁴³ To avoid significant impacts on listed threatened species and communities, listed migratory species and Commonwealth marine areas, the approval was made subject to the following three conditions:

- (1) The well had to be drilled within one kilometre of a specific location;
- (2) The action had to be concluded by 28 February 2011; and
- (3) A series of measures had to be undertaken when utilising the Vertical Seismic Profiling acoustic source in order to minimise any possible impact on whales.

3.3.2 Exploration drilling program Environment Plan: public summary

The publically released Environment Plan summary identified the following:

- a description of the activity;
- a description of the receiving environment;
- major environmental hazards and controls;
- the management approach adopted to minimise environmental risks; and
- the consultation undertaken.

According to this summary, the EPBC Act lists 34 migratory and 27 threatened species that could occur in the area. Four possible adverse environmental impacts are identified in the Environment Plan:

- (1) Temporary and localised increases in ambient underwater noise levels as a result of drilling operations, possibly resulting in temporary disruption to behaviour patterns of sensitive listed marine fauna;

Department of Sustainability, Environment, Water, Population and Communities, 2010. [Asset Energy Pty Ltd/Exploration \(mineral, oil and gas – marine\)/55km East of Newcastle and approximately 30km from the coast/Commonwealth Marine/Drilling of one exploration well](#), accessed 25/02/2011.

⁴² See section 6.2 of this paper for a summary of the relevant provisions of the EPBC Act.

⁴³ Department of Sustainability, Environment, Water, Population and Communities, 9 December 2010. [Notification of Referral Decision – not controlled action if undertaken in a particular manner: Asset Energy, PEP-11 Drilling Program, offshore Newcastle, NSW \(EPBC 2010/5664\)](#).

- (2) Temporary and localised changes in water quality from routine discharges of grey water, sewage and putrescibles wastes during drilling activities, and discharge of drilling cuttings and fluids during the drilling program;
- (3) Temporary and localised effects on benthic communities⁴⁴ from discharge of cuttings; and
- (4) Temporary and localised displacement of commercial fisheries operations.

The Environment Plan details the management approach Advent Energy planned to adopt for each possible adverse environmental impact.

3.3.3 The East Marine Bioregional Plan: Areas for Further Assessment

PEP 11 is located within the East Marine Region, a bioregion identified and managed by the Commonwealth [Department of Sustainability, Environment, Water, Population and Communities](#). A Bioregional Profile of the Region was released in 2009 in which the Commonwealth Government expresses the aim of delivering "a nationally representative network of marine protected areas by the internationally agreed goal of 2012."⁴⁵

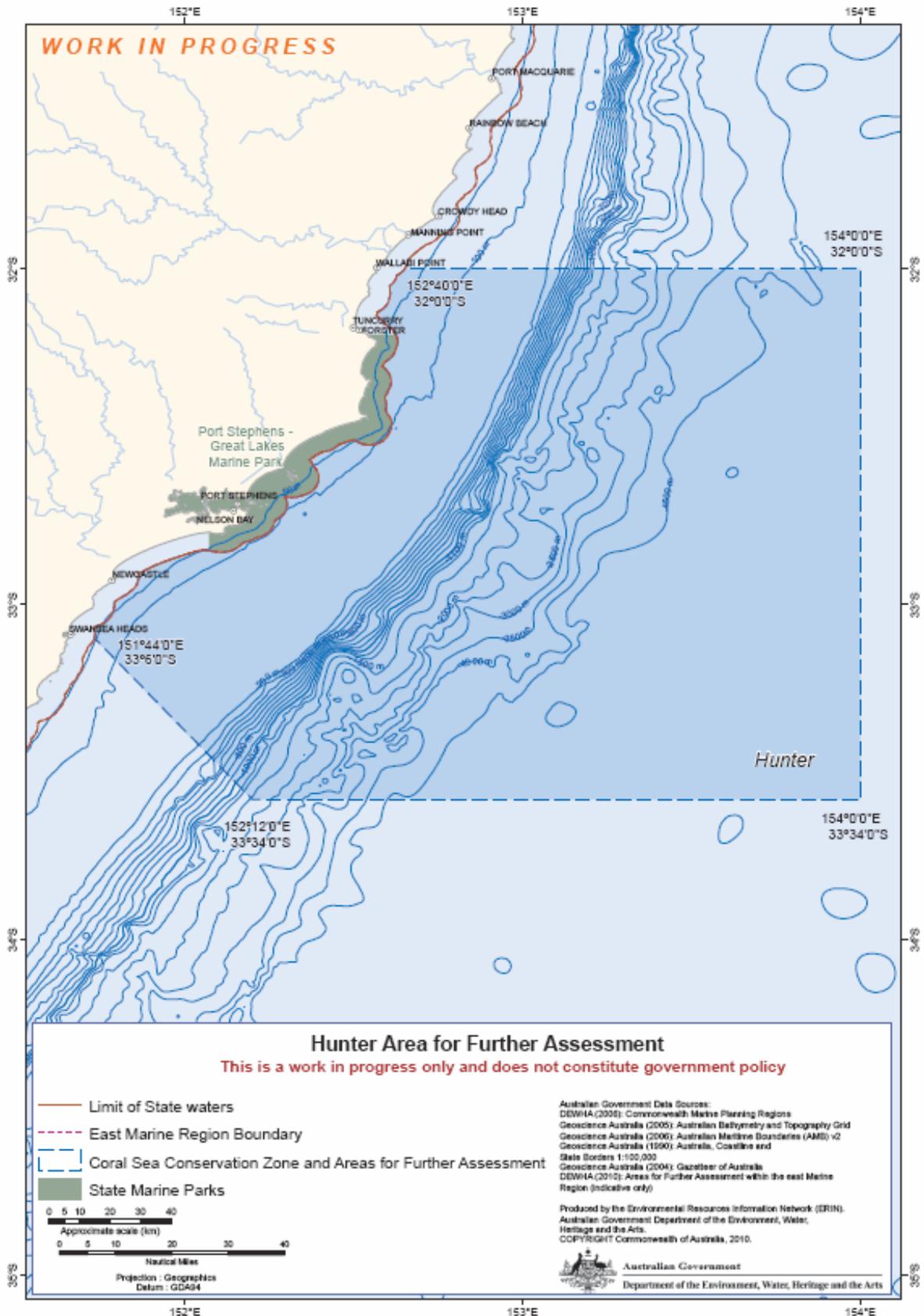
In a step towards establishing the network of marine protected areas, the Commonwealth Government identified seven Areas for Further Assessment (AFA) in the East Marine Region. One of the AFAs chosen covers part of PEP 11. The Hunter AFA is located east of Newcastle, and includes the NSW Great Lakes Marine Park (see Figure 8). A fact sheet on AFAs in the East Marine Region stresses that "the AFAs are NOT proposed Commonwealth Marine Reserves or green zones."⁴⁶

⁴⁴ A benthic community is comprised of the animals and plants living on the seafloor.

⁴⁵ Department of the Environment, Water, Heritage and the Arts, 2009. [The East Marine Bioregional Plan: Bioregional Profile](#), Canberra, p.i.

⁴⁶ Department of the Environment, Water, Heritage and the Arts, March 2010. [Fact sheet – developments in the East Marine Region](#), Canberra, p1.

Figure 8: Hunter Area for Further Assessment



3.4 Socio-economic issues

According to the Environment Plan summary lodged for the exploration drilling program, the drilling operations are located within several Commonwealth fishery areas and NSW State fisheries. However, according to the same source, significant fishing activities are either unlikely to occur as far out from the coast as the well was located, or at the same time of year. It was also concluded that the drilling location would be of minor importance for recreational use or potential shipping routes.

A Community Consultation Committee (CCC) was established in 2004 under the auspices of the NSW Department of Mineral Resources (now known as Industry & Investment NSW). The CCC met in August, September and November of 2010, at which Advent Energy and Industry & Investment NSW made presentations on PEP 11 and its regulation by the NSW and Commonwealth Governments.

3.4.1 Community views

PEP 11 has been the subject of substantial media coverage, most of which has been published in the regional paper adjacent to the location of PEP 11 – the *Newcastle Herald*. While the *Newcastle Herald* has allocated space to the Advent Energy position, including claims that offshore gas drilling in PEP 11 could create "tens of thousands of jobs and generate billions of tax dollars"⁴⁷, the majority of the coverage has identified community concerns regarding offshore drilling.

