



Northern
Territory
Government

energyNT|2010

Energy activities for the Northern Territory, Australia

AUSTRALIA'S
Northern Territory

energyNT|2010

Department of Resources, Minerals and Energy group

Darwin, September 2011

© Northern Territory Government

ISSN 1838-3874 (print)

ISSN 1838-3882 (online)

ISSN 1838-4250 (CD-ROM)

Bibliographic reference: Department of Resources, Minerals and Energy group, 2010. *EnergyNT 2010*. Northern Territory Government, Darwin.

Cover photo: Johnstone West-1 camp and well (photo, Central Petroleum Ltd)

Disclaimer

While all care has been taken to ensure that information contained in this document is true and correct at the time of publication, changes in circumstances after the time of publication may impact on the accuracy of its information. The Northern Territory of Australia gives no warranty or assurance, and makes no representation as to the accuracy of any information or advice contained in this document or that it is suitable for your intended use. You should not rely upon information in this publication for the purpose of making any serious business or investment decisions without obtaining independent and/or professional advice in relation to your particular situation. The Northern Territory of Australia disclaims any liability or responsibility or duty of care towards any person for loss or damage caused by any use of, or reliance on the information contained in this publication.

Contents

Executive summary	iv
Energy activities for the Northern Territory	1
Exploration	4
Petroleum production from Northern Territory administered areas.....	6
Petroleum development: Major players and projects	9
Pipeline activities.....	15
Environment	15
Energy titles.....	16
Conferences	24
Acknowledgements	25

Figures

1. Areas administered by Northern Territory DoR	1
2. Petroleum and mining operations and development in 2010	2
3. Geothermal Energy Exploration Permit applications in 2010	4
4. Central Petroleum 2D seismic survey 2010	5
5. Northern Territory oil production for period 1983–2010	8
6. Northern Territory oil production in the last four years	8
7. Northern Territory oil production for period 1983–2010	8
8. Northern Territory oil production in the last four years	9
9. Northern Territory onshore oil production for period 1983-2010	10
10. Northern Territory gas production for onshore fields.....	18
11. Montara Field development concept.....	20
12. Northern Endeavour FPSO.....	22
13. Major projects in Territory of Ashmore and Cartier Islands Offshore Area	22
14. 2010 release of offshore petroleum exploration areas in Bonaparte Basin, Northern Territory	23

Tables

1. Wells drilled in Northern Territory area during 2010	6
2. Northern Territory and administered waters oil and gas production data.....	7
3. Titles in which PTTEP Australasia were participants during 2010	9
4. 2010 monthly productions for Jabiru and Challis ventures	10
5. 2010 monthly oil and gas production for Corallina and Laminaria.....	11
6. PTTEP Australia Timor Sea Pty Ltd Titles in Timor Sea	13
7. Onshore Titles in Northern Territory	17
8. Principal Northern Territory Offshore Area Titles	19
9. Territory of Ashmore and Cartier Islands Offshore Area Titles	21

Executive summary

1. The Mereenie gas sales contract with NT Power and Water Corporation ended in early 2010. Produced gas is currently processed and then reinjected back into the main oil producing reservoir to maintain pressure.
2. Three Floating Production and Storage Offloading (FPSO) facilities – Challis Venture, Jabiru Venture and Northern Endeavour –received oil from four development fields. Challis Venture and Jabiru Venture ceased production in September 2010 and were decommissioned and removed from the field in December 2010 and January 2011 respectively.
3. Eight wells were drilled (one offshore and seven onshore) at an estimated cost of A\$50 million.
4. Ten geophysical surveys were conducted (six offshore and four onshore).
5. One onshore exploration permit was awarded (EP163).
6. Two exploration permits (NT/P81 and NT/P82) were awarded in the Principal Northern Territory Offshore Area.
7. Onshore exploration permits (granted and application) cover approximately 1 041 000 km² (about 77%) of Northern Territory land area.

Energy activities for the Northern Territory

The Northern Territory Government's Department of Resources (DoR) Mineral and Energy Group (M&E) administers and promotes responsible development of the Territory's mineral and energy resources. M&E administers Energy Titles and Energy Operations in the Territory onshore areas, Territorial waters, and Commonwealth offshore waters.

The Energy Titles and Operations Teams within M&E administer a legislative framework for the exploitation of hydrocarbons and geothermal energy in a manner that aims to maximise the return for all stakeholders, including the community as the owner of all resources in the Northern Territory.

Territory Onshore Area

This consists of over 1.35 million km² (Area 1 of [Figure 1](#)) and contains 20 granted exploration permits, two retention licences and three production licences where hydrocarbon has been produced since the early 1980s ([Figure 2](#)). In 2010, one exploration permit was awarded (EP 163). Oil from the Mereenie field (west of Alice Springs) is currently trucked south, whereas gas is reinjected into the main oil production reservoir while new gas sales contracts are actively being sought. Gas from the Palm Valley field (west of Alice Springs) is delivered to Alice Spring via pipeline.

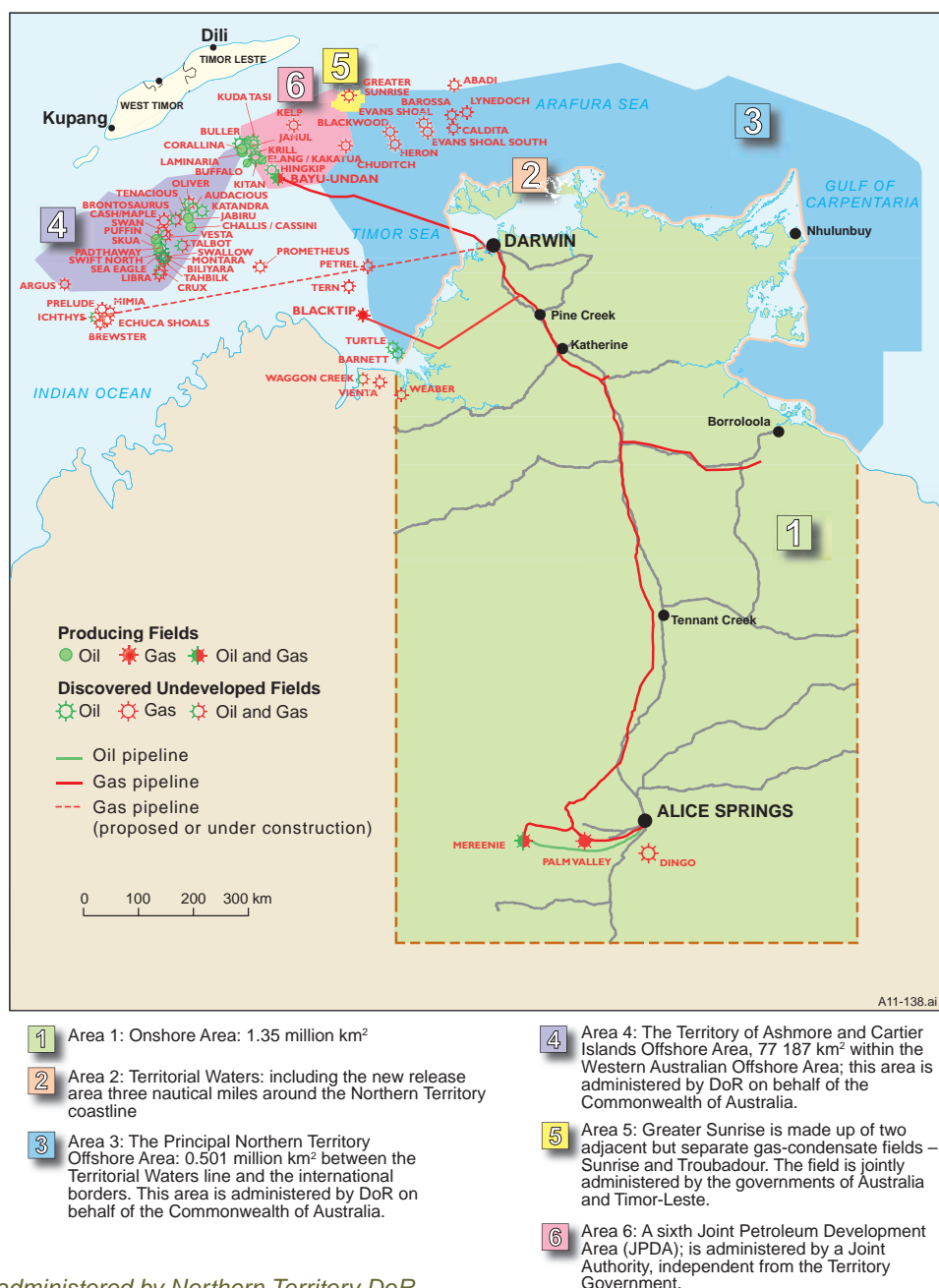


Figure 1. Areas administered by Northern Territory DoR.