A coalition of community and environment groups, which included some local government councillors, opposed the offshore drilling for two reasons: they held "serious concerns about the potential for environmental damage to the coast and marine life"; and believed that governments must begin the transition to a "clean, renewable energy economy and away from the fossil-fuel economy."⁴⁸ Further concerns cited in media coverage include the lack of consultation conducted by Advent Energy (according to community groups⁴⁹ and several Commonwealth MPs⁵⁰), and disappointment with the NSW Government's decision to not release the entire Environment Plan to the general public.⁵¹

⁴⁷ Newcastle Herald, 25 November 2010. *Gas drilling closer – one down one to go on search approval.*

⁴⁸ Newcastle Herald, 11 October 2010. *Protest over gas drills, but project forms clean transition*; Newcastle Herald, 11 October 2010. *Gas project oil spill risk: Report lists dangers of offshore rigs.*

⁴⁹ Newcastle Herald, 14 December 2010. *Licensed to drill – gas rig drops anchor 55km off our coast.*

⁵⁰ Newcastle Herald, 21 October 2010. *MPs call for gas debate.*

⁵¹ Newcastle Herald, 27 November 2010. *Opinion & Analysis: Questions remain about offshore drilling.*

4.0 REGULATORY REGIME: OVERVIEW AND APPLICATION TO PETROLEUM EXPLORATION PERMIT 11

In Australia, petroleum resources are owned, and therefore regulated, by the Crown. Several different types of offshore petroleum regulatory regimes are utilised globally. Australia has adopted a sector-specific legislative system with its own set of strengths and limitations. The current regime was established in 1979 with the advent of an [Offshore Constitutional Settlement](#) between the Commonwealth, States and Northern Territory Governments. Under the regime, regulatory responsibility for the upstream petroleum sector is shared between the NSW and Commonwealth Government.

A raft of Commonwealth and NSW legislation regulates the offshore upstream petroleum sector. Offshore petroleum activities in Commonwealth waters are solely regulated by Commonwealth legislation. However, administrative arrangements for Commonwealth waters are shared by the NSW and Commonwealth Governments. The most important Commonwealth statutes are the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) and the [Environment Protection and Biodiversity Conservation Act 1999](#). Offshore petroleum activities in NSW coastal waters are regulated and administered by the NSW and Commonwealth Governments and their respective legislation. The most significant NSW statute is the [Petroleum \(Offshore\) Act 1982](#). The connections between NSW and Commonwealth regulation of the environmental impacts of the offshore petroleum sector, taxation and incident response are summarised in this section of the paper. Relevant Commonwealth and NSW legislation are dealt with in more detail in sections 5 and 6 respectively.

PEP 11 lies primarily in Commonwealth waters off the NSW coast between Newcastle and Wollongong. As such, it is regulated and taxed under Commonwealth legislation. However, prior to the proposed introduction of a Commonwealth national offshore petroleum regulator by January 2012 (see section 7.0 of this paper), the NSW Government has an important role to play in jointly administering all petroleum activities conducted off the NSW coast under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

4.1 Types of regulatory regimes for the upstream petroleum sector

The regulation of upstream petroleum activities falls broadly under one of three systems, namely:

- A sector-specific legislative system – with legislation predetermining conditions under which the rights to explore for and exploit petroleum resources are granted by means of standard licences or leases, including royalty taxes and other payments to be made by licensees or lessees
- A negotiation-based system – with the government granting the rights to explore for and exploit petroleum resources on the basis of individually negotiated agreements with petroleum businesses in the absence of comprehensive petroleum legislation

- A hybrid system – with general legislation setting out certain provisions and minimum standards or conditions for the grant of rights to explore for and exploit petroleum resources, but also providing for certain important matters to be settled by negotiation between government and individual businesses.

Australia primarily depends on a sector-specific legislative system for regulating upstream petroleum activities, as do Canada and the United States. Countries such as Saudi Arabia, Indonesia and Papua New Guinea use negotiation-based systems, and the Netherlands, New Zealand, Norway and the UK are among countries that have adopted a hybrid system.

A Productivity Commission [review](#) of upstream petroleum regulation identified three benefits of having a sector-specific legislative system. First, a key advantage from the government's perspective is that the terms (including fiscal terms) can be varied by subsequent legislative changes. Second, this approach allows policy objectives to be incorporated into the legal framework. Setting out overarching policy strategies for petroleum development in legislation can provide guidance on the design and administration of regulatory arrangements. Finally, minimum standards and basic conditions for resource exploration and mining titles can be laid down in legislation. This helps promote transparency and accountability in the administration of the regulatory regime.⁵²

The literature has identified two factors that may have contributed to the relative effectiveness of the Australian regime. First, the use of mirror legislation in different jurisdictions provides legal consistency and continuity. Second, the joint decision-making structure promotes cooperative governance of offshore petroleum activities, thereby providing for policy consistency. However, several limitations with the Australian regime have been identified. According to the Productivity Commission, the Australian regime has a narrow focus on resource management, while giving less consideration to environmental issues. Further limitations identified by the Productivity Commission include the scope for governments to pursue differing environmental policies within their own jurisdictions, and the number of regulatory instruments and bodies that apply to the upstream petroleum sector.⁵³

4.2 The Offshore Constitutional Settlement 1979

The [Petroleum \(Submerged Lands\) Act 1967](#) (Cth) was the first offshore petroleum law enacted in Australia. However, its introduction did not resolve conflict between the States and the Commonwealth Government over the power to legislate for the upstream petroleum sector. Frictions intensified with

⁵² Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report.

⁵³ Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report.

the advent of the [Seas and Submerged Lands Act 1973](#) (Cth), which asserted the Commonwealth's sovereignty and sovereign rights over the territorial sea and the continental shelf (including the seabed and subsoil). A High Court challenge by NSW was unsuccessful.⁵⁴ In 1979, the Commonwealth and the States agreed to a division of offshore powers and responsibilities known collectively as the [Offshore Constitutional Settlement](#). It includes arrangements for managing oil, gas and other seabed minerals.

The Offshore Constitutional Settlement (OCS) established the States' rights over coastal waters, which generally extend three nautical miles from the low water mark. The OCS allocated legislative powers over coastal waters (including the seabed) to the States, as well as proprietary rights and title in respect of the seabed. These rights were then enshrined in Commonwealth law – under the [Coastal Waters \(State Title\) Act 1980](#) (Cth) and the [Coastal Waters \(State Powers\) Act 1980](#) (Cth). Commonwealth legislation alone applies in Commonwealth waters. However, the Australian Government shares joint regulatory authority of the Commonwealth waters adjacent to a State or Territory with the relevant State or Territory.

The joint regulatory authority for Commonwealth waters consists of a Designated Authority (the relevant State Minister) (DA) and a Joint Authority (the relevant State Minister and the responsible Commonwealth Minister) (JA). As agreed in the OCS, the DA is responsible for the day-to-day administration of petroleum activities, while the JA is concerned with major matters arising under the legislation. Examples of major matters are:

- Determining areas to be open for applications for permits;
- Granting and renewing exploration permits and production licenses;
- Approving instruments that create interests in permits or licences; and
- Determining permit or licence conditions governing the level of work or expenditure.

As the Commonwealth ultimately has constitutional power, its view prevails in the event of disagreement within a JA.⁵⁵

NSW established its own offshore petroleum Act in 1982 as a 'mirror' Act of the Commonwealth's *Petroleum (Submerged Lands) Act 1967*: the *Petroleum (Submerged Lands) Act 1982* (NSW). In 2007, the NSW Act was renamed the [Petroleum \(Offshore\) Act 1982](#).⁵⁶ However, aside from the renaming, no substantial amendments were made at the time.

⁵⁴ *NSW v Commonwealth (Sea and Submerged Land Case)* (1975) 135 CLR 337.

⁵⁵ Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report.

⁵⁶ This was enacted by the [Statute Law \(Miscellaneous Provisions\) Act 2007](#) (NSW).

The [Offshore Petroleum Act 2006](#) (Cth) replaced the *Petroleum (Submerged Lands) Act 1967* (Cth) because it had become complex and unwieldy. Few minor policy adjustments were made. The 2006 Act provides for orderly exploration and development of petroleum resources, and sets out a basic framework of rights, entitlements and responsibilities of government and industry (see section 5.0 of this paper).⁵⁷

4.3 Regulating offshore petroleum: the big picture

According to the Productivity Commission, petroleum regulation in Australia can be viewed as having four components:

- Collecting and disseminating data to assist explorers;
- Allocating secure title to the resources in order to instill confidence in investors in the upstream petroleum sector;
- Managing the timing and method of extraction of the resource; and
- Ensuring an appropriate return to the community for extracting non-renewable resources through collecting resource rent taxes or royalties.⁵⁸

All stages of the upstream petroleum production process are regulated – from acreage release to exploration, extraction and transport of the resource. The 2009 Productivity Commission [review](#) identified a large number of statutes that apply to the upstream petroleum sector in Australia (see Table 8). The most important Commonwealth statutes are the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and the *Environment Protection and Biodiversity Act 1999*. These two Acts are administered by the Commonwealth [Department of Resources, Tourism and Energy](#) and the [Department of Sustainability, Environment, Water, Population and Communities](#) respectively. The most significant NSW statute is the *Petroleum (Offshore) Act 1982*. This Act is administered by [Industry & Investment NSW](#). Industry & Investment NSW is also the Designated Authority for administering day-to-day offshore petroleum activities in Commonwealth waters under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). Accordingly, Industry & Investment NSW played an important role in permitting exploratory drilling in PEP 11 through approving the Advent Energy's Environment Plan under the [Offshore Petroleum and Greenhouse Gas Storage \(Environment\) Regulations 2009](#).

⁵⁷ Department of Parliamentary Services, August 2005. *Offshore Petroleum Bill 2005*, Bills Digest No.27 2005-06.

⁵⁸ Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report.

Table 8: Legislation affecting the offshore upstream petroleum sector⁵⁹

Scope of legislation	NSW coastal waters	Commonwealth waters
	Coastal Waters (State Title) Act 1980 (Cth)	
	Coastal Waters (State Powers) Act 1980 (Cth)	
Petroleum and pipelines	Petroleum (Offshore) Act 1982 (NSW)	Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)
Occupational health and safety (OH&S)		
Environment, heritage and development	Environment Protection and Biodiversity Conservation Act 1999 (Cth)	
	Environment Protection (Sea Dumping) Act 1981 (Cth)	
	Protection of the Sea (Prevention of Pollution from Ships) Act 1983 (Cth)	
	Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)	
	Historic Shipwrecks Act 1976 (Cth)	
	Coastal Protection Act 1979 (NSW)	
	Environmental Planning & Assessment Act 1979 (NSW)	
	Fisheries Management Act 1994 (NSW)	
	Heritage Act 1977 (NSW)	
	Marine Parks Act 1997 (NSW)	
Marine Pollution Act 1987 (NSW)		
National Parks and Wildlife Act 1974 (NSW)		
Protection of the Environment Operations Act 1997 (NSW)		
Native title and land rights	Native Title Act 1993 (Cth)	
	Native Title (NSW) Act 1994	

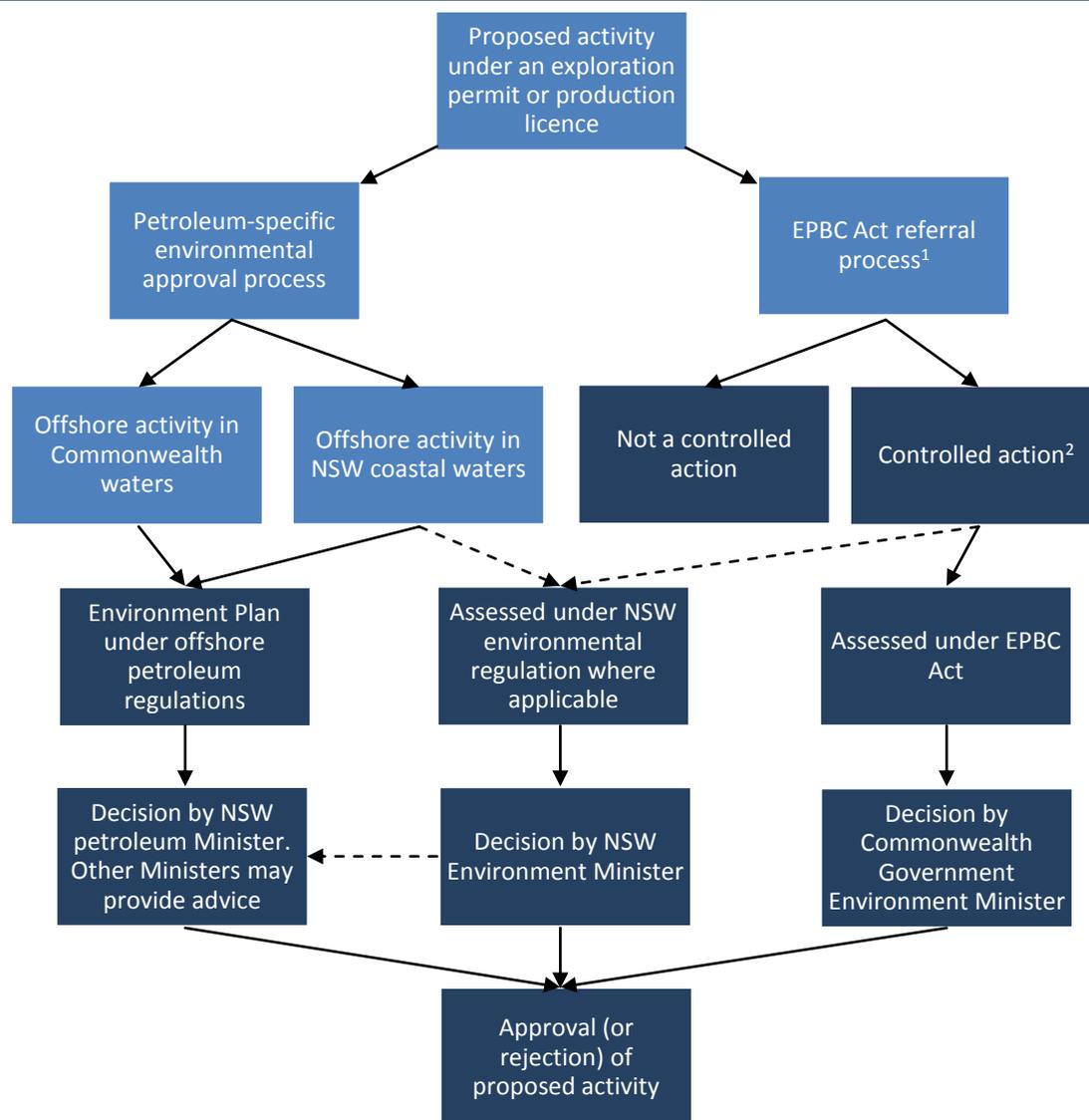
59

Table adapted from: Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report, p48. The review also identified several other peripheral pieces of Commonwealth legislation that apply to coastal and Commonwealth waters. This legislation dealt with matters such as maritime transport and safety; navigation; defence; customs; and quarantine.

4.4 The environmental approval process

The environmental impact of every offshore petroleum activity is regulated by Commonwealth and/or NSW legislation. The flowchart in Figure 9 summarises the environmental approval process through which each offshore petroleum activity passes.

Figure 9: Key environmental approval processes⁶⁰



Notes: Dark blue boxes indicate a specific regulatory requirement or decision stage. A dashed arrow indicates a decision stage that may not always be required. (1) The EPBC Act refers to the *Environment Protection and Biodiversity Act 1999* (Cth). (2) A controlled action is one that is likely to have a significant impact on a matter of National Environmental Significance under the EPBC Act.

⁶⁰ Figure adapted from: Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report, p122.

For offshore petroleum activities in Commonwealth waters, approval is required under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGSA) and its regulations, and may also be required under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) (see Figure 9). Offshore petroleum activities in NSW coastal waters must be approved under the *Petroleum (Offshore) Act 1982* (NSW). These activities may also require approval under other NSW planning, environmental or heritage legislation (as identified in Table 9) as well as the EPBC Act.

In the case of PEP 11, approval for drilling an exploratory well was not required under the EPBC Act. This is because the Referral Decision made by the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities concluded that "the proposed action is not a controlled action provided it is undertaken in the manner set out in this decision".⁶¹ The exploratory well did, however, require approval under the OPGGSA.

4.5 Petroleum royalties and taxation

Petroleum resources are taxed according to the jurisdiction in which they are found. Petroleum resources located in Commonwealth waters, with the exception of the North West Shelf in Western Australia, are subject to the Petroleum Resource Rent Tax (see Table 9). Production in NSW coastal waters may be subject to the Commonwealth crude oil excise and NSW royalty provisions. The crude oil excise applies to condensate but does not apply to liquefied petroleum gas, natural gas and liquefied natural gas.