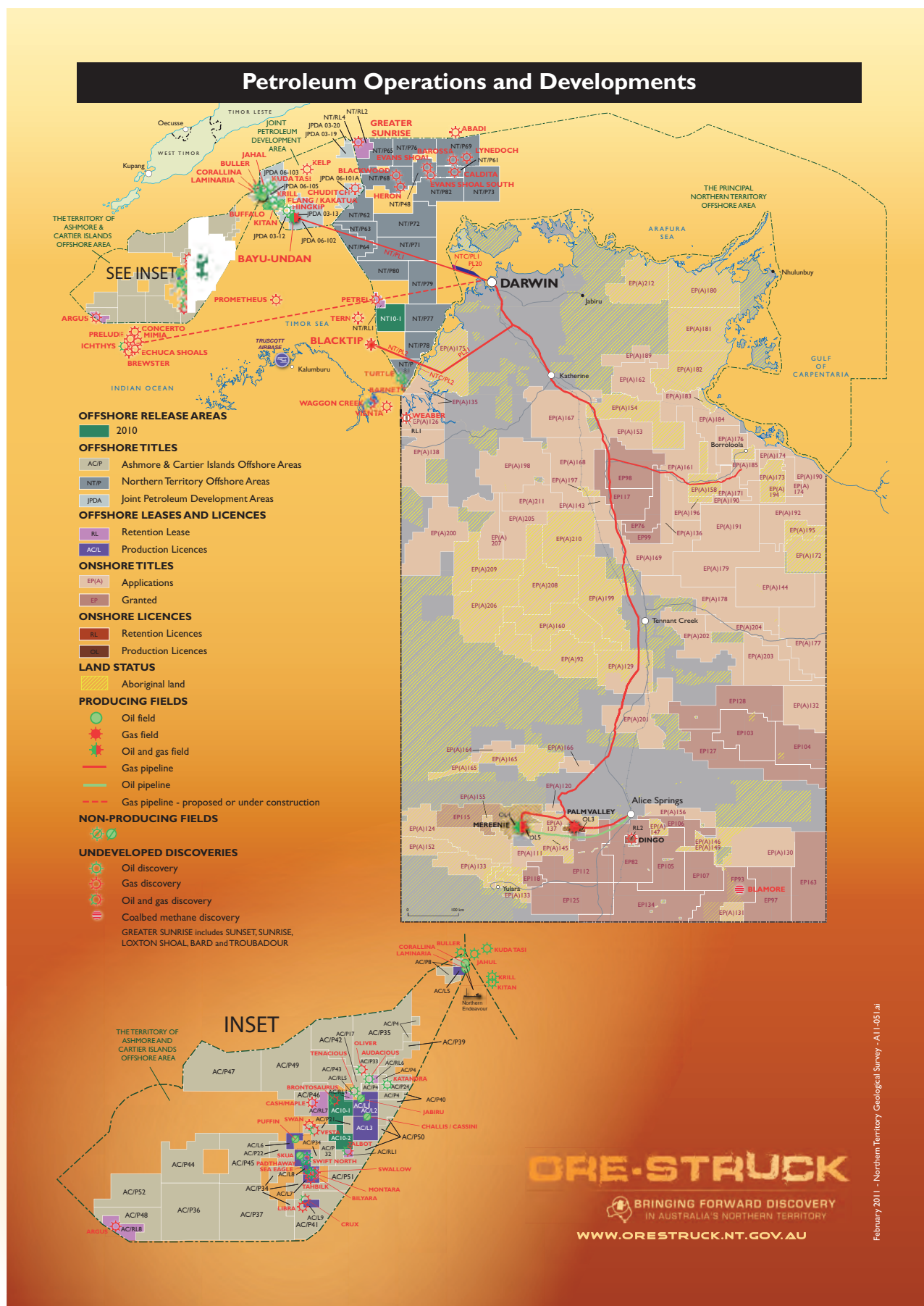


Figure 2. *Petroleum and mining operations and development in 2010.*

The minimum nominated exploration expenditure work program over onshore titles for the period 2011–2015 is A\$46.4 million, compared to A\$75.9 million for the period 2010–2014. The drilling of 21 wells and the acquisition of 430 km of 2D seismic data has been committed for the same period.

Territorial Waters

Territorial Waters refers to the area within three nautical miles of the Northern Territory coastline (Area 2 of [Figure 1](#)). No applications for exploration permits were received in 2010. This area was first released for applications in 2009 and is approximately 15 000 km². It is not released for competitive tender like Commonwealth waters, but is available for application at any time.

Principal Northern Territory Offshore Area (Commonwealth waters)

The Principal Northern Territory Offshore Area includes over 0.5 million km² of sea between the three nautical miles line around the Territory coastline and the international borders of Australia (Area 3 of [Figure 1](#)). This area is administered by the Northern Territory Government (DoR) on behalf of the Commonwealth. The Principal Northern Territory Offshore Area comprises 19 exploration permits and 3 retention leases, including world-class gas discoveries. In 2010, two exploration permits (NT/P 81 and NT/P 82) were awarded. There is currently no hydrocarbon production in this area ([Figure 2](#)).

A minimum nominated expenditure for the five-year period 2011–2015 of A\$417 million has been committed in the Principal Northern Territory Offshore Area, compared to the A\$420 million that was committed for the 5-year period 2010–2014.

The drilling of 18 wells and the acquisition of 1800 km of 2D and 1270 km² of 3D seismic data has been committed for the same period.

Eastern Greater Sunrise Offshore Area (Commonwealth waters)

The Eastern Greater Sunrise Offshore Area comprises the NT/RL2 and NT/RL4 retention leases, and was created in 2007 to reflect the introduction and ratification of a number of international treaties. In 2007, NT/RL2 was renewed and NT/RL4 was granted for a five-year term.

The Territory of Ashmore and Cartier Islands Offshore Area (Commonwealth waters)

The Territory of Ashmore and Cartier Islands Offshore Area covers 69 170 km² towards the northwest of the Western Australian Offshore Area (Area 4 of [Figure 1](#)).

The area is a well known, prosperous oil and gas province, comprising 26 exploration permits, 6 retention leases and 8 production licences ([Figure 2](#)).

One Floating Production, Storage and Offtake Facility (FPSO) is actively operating and receiving oil from two fully developed oil fields within eight production licences, comprising all of the Territory's offshore oil production ([Figure 2](#)). No new permits were awarded in 2010.

A minimum nominated expenditure of A\$607.9 million has been committed for the period 2011–2015. This includes the drilling of 21 wells and the acquisition of 3000 km of 2D and 705 km² of 3D seismic data.

Geothermal Onshore

The *Geothermal Energy Act* commenced on 1 December 2009.

By the end of the first business day (4 pm), 17 applications were received covering over 64 000 km² (more than 20 000 blocks) of the Territory.

Companies that lodged applications include: Uramet Minerals Pty Ltd, TNG Energy Pty Ltd, Western Desert Resources Ltd, Crossland Diamonds Pty Ltd, Rum Jungle Uranium Ltd, Central Geothermal Pty Ltd and Gradient Energy Ltd.

The attached map ([Figure 3](#)) shows the areas of the geothermal applications.

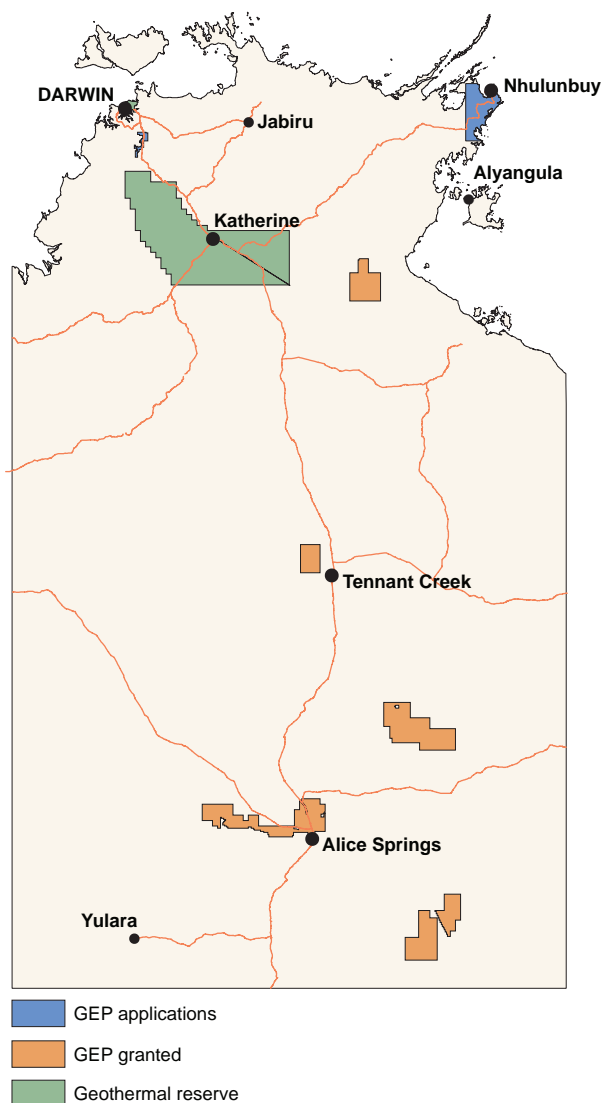


Figure 3. Geothermal Energy Exploration Permit applications in 2010.

Exploration

Exploration activities undertaken during 2010 included 3D and 2D seismic surveys, geotechnical surveys, and other geological and geophysical studies. Surveys conducted in the Northern Territory administered areas are listed below.

Marine seismic surveys

There were four 3D seismic surveys undertaken in the Territory of Ashmore and Cartier Islands Offshore Area during 2010:

- Cartier 3D MSS was acquired over exploration permits AC/P21, AC/P22, AC/P34, AC/P45. AC/P46 and AC/L6 by Fugro Multi Client Services Pty Ltd (Fugro). The survey was conducted over 2770 km² between January and April 2010. Fugro used the Seisquest vessel to acquire the survey.
- Cartier West 3D MSS was acquired over exploration permit AC/P52 by Fugro. The survey was conducted over 517 km² between July and September 2010. Fugro used the Geo Natuna vessel to acquire the survey.
- Tiffany 3D MSS 2010 was acquired over exploration permits AC/P44 and AC/P45 by Fugro. The survey was conducted over 731 km² between September and October 2010. Fugro used the Geo Natuna vessel to acquire the survey.
- Thoar 3D MSS 2010 was acquired over exploration permits AC/P46 by Tata Petrodyne Ltd. The survey was conducted over 464 km² between November and December 2010. PSG Asia Pacific Ltd used the MV Pacific Explorer vessel to acquire the survey.

Two 2D seismic surveys were undertaken in the Principal Northern Territory Offshore Area:

- NT/P80 2D MSS 2010 was acquired over exploration permit NT/P80 during October 2010 by Murphy Australia Oil Pty Ltd. Seabird used the MV *Aquila* Explorer vessel to acquire the 979 km of this survey.
- Northern Margin Australia Arafura Multiclient 2D MSS 2010 was acquired over exploration permits NT/P58, NT/P61, NT/P68, NT/P69, NT/P72 and NT/P73 by Petroleum Geo-Services Asia Pacific Pte Ltd (PGS). PGS used the *Beaufort Explorer* vessel to acquire the 1567.56 km of this survey.

Onshore Seismic Surveys

There were four 2D seismic surveys undertaken in onshore areas of the Northern Territory:

- Ross Owen 2D SS 2010 was acquired over exploration permits EP103 and EP104 by Australia Energy Corporation Ltd between September and November 2010 for a total of 545.84 km over 12 lines.
- Central Petroleum Ltd acquired three 2D seismic surveys between January and August 2010 (**Figure 4**):
 - Johnstone and NW Mereenie 2D SS 2010 over exploration permit EP115 for a total of 232 km over 27 lines.
 - Simpson Desert 2D SS 2010 over exploration permits EP93, EP97 and EP107 for a total of 426 km over 18 lines.
 - Stone Plains 2D SS 2010 over exploration permits EP82, EP112 and EP118 for a total of 588 km over 27 lines.

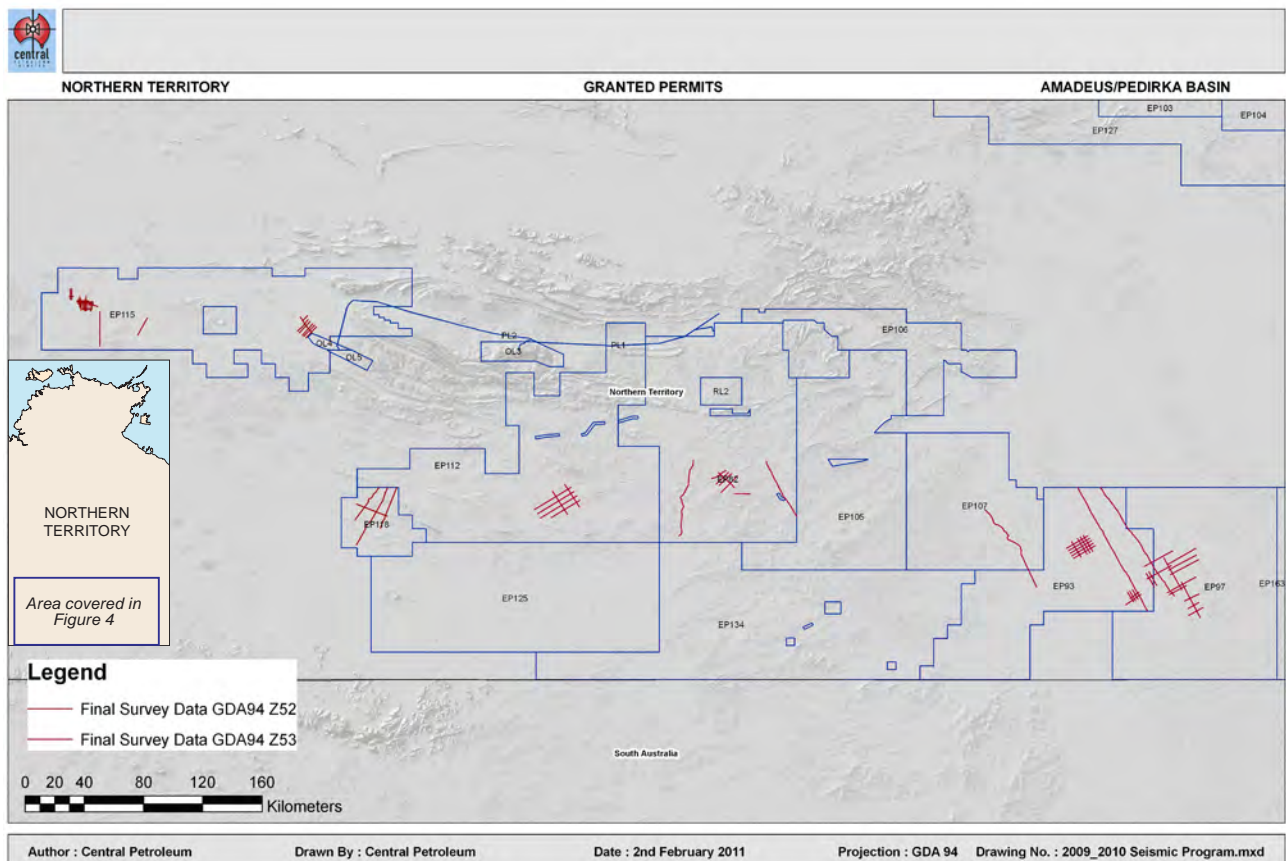


Figure 4. Central Petroleum Ltd seismic program 2010.

Drilling

In 2010, operators drilled 8 new wells in Northern Territory administered areas (see [Table 1](#)).

Wells drilled in Northern Territory area during 2010

Well name	Location	Classification	Operator	Permit	Drill Rig	Spud date	Rig release date	Total Depth (m MDRT)	Comments
CBM93-003	Onshore	Exploration	Central Petroleum Ltd	EP93	Wallis rig – Delta 39	09/01/2010	27/01/2010	897	Abandoned
CBM107-001	Onshore	Exploration	Central Petroleum Ltd	EP107	Wallis rig – Delta 39	04/02/2010	25/02/2010	1250	Abandoned
CMB107-002	Onshore	Exploration	Central Petroleum Ltd	EP107	Wallis rig – Delta 39	01/05/2010	17/05/2010	604	Abandoned
CBM93-002	Onshore	Exploration	Central Petroleum Ltd	EP93	Wallis rig – Delta 39	22/05/2010	10/06/2010	1044	Abandoned
Ooraminna-2	Onshore	Exploration	Central Petroleum Ltd	EP82	MB Century 7	11/06/2010	06/07/2010	1821	Suspended
Johnstone West-1	Onshore	Exploration	Central Petroleum Ltd	EP115	MB Century 7	19/08/2010	05/08/2010	1662	Suspended
Hippolyte-1	Offshore	Exploration	Shell Development (Australia) Pty Ltd	AC/P41	Songa Venus	19/10/2010	14/09/2010	3856	Abandoned
Surprise-1	Onshore	Exploration	Central Petroleum Ltd	EP115	MB Century 7	11/10/2010	21/12/2010	2555	Suspended

Table 1. Wells drilled in Northern Territory area during 2010.

Petroleum production from Northern Territory administered areas

Offshore fields: Laminaria and Corallina continued to produce oil over the course of 2010. However, Jabiru and Challis ceased production at the end of September 2010.

Onshore fields: Mereenie continues to produce oil and gas, but gas is currently being reinjected back to the main production reservoir, while waiting for acquisition of new gas contracts. Palm Valley continues to supply Alice Spring with gas for electricity generation.

[Table 2](#) shows hydrocarbon production from the Northern Territory onshore areas and NT-administered waters from 1983 to 2010.

Oil

Oil is produced from onshore and offshore fields:

- The Northern Territory's offshore oil was produced from three different FPSOs and four fields. Laminaria, Corallina, Jabiru, and Challis (see [Figures 5](#) and [6](#)) continued to produce oil at an expected declining rate, due to the natural depletion of resources and a steadily increasing water cut. A total of 4.3 mmbbl of oil was produced from offshore resources in 2010 (see [Table 2](#)). This represents a 35% decrease from 6.6 mmbbl of oil produced from offshore areas in 2009.
- The Northern Territory's total onshore oil production is sourced from the Mereenie Oil field near Alice Springs ([Figure 7](#)). A total of 0.173 million barrels of oil was produced from Mereenie in 2010, compared to 0.236 million barrels in 2009, which is a 27% decrease in onshore oil production.

Gas

All of the Northern Territory's onshore gas production is from the Amadeus Basin, west of Alice Springs. There are two producing fields in the basin, Mereenie and Palm Valley. Palm Valley is operated by Magellan Petroleum Australia Ltd and the Mereenie Oil Field is operated by Santos Ltd.

Palm Valley gas is supplied to Alice Springs via a 134 km pipeline, whereas gas from Mereenie is reprocessed and then reinjected to maintain reservoir pressure.

In 2010, 3.973 billion standard cubic feet (bscf) of gas was produced ([Table 2](#), [Figure 8](#)):

- Palm Valley produced 1.922 bscf in 2010, compared to 2.639 bscf in 2009.
- Mereenie produced 2.051 bscf in 2010, compared to 14.123 bscf in 2009.

YEAR	OIL PRODUCTION (MMbbl)								GAS PRODUCTION (BCF)			
	Onshore	Offshore							TOTAL	Mereenie	Palm Valley	TOTAL
	Mereenie	Jabiru	Challis	Skua	Laminaria	Corallina	Puffin	Offshore Total				
1983	0.000	0.000	0.000	0.000				0.000	0.000	0.000	0.029	0.029
1984	0.187	0.000	0.000	0.000				0.000	0.187	0.125	0.519	0.644
1985	0.835	0.000	0.000	0.000				0.000	0.835	0.365	1.259	1.624
1986	1.246	2.005	0.000	0.000				2.005	3.250	1.919	1.804	3.723
1987	0.941	7.620	0.000	0.000				7.620	8.561	3.207	7.928	11.135
1988	0.765	11.391	0.000	0.000				11.391	12.156	3.587	8.023	11.610
1989	0.631	15.126	0.535	0.000				15.661	16.292	4.560	8.043	12.603
1990	0.547	19.452	11.049	0.000				30.501	31.048	4.453	8.391	12.844
1991	0.514	9.977	12.109	0.288				22.373	22.887	3.944	9.147	13.091
1992	0.676	9.343	7.562	8.045				24.950	25.626	6.121	8.450	14.571
1993	0.838	4.169	5.066	5.522				14.758	15.595	5.972	8.687	14.659
1994	0.956	5.289	3.008	3.249				11.546	12.502	6.339	8.424	14.763
1995	1.018	2.777	4.596	1.962				9.335	10.354	9.297	7.148	16.445
1996	1.073	2.982	2.977	1.351				7.310	8.383	11.491	6.263	17.755
1997	0.886	3.719	2.291	0.075				6.085	6.971	11.208	7.724	18.932
1998	0.766	2.593	1.652	0.000				4.245	5.011	10.911	7.267	18.178
1999	0.614	2.568	1.312	0.000	4.403	0.910		9.193	9.808	11.387	6.981	18.368
2000	0.530	2.034	1.259	0.000	29.886	20.954		54.133	54.663	12.558	6.053	18.611
2001	0.469	1.705	1.164	0.000	20.653	19.872		43.394	43.863	11.652	6.430	18.082
2002	0.431	1.742	0.944	0.000	16.278	13.534		32.498	32.929	12.867	6.248	19.115
2003	0.407	1.652	0.921	0.000	7.063	9.527		19.163	19.569	14.161	5.718	19.879
2004	0.366	1.148	0.612	0.000	3.072	7.070		11.902	12.267	13.771	5.220	18.991
2005	0.366	1.049	0.625	0.000	1.685	5.735		9.093	9.459	15.209	4.448	19.657
2006	0.324	1.110	0.493	0.000	2.320	5.167		9.090	9.414	15.413	3.754	19.167
2007	0.336	0.897	0.578	0.000	2.034	3.066	0.838	7.413	7.750	16.202	3.371	19.573
2008	0.301	0.942	0.503	0.000	1.202	1.909	1.204	5.761	6.062	15.762	2.973	18.732
2009	0.236	0.603	0.485	0.000	1.009	4.314	0.205	6.616	6.852	14.123	2.639	16.762
2010	0.173	0.562	0.300	0.000	0.945	2.538	0.000	4.345	4.518	2.051	1.922	3.973
TOTAL	16.429	112.457	60.040	20.492	90.551	94.596	2.246	380.382	396.811	238.652	156.004	394.657

Table 2. Northern Territory and Commonwealth administered waters oil and gas production data.