Table 9: Tax rates on offshore petroleum production in NSW⁶²

Tax	Location of resources	Taxation authority	Value of tax
Petroleum Resource Rent Tax	Commonwealth waters (beyond 3 mile limit)	Commonwealth	40% of the difference between assessable receipts and allowable deductions, excluding an allowance for normal profit
Crude oil excise tax	Coastal waters	Commonwealth	Up to 55% of volume weighted average of sale prices, increasing with production volume ¹
Company tax	All	Commonwealth	30% of taxable income
NSW royalties	Onshore and coastal waters	NSW	10% of well head value, less allowable deductions

Notes: (1) For oil discovered on or after September 1975, the maximum rate is 30%.

⁶¹ Department of Sustainability, Environment, Water, Population and Communities, 9 December 2010. [Notification of Referral Decision – not controlled action if undertaken in a particular manner: Asset Energy, PEP-11 Drilling Program, offshore Newcastle, NSW \(EPBC 2010/5664\)](#).

⁶² Table adapted from: Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report, p82.

NSW petroleum royalties are calculated at 10% of the well head value, less allowable deductions. The NSW petroleum royalty rate is set by the *Petroleum (Offshore) Act 1982*. According to section 129 of this Act, the Commonwealth receives a share of any royalties acquired by the NSW Government according to the following formula:

$$\frac{4A}{B} \quad \begin{array}{l} \text{where A is the amount of royalty payable under the Act; and} \\ \text{B is the percentage rate at which royalty is payable under the Act.} \end{array}$$

Given the majority of PEP 11 is located within Commonwealth waters, any gas sourced would be taxed under the Commonwealth Petroleum Resource Rent Tax.

4.6 Maritime response to offshore petroleum incidents

The Commonwealth and NSW Governments share responsibility for responding to an offshore petroleum incident such as an oil leak from a petroleum well. Regulatory response agents are responsible for particular areas of water off the coast of NSW. The [Australian Maritime Safety Authority](#), a Commonwealth administrative body, responds to incidents in Commonwealth waters. An incident in State waters falls under the jurisdiction of either [NSW Maritime](#) or one of three NSW port authorities. Should an offshore petroleum incident occur in PEP 11, the first authority to respond would be the Australian Maritime Safety Authority. The Authority's actions in such an event will be guided by the [National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances](#). The NSW authorities most likely to be involved in such an event, were the oil to spread to NSW coastal waters, would be the [Newcastle Port Corporation](#) and the [Sydney Ports Corporation](#). Their actions will be guided by the [NSW State Waters Marine Oil and Chemical Spill Contingency Plan 2008](#).

5.0 COMMONWEALTH REGULATORY FRAMEWORK

Offshore petroleum exploration and mining in Commonwealth waters is regulated by the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) and its associated regulations. This Act provides for a series of permits and licences by which petroleum exploration and mining activities may be carried out. An Environment Plan is required for every petroleum activity carried out under licence, and a Well Operations Management Plan is required for all drilling operations. Several other Commonwealth statutes may also apply. The most important of these – the [Environment Protection and Biodiversity Conservation Act 1999](#) – is briefly summarised at the end of this section.

5.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) (OPGGSA) regulates all petroleum exploration and mining activities and all greenhouse gas storage activities in Commonwealth waters. The sections relevant to petroleum exploration and mining are summarised below. Administration of the Act is shared by the Commonwealth and NSW Governments according to a division of responsibilities between a Joint Authority and a Designated Authority. A series of permits and licences covers all forms of petroleum exploration and mining. All activities also require an approved Environment Plan and, where appropriate, a Well Operations Management Plan.

5.1.1 Joint Authorities, Designated Authorities and the application of State laws

Chapter 1 of the OPGGSA lays out the joint Commonwealth-State administrative arrangements. Part 1.3 Division 1 details the membership, functions and powers of Joint Authorities. Where any disagreement occurs between the State Minister and Commonwealth Minister who comprise the Joint Authority (JA), the responsible Commonwealth Minister decides the matter (s 59(2)). Division 2 of Part 1.3 specifies the functions and powers of Designated Authorities. The Designated Authority (DA) is the responsible State or Territory Minister.

The general body of laws in force in a State or Territory apply to the 'offshore area' of the State or Territory (that is, the Commonwealth waters off the coast of the State or Territory), but subject to several exceptions (Part 1.4). The State laws that do not apply to the State's 'offshore area' are as follows: any law which is inconsistent with Commonwealth law; any criminal laws; any tax or appropriation laws; and any OH&S laws (ss 83-89).

5.1.2 Regulating petroleum activities

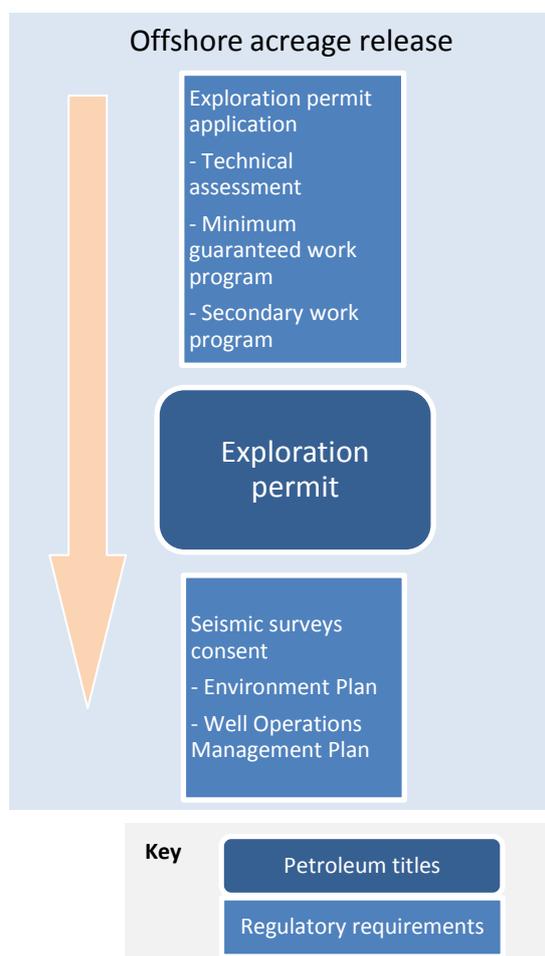
Chapter 2 of the Act provides for petroleum titles, which cover all forms of petroleum-related activities (see Table 10). Figures 10 to 13 outline the offshore regulatory process as it relates to the first five titles listed in Table 11 as these are the most significant titles.

Table 10: Petroleum titles under Commonwealth legislation

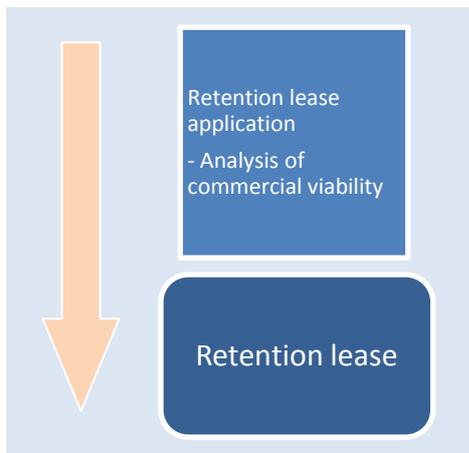
Title	Title description
Petroleum exploration permit (PEP)	Authorises the permittee to explore for petroleum in the permit area
Petroleum retention lease	Granted if the recovery of petroleum is not currently commercially viable, but is likely to become commercially viable within 15 years.
Petroleum production licence	Authorises the licensee to carry out petroleum recovery operations in the licence area
Infrastructure licence	Authorises the licensee to construct and operate an infrastructure facility in the licence area
Pipeline licence	Authorises the licensee to construct and operate a pipeline
Petroleum special prospecting authority	Authorises the holder to carry on petroleum exploration operations in the authority area (but not to make a well)
Petroleum access authority	Authorises the holder to carry on certain petroleum exploration operations, and certain operations relating to the recovery of petroleum, in the authority area (but not to make a well)
Petroleum scientific investigation consent	Authorises the holder to carry on petroleum exploration operations in the course of a scientific investigation

All offshore petroleum related activities in Commonwealth waters require an authorisation under the OPGGSA. The Commonwealth Government releases offshore acreage annually through a work program-based competitive bid process designed to award petroleum exploration permits (PEPs) to those applicants who commit to undertake the best assessment of the hydrocarbon potential of the area. The JA is the final approval authority for every PEP.

Once a PEP has been awarded, all exploratory activities require an Environment Plan under the [Offshore Petroleum and Greenhouse Gas Storage \(Environment\) Regulations 2009](#) and, should drilling occur, a Well Operations Management Plan under the [Petroleum \(Submerged Lands\) \(Management of Well Operations\) Regulations 2004](#).

Figure 10: Exploration permits⁶³

⁶³ Figures 10 to 13 are adapted from: Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report, p76.

Figure 11: Retention leases

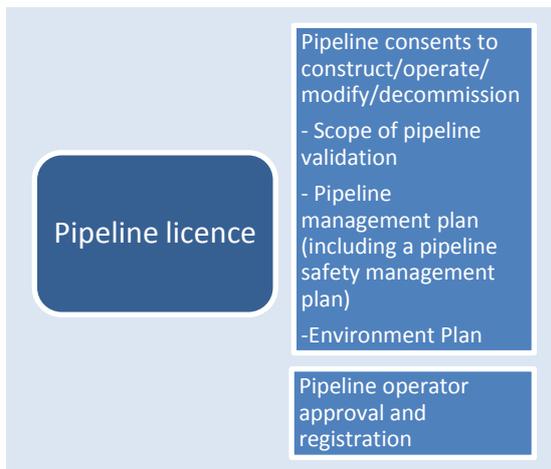
Once a discovery of petroleum is made, the exploration permit holder must notify the DA. Following a *Declaration of Location* by the DA, the permit holder must apply for a retention lease or production licence within two years (see Figure 11). A retention lease is granted if the recovery of petroleum is not currently commercially viable, but is likely to become commercially viable within 15 years. Once either of these titles has been granted, the PEP ceases to be in force over the relevant blocks (s 145 and 176).

A field development plan that addresses the information required for a production licence under the Act is required according to Commonwealth policy guidelines (see Figure 12).

A production licence provides the legal right to recover petroleum from an area. An infrastructure licence authorises the licensee to construct infrastructure facilities in an area and to operate infrastructure facilities. However, an infrastructure licence only applies for activities that cannot be covered by a production licence.

All activities carried out under a production licence or infrastructure licence require either an Environment Plan approved under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 and/or a Well Operations Management Plan approved under the Petroleum (Submerged Lands) (Management of Well Operations) Regulations 2004.

Figure 12: Regulating production

Figure 13: Pipeline licences

A pipeline licence authorises the licensee to construct and operate a pipeline (see Figure 13). Each pipeline license must be accompanied by a pipeline management plan (which must include a pipeline safety management plan). In addition, construction and operation of a pipeline also requires an Environment Plan approved under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

5.1.3 Petroleum operations

Part 6.1 of the OPGGSA specifies the manner in which authorised activities under each type of petroleum title must be conducted. With regard to PEPs, retention leases and production licences, all operations must be carried out in "a proper and workmanlike manner and in accordance with good oilfield practice" (s 569(1)). Similar constraints are placed on all other petroleum licences. The DA may direct current or former petroleum titleholders to conduct environmental restoration activities, including:

- (a) The removal of property;
- (b) The plugging or closing off of wells;
- (c) The conservation and protection of natural resources; and
- (d) The making good of damage to the seabed or subsoil (s 585).

Each petroleum activity may be protected by the establishment of a safety zone by the DA (s 616). Safety zones provide for the protection of petroleum-related infrastructure by prohibiting specified vessels from entering the zone.

5.1.4 Compliance and Commissions of Inquiry

The DA may appoint petroleum project inspectors. These inspectors may exercise powers of access, inspection and entry to investigate compliance with the Act and regulations. Titleholders are required to keep records which may be obtained by the DA or a petroleum project inspector when necessary.

Provision is made for the responsible Commonwealth Minister to appoint a person to conduct a Commission of inquiry in relation to any of the following:

- (a) A significant offshore petroleum incident;
- (b) Any matters incidental to a significant offshore petroleum incident;
- (c) A significant offshore greenhouse gas incident;
- (d) Any matters incidental to a significant offshore greenhouse gas incident (s 780A).

A significant offshore petroleum incident is defined within the Act as an occurrence that relates to any petroleum exploration, recovery, processing, storage and transportation activities.⁶⁴

5.1.5 The National Offshore Petroleum Safety Authority

The [National Offshore Petroleum Safety Authority](#) (NOPSA) was initially established in 2003 as a Commonwealth statutory authority under the [Petroleum \(Submerged Lands\) Amendment Act 2003](#) (Cth). It continues to regulate safety on offshore petroleum facilities on behalf of the Commonwealth, States and Northern Territory under Part 6.9 of the OPGGSA. While the Authority also administers State OH&S laws in several Australian States and the Northern Territory, the required provisions for it to do so in NSW do not exist in the NSW 'mirror' Act – the [Petroleum \(Offshore\) Act 1982](#).⁶⁵

The primary function of NOPSA is to promote the OH&S of persons engaged in offshore petroleum activities (s 646). The OH&S laws administered by NOPSA are identified in section 638 and include Schedule 3 of the Act and the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009. Monitoring and enforcing compliance with OH&S legislation includes having the power to investigate accidents or circumstances that could increase the risk of accidents. NOPSA is funded by levies raised under the [Offshore Petroleum and Greenhouse Gas Storage \(Safety Levies\) Act 2003](#) (Cth) and the [Offshore Petroleum and Greenhouse Gas Storage \(Safety Levies\) Regulations 2004](#).

All petroleum facilities require a NOPSA-approved safety case.⁶⁶ A safety case is a document produced by the facility operator that identifies the hazards and risks, describes how the risks are controlled, and describes the safety management system in place to ensure the controls are effectively and consistently applied.⁶⁷ These requirements are set out in the [Offshore Petroleum and Greenhouse Gas Storage \(Safety\) Regulations 2009](#).

⁶⁴ The Montara Commission of Inquiry into the Montara oil spill off the coast of Western Australia in 2009 was carried out under this provision of the OPGGSA. The findings of this Commission of Inquiry are briefly addressed in section 7.2 of this paper.

⁶⁵ National Offshore Petroleum Safety Authority, 29 July 2010. [Legislation and regulations](#), accessed 18/02/2011.

⁶⁶ NOPSA administers the relevant State of Territory OH&S laws for the State waters of Western Australia, Victoria, the Northern Territory and South Australia. In the case of NSW, NOPSA does not regulate offshore facilities in NSW coastal waters because the NSW mirror statute (the *Petroleum (Offshore) Act 1982*) does not refer the power to do so. However, there are, and have been, no offshore petroleum facilities in NSW coastal waters requiring OH&S regulation.

⁶⁷ National Offshore Petroleum Safety Authority, 2010. [Safety case approach](#), accessed 18/02/2011.

5.1.6 Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009

The [Offshore Petroleum and Greenhouse Gas Storage \(Environment\) Regulations 2009](#) relate to Environment Plans, incidents, reports and records. Their purpose is to ensure that any petroleum activity or greenhouse gas storage activity carried out in an offshore area is:

- (a) Carried out in a manner consistent with the principles of ecologically sustainable development; and
- (b) Carried out in accordance with an environmental plan that has:
 - i. Appropriate environmental performance objectives and standards; and
 - ii. Measurement criteria for determining whether the objectives and standards have been met (s 3).

The DA must accept an Environment Plan if the Plan satisfies set criteria. Provision is also made for the DA to impose additional conditions on a Plan (s 11(4)). The operator has to submit a summary of the Plan to the DA for public disclosure within 10 days of receiving notification of the Plan's acceptance. The Regulations specify the matters that must be addressed in an Environment Plan.⁶⁸

Each Environment Plan must include an environmental assessment that describes the environmental impacts and risks involved in the offshore petroleum activity. The Plan must also identify suitable environmental performance objectives and standards. An implementation strategy is required to detail how all environmental impacts and risks will be managed. The Regulations specify which matters must be addressed in the strategy, including:

- Measures to ensure that the environmental performance objectives and standards are met;
- Provisions for monitoring, auditing, managing non-conformance and reviewing the operator's environmental performance;
- Maintaining a quantitative record of emissions and discharges;
- Establishment and provision for the maintenance of an oil spill contingency plan; and
- Consultation with relevant Commonwealth and NSW authorities and other relevant interested persons and organizations (s 14).