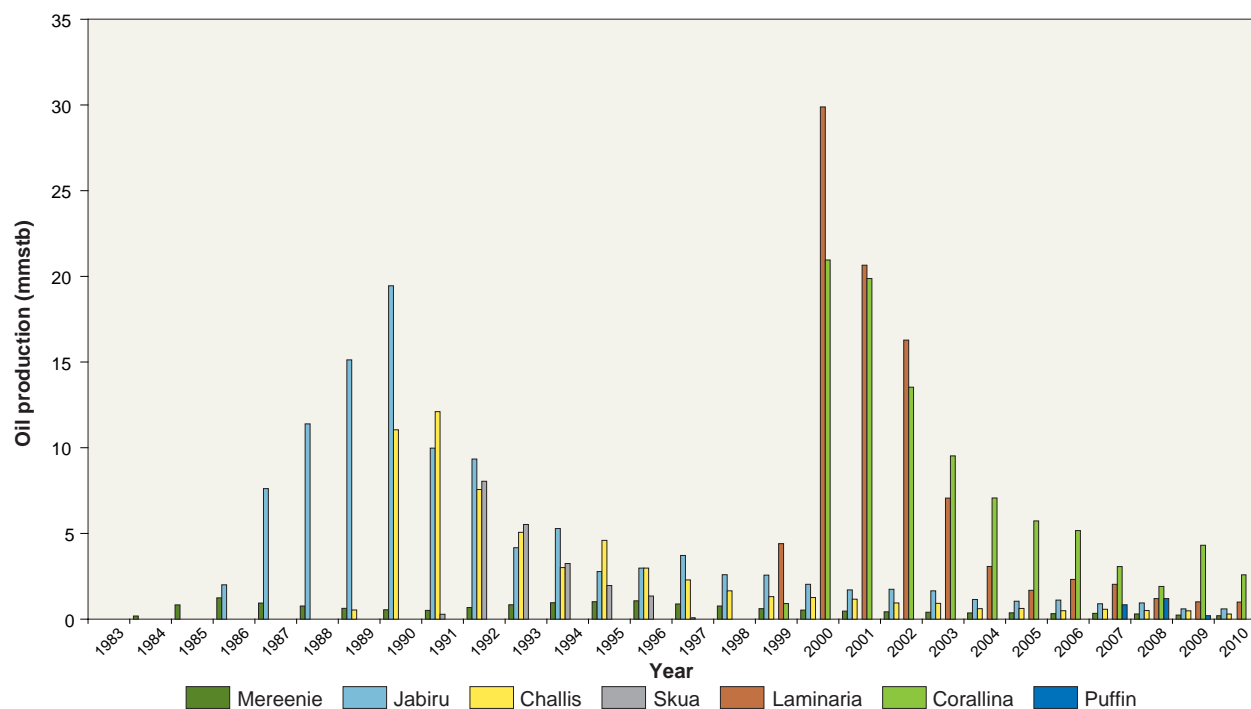


Figure 5. Northern Territory oil production for period 1983–2010.

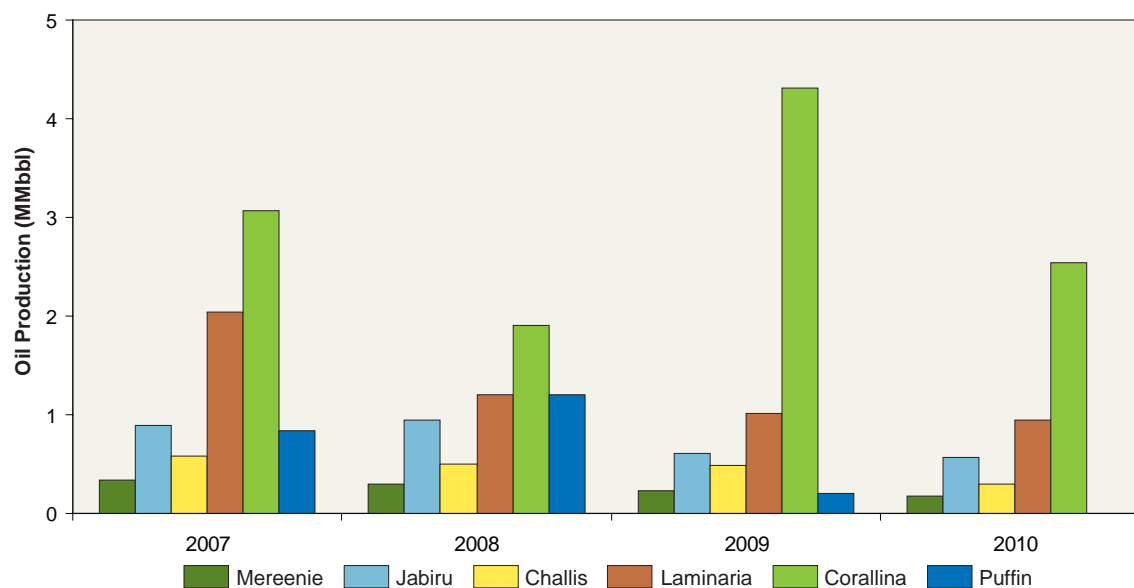


Figure 6. Northern Territory oil production in the last four years.

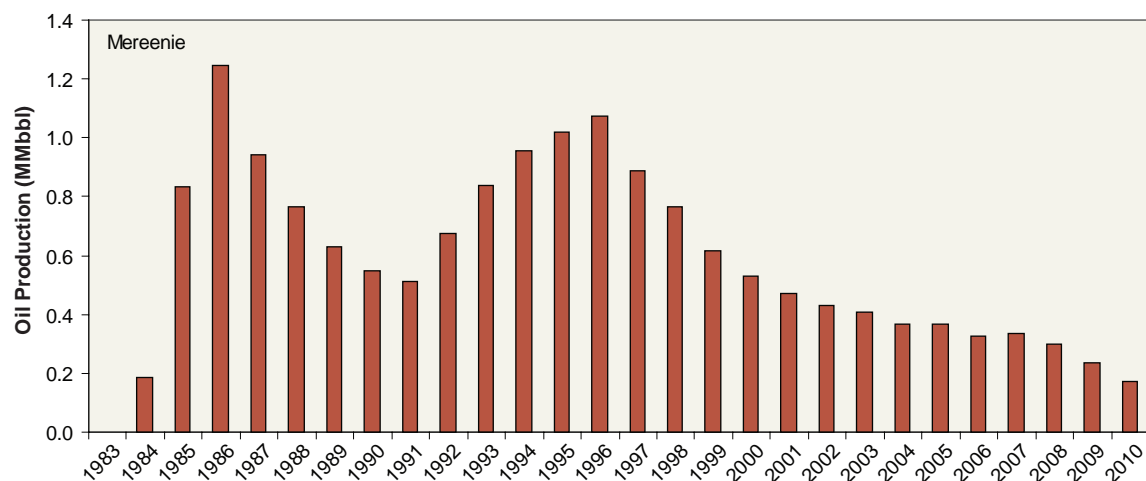


Figure 7. Northern Territory onshore oil production for period 1983–2010.

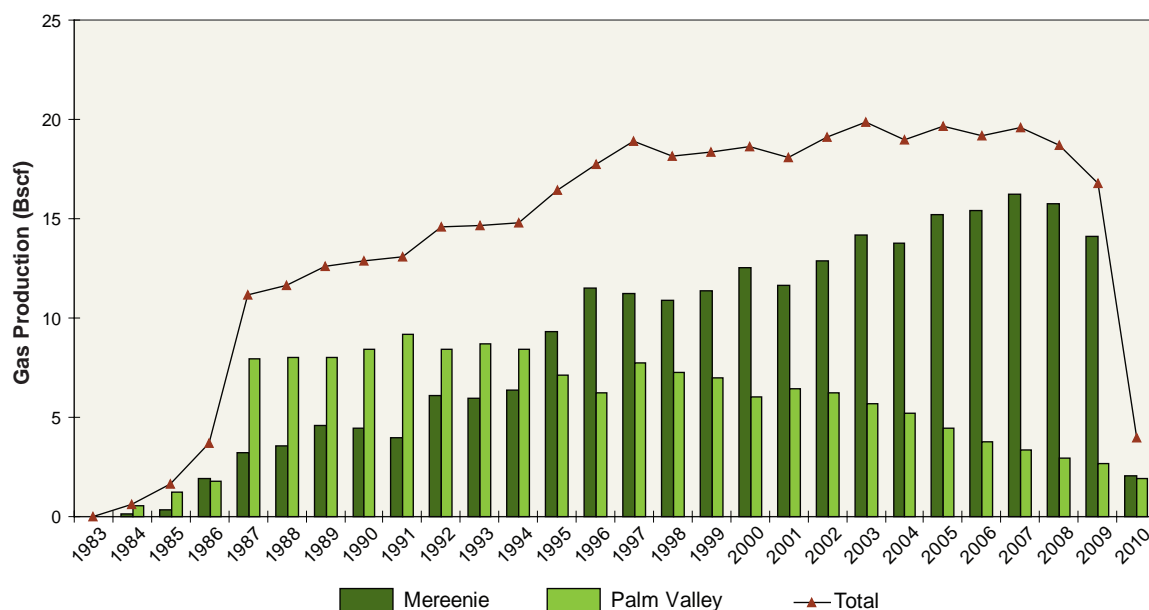


Figure 8. Northern Territory gas production for onshore fields.

Petroleum development: Major players and projects

The Northern Territory has a Major Projects Group within Government that is responsible for:

- facilitating the development of oil and gas resources in the Northern Territory and the Timor Sea region
- developing the Northern Territory's long-term relationships in the region
- positioning Darwin as Australia's Asian gateway
- promoting key trade relationships
- the development of the local supply and service industry to support petroleum operations in the region.

For more information or contact with this Group, please call the Director of Energy.

PTTEP Australasia (Ashmore Cartier) Pty Ltd

In February 2010, PTTEP Australasia (Ashmore Cartier) Pty Ltd, a wholly owned subsidiary of PTT Exploration and Production Public Company, acquired AC/P33 from Stuart Petroleum (Offshore) Pty Ltd., Auralandia NL, Natural Gas Corporation Pty Ltd., Vulcan Australia Pty Ltd and Petrocorp Australia Pty Ltd. PTTEP Australasia (Ashmore Cartier) Pty Ltd (PTTEPAA) holds titles AC/P32, AC/P33, AC/P34, AC/P40, AC/L1, AC/L2, AC/L3, AC/L7 and AC/L8 in Northern Territory administered waters ([Table 3](#)).

Wells drilled in Northern Territory offshore area during 2009

Title	PTTEP Ownership	Joint Venture Partners	Future Events
AC/P32	Operator 35%	Cosmo 30% Bharat 20% Bounty 15%	450 km2 3D seismic reprocessing. Drilling of one (1) exploration well in 2012/13
AC/P33	Operator 100%	-	Re-evaluation all result
AC/P34	Operator 100%	-	Renewal in process
AC/P40	Operator 100%	-	Planning to drill exploration wells 2011, 2012 and 2013
AC/L1	Operator 89.6875%	Santos 10.3125%	Decommissioning Jabiru Field
AC/L2	Operator 89.6875%	Santos 10.3125%	Currently no production from this block
AC/L3	Operator 89.6875%	Santos 10.3125%	Decommissioning Challis Field
AC/L7	Operator 100%	-	Development of Montara field for production to Montara Venture
AC/L8	Operator 100%	-	Redevelop Skua field for production to Montara Venture
AC/RL7	Operator 80%	Cue 20%	Identify feasible commercialisation options including carrying out FEED studies on drilling, completion and tie-in of Cash-Maple development wells

Table 3. Titles in which PTTEP Australasia were participants during 2010.

PTTEP Australasia has been one of the major players in the Northern Territory, undertaking a range of petroleum activities that includes production, exploration, drilling and development.

The Montara Development Project is a multi-field project incorporating four (4) different oil pools - Montara, Swift, Swallow and Skua in licence areas AC/L7 and AC/L8 held by PTTEP Australasia.

At Montara, PTTEP Australasia drilled four (4) new wells (Swift-2, Wisteria-1, Skua-10 and Skua-11), performed two (2) recompletions (Swallow-1 and Swift North-1) and two (2) completions (Skua-10 and Skua-11) to prepare wells for production as part of the Montara Field Development ([Figure 9](#)).

PTTEP Australasia continued production of the Jabiru and Challis fields in AC/L1 and AC/L3, respectively, during 2010 ([Table 4](#)). Jabiru and Challis continued to produce oil and water. Total oil produced during 2010 for the two fields was 0.562 mmbbl and 0.3 mmbbl, respectively. Production from the two fields ceased in late September 2010 and they are being prepared for abandonment.

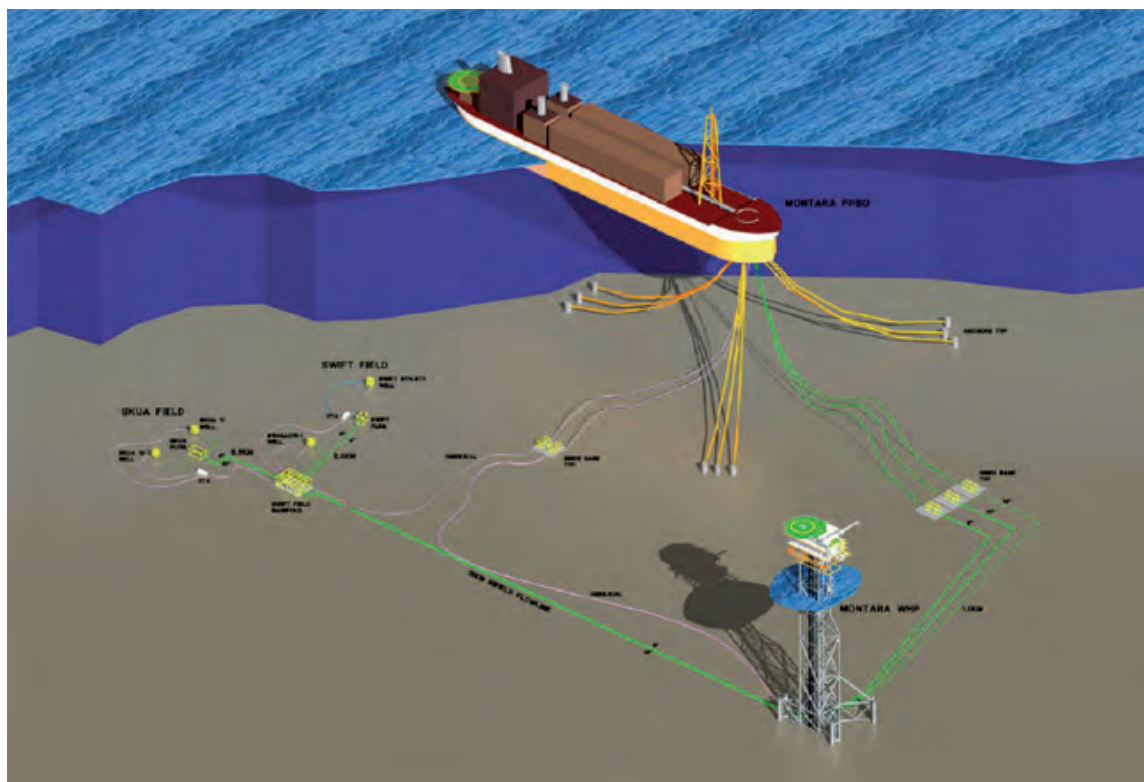


Figure 9. Montara Field development concept.

Date	Jabiru Venture			Challis Venture		
	Oil (bbl)	Water (bbl)	Gas (MMscf)	Oil (bbl)	Water (bbl)	Gas (MMscf)
January	81,440	1,435,869	73.93	38,594	253,951	14.20
February	74,000	1,127,857	129.48	34,512	229,899	12.67
March	64,112	1,129,606	127.99	31,852	266,292	14.22
April	77,352	1,296,833	145.97	35,953	256,649	13.54
May	55,709	915,381	14.18	35,896	261,077	13.11
June	41,821	724,316	10.85	32,827	254,605	13.38
July	57,262	883,624	14.75	34,022	265,474	13.31
August	53,482	838,476	56.80	35,009	267,984	12.85
September	57,050	836,671	8.80	20,864	158,981	7.91
October	0	0	0	0	0	0
November	0	0	0	0	0	0
December	0	0	0	0	0	0
Total	562,228	9,188,632	583.00	299,527	2,214,913	115.00

Table 4. 2010 monthly productions for Jabiru and Challis ventures

Woodside Energy Ltd (Woodside)

Laminaria /Corallina Oil Development (AC/L5)

Woodside's activities cover both exploration and production. Woodside operates the *Northern Endeavour* FPSO in AC/L5 over the Laminaria/Corallina Oil Fields. The monthly oil and gas production data for Corallina and Laminaria field is shown in **Table 5**.

Date	Corallina Production			Laminaria Production		
	Oil (bbl)	Water (bbl)	Gas (MMscf)	Oil (bbl)	Water (bbl)	Gas (MMscf)
January	305,389	764,237	306.171	97,542	820,242	43.551
February	221,445	714,233	270.890	69,345	672,028	37.766
March	257,888	849,835	282.674	103,933	928,967	52.673
April	267,682	802,662	259.035	99,159	901,487	44.403
May	238,604	805,360	248.813	84,485	939,899	43.906
June	142,150	479,523	120.431	19,480	469,019	18.741
July	218,156	1,100,434	213.709	56,734	1,147,372	40.215
August	190,556	1,094,301	211.118	65,307	1,004,571	40.960
September	178,517	1,108,868	195.430	108,776	1,191,667	55.797
October	177,983	1,106,183	200.790	123,771	1,397,659	68.432
November	174,492	997,218	205.688	117,481	1,263,050	69.781
December	164,736	975,461	214.987	106,241	1,194,800	71.130
Total	2,537,599	10,798,132	2,729.737	1,052,254	11,930,700	587.355

Table 5. 2010 monthly production for Corallina and Laminaria

Future Work Program

- Progress Corallina West infill opportunity for possible late year drilling.
- Evaluate Laminaria field infill opportunities.
- Drill an appraisal well to assess potential attic oil in Laminaria and possible undrained oil in the underlying Plover formation.
- Potentially drill the Corallina West development well in Upper Heterolithic Section – Corallina reservoir.
- Investigate opportunities for rigless Intervention capability in Laminaria/Corallina.

AC/P48

Woodside Energy operates permit AC/P48, which comprises 19 graticular blocks covering an area of approximately 1523 km². Woodside has a 70% interest and Mitsui E&P Australia Pty Ltd has a 30% interest in the permit.