The Environment Plan must include arrangements for recording, monitoring and reporting relevant information sufficient to enable the DA to determine whether the environmental performance objectives and standards in the Plan are met. The final regulatory requirements of each Plan are as follows:

⁶⁸ See section 3.3.2 of this paper for a summary of the Environment Plan submitted for the exploratory drilling program in PEP 11.

- A statement of the operator's corporate environmental policy;
- A report on all consultations between the operator and relevant authorities, interested persons and organizations in the course of developing the environment plan; and
- Details of all reportable incidents in relation to the proposed activity.

Part 3 of the Regulations sets out the procedures which must be followed if an incident occurs. Operators must submit a written report of a reportable incident in accordance with the regulations. Records of all activities or documents related to the Environment Plan must be kept by the operator.

5.1.7 Petroleum (Submerged Lands) (Management of Well Operations) Regulations 2004

The [Petroleum \(Submerged Lands\) \(Management of Well Operations\) Regulations 2004](#) aim to ensure that, for petroleum exploration, appraisal and production:

- (a) The design of downhole activities is in accordance with good oil-field practice; and
- (b) Downhole activities are carried out in accordance with an accepted well operations management plan; and
- (c) Risks are identified and managed in accordance with sound engineering principles and good oil-field practice (s 3).

A titleholder must submit a Well Operations Management Plan (WOMP) to the DA for approval. Each WOMP must comply with the Act and Regulations, be appropriate for the nature and scale of the well activity, and show that the identified risks will be managed in accordance with sound engineering principles, standards, specifications and good oil-field practice. The Regulations specify what matters the plan must address, including:

- Performance objectives against which the performance of the well activity is to be measured;
- An explanation of how the titleholder will deal with:
 - A well integrity hazard; or
 - A significant increase in an existing risk in relation to the well; Including the possibility of continuing an activity for the purpose of dealing with the well integrity hazard or the risk; and
- Details of when and how the titleholder will notify the DA, and give reports and information, about:
 - The well activity; and
 - Well integrity hazards; and
 - Significant increases in existing risks in relation to the well; and
 - Other matters relevant to the conduct of the well activity.

5.1.8 Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2010: Consultation Draft

The Commonwealth [Department of Resources, Energy and Tourism](#) has been progressively consolidating offshore petroleum regulations into three sets of regulations. The first two have already been consolidated: the [Offshore Petroleum and Greenhouse Gas Storage \(Safety\) Regulations 2009](#); and the [Offshore Petroleum and Greenhouse Gas Storage \(Environment\) Regulations 2009](#). The final set of Regulations was released as a consultation draft at the end of 2010, and submissions were being accepted up to 14 January 2011. The [Offshore Petroleum and Greenhouse Gas Storage \(Resource Management and Administration\) Regulations 2010](#) will consolidate at least six existing regulations, including the [Petroleum \(Submerged Lands\) \(Management of Well Operations\) Regulations 2004](#). Several parts of the new regulations merit a brief summary:

- Part 3 provides for Title Assessment Reports. These reports will consolidate several annual reporting requirements.
- Part 4 includes Field Development Plan requirements in statutory form for the first time. These Plans represent the range of information required to accompany an application for a production licence.
- Part 5 will incorporate the provisions regarding a Well Operations Management Plan, as summarised in section 5.1.7 of this paper, with minor amendments.
- Part 6 details the requirements for pipeline management plans and approvals for pipelines.

5.2 Environment Protection and Biodiversity Conservation Act 1999

Any action that may impact upon a matter of National Environmental Significance is defined as a “controlled action” under the [Environment Protection and Biodiversity Conservation Act 1999](#). Matters of National Environmental Significance are identified in Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* as follows:

- World Heritage properties;
- National heritage properties;
- RAMSAR wetlands of international importance;
- Nationally threatened species and communities;
- Migratory species protected under international agreements;
- Nuclear actions; and the
- Commonwealth marine environment.

Referral of an action for assessment by the Minister as to whether or not it is a controlled action is covered by Part 7 of the Act. Referral of an action may take place by the person proposing to undertake the action (s 68) or can be made to the Minister by a Commonwealth, State or Territory agency. The Minister may also request referral of the proposal for their determination.

6.0 NSW REGULATORY FRAMEWORK

The [Petroleum \(Offshore\) Act 1982](#) regulates all petroleum exploration and mining in NSW coastal waters. Under this Act, provision is made for the application of all NSW laws and statutory instruments under those laws to petroleum exploration and mining in NSW coastal waters. The most relevant Acts that may apply are identified in this section and briefly summarised.

6.1 Petroleum (Offshore) Act 1982

The *Petroleum (Submerged Lands) Act 1982* replaced the *Petroleum (Submerged Lands) Act 1967* and the *Petroleum (Submerged Lands) Taxation Act 1967*. This brought the NSW legislation into accord with the [Offshore Constitutional Settlement](#) and the Commonwealth legislation: the *Petroleum (Submerged Lands) Act 1967* (Cth). In 2007, the *Petroleum (Submerged Lands) Act 1982* was amended to be renamed the [Petroleum \(Offshore\) Act 1982](#) by the [Statute Law \(Miscellaneous Provisions\) Act 2007](#). However, aside from the renaming, no substantial amendments were made at the time. This section of the paper summarises the relevant sections from the *Petroleum (Offshore) Act 1982*. The 'adjacent area of NSW' to which the Act refers is those waters up to three nautical miles seawards of the mean low water mark.

6.1.1 Administration of the Commonwealth Offshore Area

Part 2 of the *Petroleum (Offshore) Act 1982* makes provision for the responsible NSW Minister to exercise any powers or functions associated with being a member of the Joint Authority, and in assuming the role of the Designated Authority under the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) (Cth).

6.1.2 Application of NSW laws to offshore areas

All NSW laws and statutory instruments under those laws apply to the offshore area (this is the area within three nautical miles of the low water mark) as if it were part of NSW (s 15(1)). These legislative instruments apply to all "acts, omissions, matters, circumstances and things touching, concerning, arising out of or connected with the sea-bed or subsoil of the adjacent area for petroleum and the exploitation of the natural resources, being petroleum, of that sea-bed or subsoil" (s 15(4)). As such, the following Acts may apply in the event that offshore petroleum activities take place in the coastal waters of the State:

- [Coastal Protection Act 1979](#)
- [Environmental Planning & Assessment Act 1979](#)
- [Fisheries Management Act 1994](#)
- [Heritage Act 1977](#)
- [Marine Parks Act 1997](#)
- [Marine Pollution Act 1997](#)
- [National Parks and Wildlife Act 1987](#)
- [Protection of the Environment Operations Act 1997](#).

The relevant provisions of each of these statutes are summarised in section 6.2 of this paper.

6.1.3 Mining for petroleum

Part 4 of the *Petroleum (Offshore) Act 1982* provides for a number of titles related to petroleum exploration and mining. These are as follows: exploration permits for petroleum; retention leases for petroleum; production licences for petroleum; pipeline licences; and special prospecting authorities (see Table 11). The provisions for each of these titles ‘mirrors’ the provisions made under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth). Each licence may be awarded, subject to meeting certain conditions, by the NSW Minister for Primary Industries.

Table 11: Petroleum titles under the NSW Petroleum (Offshore) Act 1982

Title	Title description
Exploration permit	Authorises the permittee to explore for petroleum in the permit area
Retention lease	Authorises the lessee to explore for petroleum in the lease area
Production licence	Authorises the lessee to explore for and recover petroleum in the lease area
Pipeline licence	Authorises the lessee to construct and operate a pipeline and associated pumping stations, tank stations and valve stations
Special prospecting authority	Authorises the holder to carry on petroleum exploration operations in the authority area (but not to make a well)

Section 96 of the Act places conditions upon the manner by which all petroleum exploration and recovery work practices are to be carried out. Work practices are to be carried out in a proper workmanlike manner and in accordance with good oil-field practice. They must also secure the safety, health and welfare of persons engaged in those practices (s 96(1)). Further specifications for the manner in which work practices are carried out include:

- Controlling the flow and preventing the waste of petroleum or water;
- Preventing the escape of any mix of water or drilling fluid with petroleum;
- Preventing damage to petroleum-bearing strata; and
- Preventing water or any other substance entering a petroleum pool except when required by good oil-field practice (s 96(2)).