Activities in the area included:

- Reprocessing of 1560 km (652 km within AC/P48) of vintage 2D seismic data that was completed by WesternGeco.
- Proprietary pre-stack depth migration (PreSDM) reprocessing of the North Browse TQ 3D commenced during October 2009. The reprocessing included 800 km² of data within AC/P48, undertaken by CGGVeritas. The final product is to be delivered in mid 2010.
- The 2D and 3D seismic reprocessing within AC/P48 has resulted in improved seismic data quality and will be used to re-assess the prospectivity of the permit.

Future Work Program

- Conduct 505 km² of 3D seismic survey in 2011.
- Conduct geotechnical studies.
- Drill one well in 2013.

Sunrise LNG Development (NT/RL2 and NT/RL4)

The Sunrise-Troubadour structures are located in the Sahul Platform in the northeastern part of the Bonaparte Basin. Woodside operates NT/RL2 and NT/RL4 (Greater Sunrise Area) and is a joint permit holder, together with ConocoPhillips Pty Ltd, Shell Development (Australia) Pty Limited, and Osaka Gas Australia Pty Ltd. 2010 activities in the area included:

- Completed third party independent certification of Greater Sunrise resource.
- Selected Floating LNG as the development concept for the Greater Sunrise field and submitted the FLNG selection report to both the Australian and the JPDA Regulatory Authorities.
- Completed a number of subsurface studies, including: well skin evaluation, drilling and completion concept, petrophysicist analysis, reservoir engineering analysis.
- Completed a number of fluid property studies and analyses, including: reservoir fluid characterisation laboratory analysis, scale analysis and scale management strategy.
- Completed a number of engineering studies, including: produced water disposal study, flow assurance studies, Mercury handling facilities study, near-field and far-field subsea architecture studies.
- Completed Sunrise technology plan.
- Completed Greenhouse Gas management plan.

Future Work Program

- Continue to engage with both Australian and JPDA Regulatory Authorities to gain support for principle approval of the FLNG development concept
- Complete remaining conceptual engineering studies on the upstream and downstream facilities.
- Undertake execution planning for the Basic of Design (BOD) phase.
- A study for potential seismic acquisition.
- Subsurface studies in support of the development plan.

Central Petroleum Ltd (Central)

Central Petroleum Ltd is undertaking extensive exploration in the Amadeus and Pedirka / Eromanga basins. 2010 activities in these areas are summarised below:

EP82

Central operates Permit EP 82 on behalf of Helium Australia Pty Ltd. The permit EP 82 comprises 162 onshore blocks located in the central Amadeus Basin in the Northern Territory. Central has completed a 169.23 km 2D seismic survey and one well (Ooraminna-2) was drilled in permit year 4. Future work commitment includes geotechnical studies in permit year 5.

EP93

Permit EP 93 is an onshore permit comprising of 117 blocks and is located in the eastern side of the Amadeus Basin in the Northern Territory. The holder of the permit is Merlin Energy Pty Ltd. Central has completed a 306.75 km 2D seismic survey, and two wells (CBM93-002 and CBM93-003) were drilled in permit year 4. Future work commitment includes geotechnical studies in permit year 5.

EP97

Permit EP97 is situated in the Pedirka Basin, Northern Territory. The joint holders of the permit are Merlin Energy Pty Ltd and Rawson Resources Ltd. Central operates the permit on behalf of Rawson Resources. A total of 80 km of 2D seismic survey was acquired in the Pellior Block and 48 km in the Simpson East area. The first renewal of EP 97 was granted on 23 May 2011.

EP105

Central operates permit EP 105 on behalf of Merlin Energy Pty Ltd. The permit comprises 12 blocks and is located in the eastern side of the Amadeus Basin in the Northern Territory. A 100 km 2D seismic survey is committed for 2011 as is the drilling of one well in 2013–2014.

EP106

Central operates the permit EP 106 on behalf of Merlin Energy Pty Ltd. The permit comprises 55 blocks and is located in the eastern side of the Amadeus Basin in the Northern Territory. Acquisition of 80 km of 2D seismic data is committed for 2011.

EP107

Central operates permit EP 107 on behalf of Merlin Energy Pty Ltd. The permit comprises 92 blocks and is located in the eastern side of the Amadeus Basin in the Northern Territory. Central has acquired a 53.54 km 2D seismic survey, and two wells (CBM107-001 and CBM107-002) were drilled in permit year 2. Geotechnical studies will be carried out in permit year 3.

EP112

Central operates permit EP 112 on behalf of Frontier Oil and Gas Pty Ltd. This permit comprises 200 blocks in the Amadeus Basin. Central completed the acquisition of a 139 km 2D seismic survey in permit year 2. Future work commitments include drilling a well in 2011–2012 and acquisition of a 150 km 2D seismic survey.

EP115

The EP 115 permit comprises 169 blocks located in the western part of the Amadeus Basin in the Northern Territory. The joint holders of the permit are Frontier Oil and Gas Pty Ltd and Trident Energy Ltd. Central operates the permit on behalf of Frontier Oil and Gas. The acquisition of 235.69 km of 2D seismic survey was completed in 2010. Johnstone West-1 was drilled in August, Surprise-1 was drilled between October and December, thus fulfilling permit year 2 work commitments. Surprise-1 well was suspended and will be re-entry for completion in 2011. Future work commitments include geotechnical studies and the drilling of one well in 2012–2013.

EP118

Central operates permit EP 118 on behalf of Frontier Oil and Gas Pty Ltd. The permit comprises of 29 blocks in the Amadeus Basin. A work commitment of 136 km 2D seismic survey for permit year 2 has been fulfilled. The proposed future work program includes geotechnical studies and the drilling of one well in 2012–2013.

EP125

Central operates permit EP 125 on behalf of Ordiv Petroleum Pty Ltd. The permit comprises 165 blocks and is located in the central area of the Amadeus Basin in the Northern Territory. The future work commitment includes the drilling of one well in 2010–2011.

PTTEP Timor Sea Pty Ltd

PTTEP Australia Browse Pty Ltd acquired OMV Australia's assets in the Timor Sea and now trades under PTTEP Australia Timor Sea Pty Ltd (PTTEP). The company has interests in a number of offshore exploration permits and retention leases in Commonwealth Waters ([Table 6](#)).

Date	Oil (bbl)	Water (bbl)	Gas (MMscf)
Title	PTTEP Ownership	Joint Venture Partners	Future Events
AC/P4	Operator 50%	Cosmo 50%	600 km ² 3D seismic reprocess. Drill one well in 2012/2013. Acquire 100 km ² 3D seismic survey
AC/P17	Operator 50%	Cosmo 50%	250 km ² 3D seismic reprocess. Drill one well in 2012/2013. Acquire 100 km ² 3D seismic survey
AC/P24	Operator 60%	Bengal Energy 10% Nippon Oil 30%	Drill on well in 2011 259.035
AC/RL4	Operator 50%	Cosmo 50%	Continue technical feasibility and commercial viability studies
AC/RL5	Operator 50%	Cosmo 50%	Continue technical feasibility and commercial viability studies
AC/RL6	Operator 50%	Cosmo 50%	Continue reservoir modelling and optimum subsurface development studies

Table 6. PTTEP Australia Timor Sea Pty Ltd Titles in Timor Sea.

ConocoPhillips Australia Exploration Ltd

ConocoPhillips Australasia is an oil and gas exploration and production company with assets and exploration activities in the Timor Sea, Northern Territory, Western Australia and Timor-Leste.

2010 activities in the area are summarised below:

NT/RL2 and NT/RL4

ConocoPhillips Australia Exploration Ltd, Shell Development (Australia) Pty Ltd, Woodside Energy Ltd and Osaka Gas Australia Pty Ltd are joint holders of NT/RL2 and NT/RL4 in the Eastern Greater Sunrise Field. The Sunrise-Troubadour structures are located on the Sahul Platform in the northeastern part of the Bonaparte Basin.

NT/P61

ConocoPhillips Australia Exploration Pty Ltd (COPA) and Santos Offshore Pty Ltd (Santos) are joint holders of NT/P61. COPA is operator on behalf of the permit holders and holds 60% equity. NT/P61 is located in the Bonaparte Basin approximately 250 km NNW of Darwin, Northern Territory. Activities during 2010 included interpretation of the Caldita 3D Seismic Survey. Major planned activities include reprocessing of the Caldita 3D Seismic Survey data in 2010–2011 and the drilling of one (1) exploration well in 2011–2012.

NT/P69

NT/P69 is located in the Bonaparte Basin, approximately 280 km NNW of Darwin, Northern Territory. Geotechnical studies continued throughout the year.

East Puffin Pty Ltd

AC/P22

AC/P22 comprises five graticular blocks in the Territory of Ashmore and Cartier Island Offshore Area. AC/P22 is located approximately 700 km west of Darwin, Northern Territory and is 75 to 85 km southwest of the Challis and Jabiru Oil Fields on the southwestern flank of the Vulcan Sub-basin in the western Bonaparte Basin. The second renewal of the exploration permit was granted in May 2010. During 2010, a 3D seismic survey was carried out in AC/P22 as part of the Cartier 3D MSS. Future work commitments include seismic interpretation and mapping, and the drilling of one exploration well in 2013–2014.

AC/RL1 (Talbot Field)

AC/RL1 is located in the Territory of Ashmore and Cartier Islands Offshore Area in the Timor Sea, some 600 km west of Darwin, Northern Territory. It is situated on the boundary between the Vulcan Sub-basin to the northwest and the Londonderry High to the southeast. AC/RL1 consists of one (1) graticular block covering an area of 84 km², west-northwest of the Puffin Field. The joint venture consists of AED Oil Ltd (40%) and East Puffin Pty Ltd (60% and Operator). AC/RL1 was renewed for five years on 13 March 2006. Works completed in 2010 included the development of static and dynamic models of the Talbot field.

AC/L6 (Puffin)

The AC/L6 production licence joint venture consists of AED Oil Ltd (40%) and East Puffin Pty Ltd (60% and Operator). AC/L6 was granted on 12 April 2006. East Puffin Pty Ltd suspended the Puffin field production operations due to low oil production and the field being uneconomical in its production.

Santos Ltd

Santos Limited is a large Australian oil and gas exploration company, and is Australia's largest domestic gas producer, supplying sales gas to all mainland Australian states and territories.

Santos has operational interests in three (3) retention licences and one (1) exploration permit in the southern Bonaparte Basin, which contains of the Petrel-Tern-Frigate Gas Fields that are under development in a joint venture with GDF SUEZ (Bonaparte LNG). Santos also has an operational interest in one (1) exploration permit in the northern Bonaparte Basin, which contains the undeveloped Evans Shoal gas resource, and non-operational interests in two (2) exploration permits containing the undeveloped Barossa and Caldita gas resources.

Activities in the area are summarised below:

NT/RL1 (Petrel Field)

The Petrel Gas Field is located offshore in 100 m of water, 250 km west of Darwin, Northern Territory. It lies on the Northern Territory–West Australian border. Santos Ltd is the operator of the lease. The joint venture consists of Origin Energy Bonaparte Pty Ltd, Bonaparte Gas and Oil Pty Ltd, Santos Ltd and GDF Suez Bonaparte Pty Ltd. There was no drilling or seismic acquisition conducted during 2010, but geophysical, geological and engineering studies were undertaken.

OL4 and OL5 (Mereenie Oil and Gas Fields)

Santos Ltd is the operator of the Mereenie Joint Venture which includes Magellan Petroleum (NT) Pty Ltd, Santos Ltd and Santos QNT Pty Ltd. Santos Ltd was granted an access authority in October 2009 to conduct a 2D seismic survey in the licensed area, but no seismic activity was undertaken in 2010 due to wet ground.

Gas sales from the Mereenie Field ceased in mid February 2010 and processed gas is currently being reinjected to the maintain reservoir pressure. Crude oil and condensate production continued at a reduced rate.

Shell Development (Australia) Pty Ltd

Shell Development (Australia) Pty Ltd (SDA) is the operator of Exploration Permit AC/P41 and is also a joint holder with Mitsui E&P Australia Pty Ltd. The permit comprises of 28 whole and part graticular blocks covering an area of approximately 1909 km².

Drilling Operations

One exploration well (Hippolyte-1) was drilled between October and November 2010. Hippolyte-1 was drilled to a total depth of 3856 m MDRT. The well intercepted a 55 m column of gas in the Jurassic section. RCI hydrocarbon samples were recovered to surface, and the well was plugged and abandoned.

Magellan Petroleum (NT) Pty Ltd

Magellan Petroleum (NT) Pty Ltd (Magellan) is the operator of the Palm Valley gas field.

The Palm Valley gas field currently produces from 4 wells and the gas is delivered to Alice Spring via a 134 km pipeline.

Pipeline activities

Blacktip Project Gas and Condensate Pipelines

Delivery of full specification gas to the Bonaparte Gas Pipeline commenced in the first half of 2010 and the first shipment of condensate from ENI's onshore gas treatment facility in Wadeye occurred later in the year.

Palm Valley Gas Pipeline

The throughput capacity of the interconnect facility between the Amadeus Basin Pipeline and Palm Valley Gas Pipeline at the Palm Valley Gas Field was upgraded in December 2010 to cater for increasing demands in the Alice Spring area.

Environment

One significant environmental incident occurred in 2010. This involved leakage of oil from the sump of an export pump at the eastern processing facility in the Mereenie Oil Field. Monitoring bores were sunk to identify the likely extent of contamination and extraction operations were subsequently conducted.

Energy titles

the Northern Territory Government administers Energy titles within five different areas. They are:

1. Onshore
2. Territorial Waters
3. Principal Northern Territory Offshore Area
4. Eastern Greater Sunrise Offshore Area
5. Territory of Ashmore and Cartier Islands Offshore Area.

ONSHORE

In the Onshore area, there are two (2) retention licences (gas discoveries) and three (3) oil and gas production licences. The retention licences are located in the Amadeus Basin (Dingo Gas Field) and onshore Bonaparte Basin (Weaber Gas Field):

- RL1 – Weaber retention licence was renewed in 2007 for a five (5) year period, and
- RL2 – Dingo retention licence was renewed for a five (5) year period in 2009. The Dingo Gas Field is a moderate-sized gas discovery with four (4) wells in the structure. Only Dingo-2 and Dingo-3 are available for gas production from the gas reservoirs. Geological and stratigraphic work was undertaken by Santos as a part of their licence commitments.

The production licences are both in the Amadeus Basin:

- OL3 is situated over the Palm Valley gas field
- OL4 and OL5 are situated over the Mereenie Gas and Oil Fields.

For actual production rates, refer to [Figures 5 and 6](#), and [Table 2](#).

2010 Permits awarded over onshore areas

The Northern Territory's onshore basins hold twenty exploration permits, three (3) production licences and two (2) retention licences ([Table 7](#), [Figure 10](#)). One onshore permit was awarded in 2010:

- EP163 was awarded to Tamboran Resources Pty Ltd on 14 May 2010 over 198 blocks.

TERRITORIAL WATERS

Territorial Waters includes the first three (3) nautical miles around the Northern Territory coastline. No permits are currently awarded in this area.

PRINCIPAL NORTHERN TERRITORY OFFSHORE AREA

Two exploration permits were awarded within the Principle Northern Territory Offshore Area during 2010 ([Table 8](#), [Figure 11](#)):

- NT/P81 was granted on 13 May 2010 to DVM International Ltd jointly with Ansbachall Pty Ltd over 44 blocks. The minimum work program includes the reprocessing of 2D and 3D seismic data, acquisition of 500 km² of new 3D seismic survey and three (3) exploration wells. The minimum nominated expenditure is A\$49.5 million.
- NT/P82 was granted on 13 May 2010 to Magellan Petroleum (Offshore) Pty Ltd over 75 blocks. The minimum work program contains reprocessing 3000 line km of existing 2D seismic data, acquisition of 100 line km of 2D seismic survey, 120 km² of 3D seismic survey, geotechnical studies and one (1) exploration well. The minimum nominated expenditure is A\$28.7 million.

Existing retention leases are listed below:

NT/RL1 (Petrel Gas Field)

NT/RL1 – Petrel retention lease was renewed on 10 July 2006. NT/RL1 straddles the Northern Territory–Western Australian border, and is approximately 235 km west-southwest of Darwin, Northern Territory. NT/RL1 comprises nine (9) whole or part blocks.

TITLE	TITLE HOLDER	DATE AWARDED/ RENEWED
EP76	Falcon Oil and Gas Australia Pty Ltd	08-Mar-2001
EP82	Helium Australia Pty Ltd	02-Sep-2005
EP93	Merlin Energy Pty Ltd	01-Nov-2004
EP97	Rawson Resources Ltd Merlin Energy Pty Ltd	21-Oct-2001
EP98	Falcon Oil and Gas Australia Pty Ltd	04-Feb-2004
EP99	Falcon Oil and Gas Australia Pty Ltd	04-Feb-2004
EP103	Texalta Australia Pty Ltd	21-Apr-2006
EP104	Texalta Australia Pty Ltd	21-Apr-2006
EP105	Merlin Energy Pty Ltd	28-Sep-2007
EP106	Merlin Energy Pty Ltd	28-Sep-2007
EP107	Merlin Energy Pty Ltd	28-Sep-2007
EP112	Frontier Oil & Gas Pty Ltd	21-Jul-2005
EP115	Frontier Oil & Gas Pty Ltd Trident Energy Limited Petroleum Exploration Australia Limited	17-Aug-2007
EP117	Falcon Oil and Gas Australia Pty Ltd	14-Mar-2006
EP118	Frontier Oil & Gas Pty Ltd Petroleum Exploration Australia Pty Ltd	21-Jul-2005
EP125	Ordiv Petroleum Pty Ltd	7-Dec-2005
EP127	PetroFrontier (Australia) Pty Ltd Northern Territory Oil Limited Baraka Petroleum Limited	14-Dec-2007
EP128	PetroFrontier (Australia) Pty Ltd Northern Territory Oil Limited Barak Petroleum Limited	14-Dec-2007
EP134	Tri-star Energy Company	26-Feb-2008
EP163	Tamboran Resources Pty Ltd	14-May-2010

Table 7. Onshore Titles in Northern Territory.

NT/RL2 (Sunrise/Troubadour Gas Fields) Eastern Greater Sunrise Offshore Area

The Eastern Greater Sunrise Offshore Area was created in 2007 as a means of enabling the Australian Government to act as both Joint Authority and Designated Authority over the Australian section of the Sunrise Field. The Australian section of the Eastern Greater Sunrise Offshore Area is made up of two (2) retention leases: NT/RL2 and NT/RL4. NT/RL4 is a small retention lease comprising of three (3) partial blocks between the main part of the Sunrise structure in Australian waters and its extension into the Joint Petroleum Development Area (JPDA).

NT/RL2 was awarded on 19 November 2007 to Woodside Energy Ltd for a five (5) year period. This took place following the ratification of The Certain Maritime Arrangements in the Timor Sea (CMATS) agreement between Timor Leste and Australia, and the ratification of the International Unitisation Agreement (IUA) by Timor Leste. Woodside allocated a new team to progress the project and a new retention lease (NT/RL4) was awarded with the aim of unitisation in the future.

NT/RL3 (Barnett Oil discovery)

NT/RL 3 was cancelled in 2008; the area is being considered for re-release.

NT/RL4 (Eastern Greater Sunrise Offshore Area)

NT/RL4 was renewed on 19 November 2007.