The NSW Minister for Primary Industries may establish a safety zone for the purpose of protecting petroleum-related infrastructure. A safety zone prohibits all specified vessels from entering the area immediately adjacent to petroleum-related infrastructure.

Several sections of the Act make provision for assessing and maintaining compliance with the 1982 Act and the [Petroleum \(Offshore\) Regulation 2006](#). As with the Commonwealth offshore petroleum legislation, the NSW Minister is expected to maintain a Register of all petroleum titles and special prospecting authorities granted (s 76). The Minister may issue directions to a petroleum operator regarding any matter for which regulations can be made (s 101).

Petroleum operators may also be required to provide information with regard to their activities (s 116), report on their activities (s 122), and keep records of their activities (s 123). Powers are provided for inspectors to investigate compliance with the Act and regulations under section 127.

6.2 Other NSW legislation

A raft of NSW legislation may apply to offshore petroleum exploration and mining in NSW coastal waters (see Box 2). Box 2 summarises the relevant provisions of each statute. Petroleum exploration and mining is prohibited in marine parks, national parks or historic sites unless authorised by an Act of Parliament. Any development in NSW coastal waters requires development consent under the *Coastal Protection Act 1979*. However, development that requires development consent under the *Environment Planning & Assessment Act 1979* is exempt from this requirement. Licences or approvals may also be required under the following pieces of legislation: the *Fisheries Management Act 1994*; the *Heritage Act 1977*; and the *Protection of the Environment Operations Act 1997*.

The *Marine Pollution Act 1987* provides the power for the Minister for Ports and Waterways to respond to any oil or chemical spill. Marine incident control and response is the responsibility of the petroleum operator under the *Petroleum (Offshore) Act 1982*.

Box 2: Other NSW legislation

- *Coastal Protection Act 1979*: Development consent from the Minister for Climate Change and the Environment required under this Act except if development consent is required under the EP&A Act 1979
- *Environmental Planning & Assessment Act 1979* (EP&A Act): May require development consent from the Minister of Planning under Part 3A of the Act
- *Fisheries Management Act 1994*: May require a licence if the activity will harm aquatic threatened species, populations or ecological communities.
- *Heritage Act 1977*: Approval to carry out development which will impact on a heritage listed place or item required unless the development requires development consent under the EP&A Act 1979
- *Marine Parks Act 1997*: Petroleum exploration and mining is prohibited within a marine park unless authorised by an Act of Parliament
- *Marine Pollution Act 1987*: Prohibits discharging oil or noxious substances into State waters
- *National Parks and Wildlife Act 1974*: Petroleum exploration and mining is prohibited within a national park or historic site unless authorised by an Act of Parliament
- *Protection of the Environment Operations Act 1997*: Petroleum production is a scheduled activity under this Act, and therefore requires an Environmental Protection Licence

7.0 RECENT REVIEWS OF THE UPSTREAM PETROLEUM SECTOR

Two recent reviews of the upstream petroleum sector have been conducted at the national level. In April 2009, the Productivity Commission released a review of the regulatory burden on the upstream petroleum sector. In November 2009, following a well blowout at the Montara oil rig off the north-west coast of Western Australia on 21 August 2009, the Commonwealth Government announced a Commission of Inquiry into the oil spill. The Inquiry was established under Part 9.10A of the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) (Cth). The findings of the Inquiry, along with a draft Commonwealth Government response, were released to the public in November 2010.

7.1 Productivity Commission review of the upstream petroleum sector

A Productivity Commission [review](#) of the upstream petroleum sector was conducted in 2009. The Commission identified a large number of problems and proposed responses.⁶⁹ Key recommendations from the review concerned four topics: improving regulatory practice; institutional reform; environment and heritage; and resource management. Several key recommendations are summarised in Table 12.

Table 12: Productivity Commission review: key recommendations

Topic	Recommendations
National offshore petroleum regulator	<ul style="list-style-type: none"> Establish a new national offshore petroleum regulator in Commonwealth waters, with regulatory responsibility for resource management, pipelines and environmental approvals and compliance. An opt-in option should be offered to States and Territories whereby their regulatory powers in State and Territory waters are transferred to the national offshore petroleum regulator.
National Offshore Petroleum Safety Authority	<ul style="list-style-type: none"> The National Offshore Petroleum Safety Authority should remain a separate independent statutory authority. The Authority should also be given the additional responsibilities of ensuring the safety and integrity of offshore pipelines, subsea equipment and wells.
Streamlined approval process	<ul style="list-style-type: none"> States and Territories should establish lead agencies for petroleum in order to establish and manage an integrated approval process.
Environment and heritage	<ul style="list-style-type: none"> Develop bilateral agreements between the Commonwealth and State environment agencies to streamline the approval process Streamline approvals under Commonwealth and State heritage laws to ensure consistency and reduce duplication
Resource management	<ul style="list-style-type: none"> Clarify and clearly articulate the objectives associated with granting and renewing retention licences

The most significant recommendation was for the establishment of a National Offshore Petroleum Regulator (NOPR). According to the Productivity Commission, the NOPR would ideally perform the following functions in

⁶⁹ Productivity Commission, 2009. [Review of Regulatory Burden on the Upstream Petroleum \(Oil and Gas\) Sector](#), Research Report, see Table 2 ppxxxix-xliii.

Commonwealth, State and Territory waters seaward of the low tide mark (i.e. in State and Territory coastal waters in addition to Commonwealth waters), including islands in those waters:

- Administration of exploration permits, production and pipeline licensing;
- Administration and approval of production, well construction and drilling, and pipeline consents (with NOPSA providing necessary approvals for safety-related issues); and
- Environmental approvals and compliance.

The effectiveness and efficiency of the NOPR model would depend on the States and Territories agreeing to give NOPR responsibility for petroleum regulation in State and Territory waters seaward of the low tide mark, including islands in those waters, with respective powers of the Commonwealth and State and Territory Ministers being similar to those applying to NOPSA. According to the Productivity Commission, with such agreement there are potentially useful economies of scale and reduced complexity.

The Commission proposed a two-stage approach to establishing the NOPR. The first step would involve the establishment of a new national offshore petroleum regulator in Commonwealth waters which would administer exploration permits, production and pipeline licensing, environmental approvals and compliance, and administer and approve production, well construction and drilling, and pipeline consents. (Even if reform only went this far, the Commission considered it would yield significant net benefits and should be pursued.) Step two would involve the option of conferring existing State and Territory petroleum-related regulatory responsibilities to the Australian Government on a bilateral basis. To participate, the relevant State or Territory petroleum legislation would need to fully mirror the [Offshore Petroleum and Greenhouse Gas Storage Act 2006](#) and its subordinate regulations for such waters and islands.

7.2 The Montara Inquiry

[Advent Energy](#) and [MEC Resources](#) have stressed on several occasions that they are exploring for gas and not oil in PEP 11 off the coast of NSW, and that they do not expect to find oil in PEP 11.⁷⁰ Nevertheless, a brief summary of the [Montara Commission of Inquiry](#) into the Montara oil spill off the coast of Western Australia is instructive. This is especially the case given the Commonwealth Government's draft acceptance of 92 inquiry recommendations and the impact these recommendations will have on offshore petroleum regulation should the recommendations be implemented.

⁷⁰ Nevertheless, oil spill maps were contained in the Advent Energy Environment Plan, one of which was included in a Newcastle Herald article. According to the Environment Plan, an oil spill in PEP 11 at the site of the exploratory drilling conducted in December 2010 (off the coast of Newcastle) could spread to Sydney in 11 weeks.

7.2.1 Background

In the early morning of 21 August 2009, the H1 Well at the Montara Wellhead Platform off the north-west coast of Western Australia released a small 'burp' of oil and gas. Two hours later, a blowout occurred. The Well leaked between 400 and 1500 barrels of oil per day, along with unknown amounts of gas, condensate and water, until the relief well operations were successful in killing the well over ten weeks later. A Commonwealth Commission of Inquiry was announced on 1 November 2009, and its findings were presented to the Commonwealth Minister for Resources and Energy on 17 June 2010. The Inquiry was established under Part 9.10A of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth).

The [Montara Commission of Inquiry](#) concluded that:

PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEPAA) did not observe sensible oilfield practices at the Montara Oilfield. Major shortcomings in the company's procedures were widespread and systemic, directly leading to the Blowout.

Well control practices approved by the delegate of the DA, the Northern Territory Department of Resources (the NT DoR), most likely would have been sufficient to prevent the blowout if PTTEPAA had adhered to them and to its own Well Construction Standards. However, the NT DoR was not a sufficiently diligent regulator ... the way the regulator conducted its responsibilities gave it little chance of discovering PTTEPAA's poor practices. In this case, the regulatory dog did not bark.⁷¹

In light of its findings, the Inquiry made 105 recommendations concerning issues such as the likely causes of the blowout, the adequacy of the regulatory regime, arresting the blowout, and the environmental response. In November 2010, the Commonwealth Government released its [draft response](#) to the Inquiry. Of the 105 recommendations, the Government proposes to: accept 92; note 10; and not accept 3. According to the Government, the "three recommendations that are proposed not to be accepted relate to actions which are technically inappropriate".⁷² The final Government response will be released after a 3-month consultation period with stakeholders and the community. The draft Commonwealth Government response identifies a number of key actions and responses. Some of these actions are concerned with the specifics of the

⁷¹ Borthwick, D., June 2010. [Report of the Montara Commission of Inquiry](#), p6.

⁷² Australian Government, November 2010. [Draft Government Response to the Report of the Montara Commission of Inquiry](#), Department of Resources, Energy and Tourism, p2. The recommendations not accepted by the Government were recommendations 8, 20 and 38.

Montara oil spill; the remainder are of relevance for regulating offshore petroleum exploration and mining in NSW.

7.2.2 Commonwealth response: A National Offshore Petroleum Regulator (recommendation 73)

The Commonwealth Government plans to establish a national offshore petroleum regulator – the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) – by 1 January 2012. NOPSEMA, in replacing NOPSA, will assume responsibility for the day-to-day administration and regulation of occupational health and safety, well integrity, environment plans and day-to-day operations in the Commonwealth offshore area. NOPSEMA will also regulate safety, integrity and environment plans for minerals extraction and greenhouse gas storage activities in Commonwealth waters. Should the Commonwealth reach agreement with the States and Territories in relation to this reform, the current NSW Designated Authority – [Industry & Investment NSW](#) – will cease to have any regulatory responsibility for offshore petroleum in Commonwealth waters. However, the Commonwealth Government intends to retain the Joint Authority concept in relation to titles matters, thereby ensuring that the States and Territories have proper input into resource development issues in Commonwealth offshore areas. It also intends to establish a National Offshore Petroleum Titles Administrator (NOPTA) which will primarily deal with title administration and resource management issues.

7.2.3 Commonwealth response: A National response to offshore incidents (recommendations 86 to 94)

The [Australian Maritime Safety Authority](#) is leading an assessment of the [National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances](#). This assessment will address the adequacy and appropriateness of funding mechanisms and the efficiency of cost recovery arrangements in the delivery of the National Plan.

7.2.4 Commonwealth response: Higher civil penalties for legislative breaches (recommendation 71)

The Commonwealth Department of Resources, Energy and Tourism is investigating amending the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* to provide for increased civil penalties in relation to breaches by operators and titleholders.

7.2.5 Commonwealth response: A transparent communication strategy (recommendations 84 and 85)

The Commonwealth Government intends to develop an incident management and coordination framework. This framework will underpin the operations of a central coordination body which will be activated for responding to any future offshore petroleum incident. This body will also have the responsibility of informing the public about the volume and extent of an oil spill.

7.2.6 Commonwealth response: Legislative review (recommendations 4, 67 and 68)

The Montara Commission of Inquiry made recommendations for minor legislative amendments, including:

- Supplementing the requirement to incorporate 'good oilfield practice' in Well Operations Management Plans with non-exhaustive minimum compliance standards in relation to well control;
- Amending the Management of Well Operations Regulations to better ensure risks are identified and managed in accordance with sound engineering principles and good oilfield practice;
- Expanding the definition of 'good oilfield practice' in the OPGGSA to specify what 'good oilfield practice' includes; and
- Making Environment Plans and Oil Spill Contingency Plans publicly available as a condition of approval.

In addition to addressing legislative recommendations in the Inquiry Report, the Government also intends to undertake a review of all Commonwealth legislation applicable to the marine environment, including: the *Environment Production and Biodiversity Conservation Act 1999* and associated Acts; the Protection of the Sea Acts; the [Navigation Act 1912](#); and relevant international treaties.⁷³

7.3 A National Offshore Petroleum Regulator?

At the COAG meeting on 13 February 2011, in-principle agreement was given to the creation of a national offshore petroleum regulator. The revised [National Partnership Agreement to Deliver a Seamless National Economy: Implementation Plan](#) outlined a series of actions for the Commonwealth, States and Territories to implement over the next three years. Actions agreed to by the States include reviewing offshore petroleum legislation and developing a draft Memorandum of Understanding template that clarifies the roles and timelines of petroleum developers and local government bodies.

Despite the release of a revised Implementation Plan and in-principle agreement, the Western Australian Government remains opposed to the proposal.⁷⁴ In January 2011, the Western Australian Minister for Mines and Petroleum stated that:

The proposed national regulator is unlikely to provide any benefit to Australia, Western Australia or the offshore petroleum sector, even in the long term, as it will not solve

⁷³ Australian Government, November 2010. [Draft Government Response to the Report of the Montara Commission of Inquiry](#), Department of Resources, Energy and Tourism.

⁷⁴ Australian Financial Review, 15 February 2011, *Energy regulator gets green light, but WA dissents*.

the complex, cross jurisdictional boundary issues or the complexity relating to environmental and native title issues.⁷⁵

In response, according to the *Australian Financial Review*, the Commonwealth Minister for Resources and Energy “has previously declared that the federal government has the constitutional power to introduce a single national regulator for the oil and gas sector to ensure more effective regulation of the industry”.⁷⁶ It remains to be seen how this apparent impasse will be resolved and whether or not a national offshore petroleum regulator is established by 1 January 2012.

⁷⁵ Western Australian Minister for Mines and Petroleum, 18 January 2011. [Media release: Moore opposes proposed national offshore regulator.](#)

⁷⁶ Australian Financial Review, 15 February 2011, *Energy regulator gets green light, but WA dissents.*

8.0 CONCLUSION

The offshore upstream petroleum sector, whilst a significant component of the Australian economy, is currently non-existent in NSW. However, this may change in the near future with the possible discovery of significant gas reserves in Petroleum Exploration Permit 11 (PEP 11). This paper covered the context of a possible gas discovery in PEP 11 by reviewing gas exploration, production and consumption in NSW. With NSW total energy consumption projected to increase at 1.2% per annum over the next 20 years, and 20 new gas-fired power stations slated to come online in the near future, discovery of a significant gas reserve in NSW would go some way to offsetting NSW's current status as a net importer of gas. Despite Advent Energy failing to find gas with its exploratory well drilled in December 2010, the company remains confident of finding gas through further exploratory drilling.

Offshore petroleum exploration and mining is regulated according to the jurisdiction in which it is located. Offshore petroleum activities in Commonwealth waters are regulated under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) and its regulations. This Act provides for a series of petroleum titles that are required for all offshore petroleum activities. This regulatory regime, under which PEP 11 was granted, mandates the approval of at least one of the following three plans at each stage of the regulatory process: Environment Plans; Well Operations Management Plans; and Pipeline Management Plans. Administration of this Act is currently shared between the Commonwealth and NSW Governments. Petroleum activities in Commonwealth waters may also require approval under the *Environment Protection and Biodiversity Act 1999* (Cth) should they impact upon a matter of National Environmental Significance.

Offshore petroleum activities in NSW coastal waters are regulated by the *Petroleum (Offshore) Act 1982* (NSW). This is a 'mirror' Act to the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. As such, it provides for a similar set of offshore petroleum titles. A raft of other NSW legislation, as well as the *Environment Protection and Biodiversity Act 1999* (Cth), may also apply to offshore petroleum activities in NSW coastal waters.

Offshore petroleum regulation is set to change in the near future with the proposed establishment of a national offshore petroleum regulator by January 2012 – the National Offshore Petroleum Safety and Environmental Management Authority. Introduction of this Authority will remove the regulatory responsibility of the NSW Government for offshore petroleum activities in Commonwealth waters adjacent to NSW. Whether or not this will also involve the transfer of regulatory responsibility for NSW coastal waters remains to be seen. Further, establishment of the national authority is currently opposed by the Western Australian Government. For its part, the Commonwealth Government has argued that it possesses the constitutional power to establish a single national regulator in order to more effectively regulate the offshore petroleum industry.