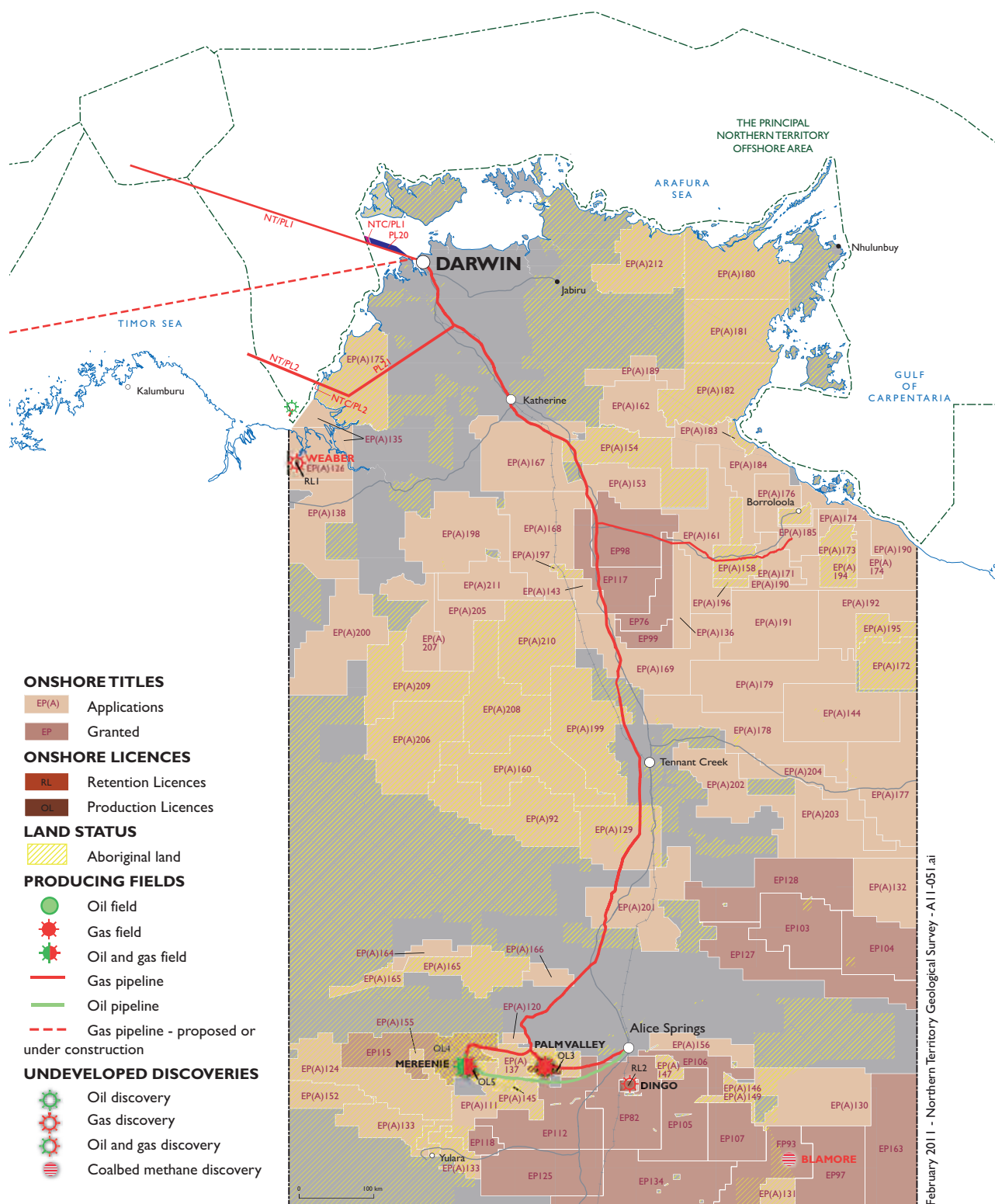


Figure 10. Permits awarded in Northern Territory onshore area.

Title	Title holder	Date awarded/ renewed
NT/P48	Shell Development Proprietary Limited Santos Offshore Pty Ltd Osaka Gas Australia Pty Ltd Petronas Carigali (Australia) Pty Ltd	23-Oct-2007
NT/P61	Santos Offshore Pty Ltd ConocoPhillips Australia Exploration Pty Ltd	14-Oct-2008
NT/P62	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	20-Sep-2002
NT/P63	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	20-Sep-2002
NT/P64	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	20-Sep-2002
NT/P65	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	22-Apr-2003
NT/P68	Tsp Arafura Petroleum Pty Ltd Oz Exoil Pty Ltd MEO Australia Limited	27-Apr-2010
NT/P69	Santos Offshore Pty Ltd ConocoPhillips Australia Exploration Pty Ltd	10-Oct-2005
NT/P71	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	08-Aug-2006
NT/P72	National Oil & Gas Pty Ltd Nations Natural Gas Pty Ltd Australian Natural Gas Pty Ltd	08-Aug-2006
NT/P73	Alpha Oil & Natural Gas Pty Ltd	27-Mar-2007
NT/P76	OPIC Australia Pty Ltd SIPC Australia Pty Limited	28-Mar-2008
NT/P77	Essar Exploration & Production Limited	25-Sep-2008
NT/P78	Essar Exploration & Production Limited	25-Sep-2008
NT/P79	Finder Exploration Pty Ltd	24-Jun-2009
NT/P80	Murphy Australia Oil Pty Ltd Diamond Resources Australia Pty Ltd	24-Jun-2009
NT/RL1	Origin Energy Bonaparte Pty Limited Bonaparte Gas And Oil Pty Limited Santos Offshore Pty Ltd GDF Suez Bonaparte Pty Ltd	10-Jul-2006
NT/RL2	Shell Development (Australia) Proprietary Limited Woodside Energy Limited ConocoPhillips STL Pty Ltd Osaka Gas Australia Pty Ltd	10-Jul-2006
NT/RL4	Shell Development (Australia) Proprietary Limited Woodside Energy Limited ConocoPhillips STL Pty Ltd Osaka Gas Australia Pty Ltd	19-Nov-2007

Table 8. Principal Northern Territory Offshore Area Titles.

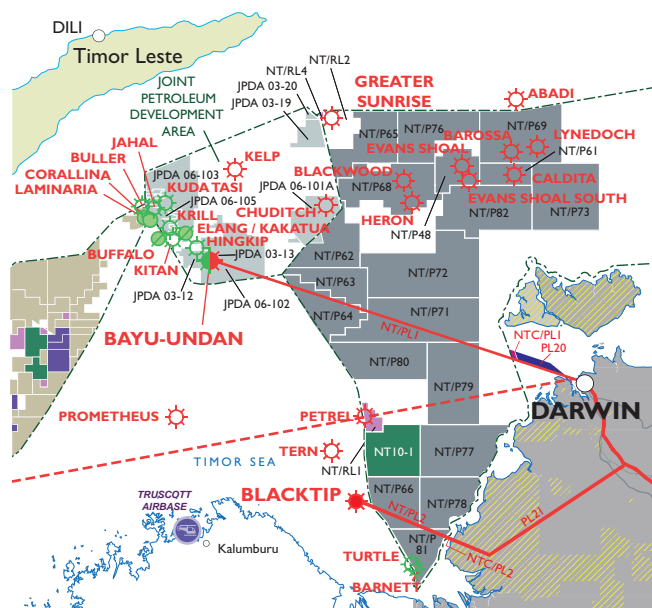


Figure 11. Tenure in the Principal Northern Territory Offshore Area.

THE TERRITORY OF ASHMORE AND CARTIER ISLANDS OFFSHORE AREA

During 2010, the Northern Territory administered 26 Exploration Permits in (AC/Ps), six (6) Retention Leases (AC/RLs) and eight (8) Production Licences (AC/Ls) in the Territory of Ashmore and Cartier Islands Offshore Area (see [Table 9](#)). All of the NT's offshore oil is produced from this area and is delivered to one operating FPSO facility:

1. Northern Endeavour (**Figure 12**), producing from the Laminaria and Corallina Oil Fields (AC/L5), operated by Woodside Energy Ltd.

Retention Leases in the Territory of Ashmore Cartier Islands and Offshore Area

AC/RL1 (Talbot)

A renewal was granted on 13 March 2006 to East Puffin Pty Ltd and AED Oil Ltd. East Puffin Pty Ltd is the current operator and is undertaking field development studies.

AC/RL4 & 5 (Tenacious)

PTTEP Australia Timor Sea Pty Ltd and Cosmo Oil Co Ltd are the joint holders, and PTTEP is the operator. The Tenacious Oil Field was discovered in 1997 via the Tenacious-1 exploration well. The AC/RL4 and AC/RL5 retention leases were granted over the oil field location on 1 April 2004 for a 5-year period. The initial lease-period work program has been completed and an application to renew the retention leases for a second period has been submitted.

AC/RL6 (Audacious)

The current operator is PTTEP Australia Timor Sea Pty Ltd. Audacious-5 was drilled to appraise the extension of the field, but this well was unsuccessful and is currently abandoned. The lease was awarded on 21 July 2006.

AC/RL7 (Cash-Maple)

The current operator is PTTEP Australasia (Ashmore Cartier) Pty Ltd. The lease was awarded on 27 November 2006. The Cash-Maple structure has been remapped using 2009 reprocessed data and results of this reprocessing have been encouraging. PTTEP has committed to a Front End Engineering and Design (FEED) study for the development of Cash/Maple using MFPSO technology.

AC/RL8 (Argus)

The current operator is Woodside Browse Pty Ltd. The original retention lease was awarded on 9 January 2007. BHP Billiton Petroleum (Australia) Pty Ltd and Woodside Browse Pty Ltd are the current joint holders. A gas discovery was made by BHP Billiton in AC/P30 in September 2000. The resource is estimated at 1.5 TCF and is possibly up to 6 TCF of dry gas, and is currently under a retention lease ([Figure 13](#)).

Title	Title holder	Date awarded/ renewed
AC/P4	PTTEP Australia Timor Sea Pty Ltd Cosmo Oil Co Ltd	24-Jun-2009
AC/P8	Talisman Oil & Gas (Australia) Pty Ltd Karoo Energy International Ltd	03-Oct-2008
AC/P17	PTTEP Australia Timor Sea Pty Ltd Cosmo Oil Co Ltd	24-Jun-2009
AC/P21	ENI Australia Limited OPIC Australia Limited SIPC Australia Pty Limited	13-Jan-2010
AC/P22	AED Oil Limited East Puffin Pty Limited	28-May-2010
AC/P24	PTTEP Australia Timor Sea Pty Ltd Bengal Energy Ltd Nippon Oil Exploration (Australia) Pty Ltd	8-Jun-2005
AC/P32	PTTEP Australia (Ashmore Cartier) Pty Ltd Bounty Oil & Gas NL Cosmo Oil Co Ltd Bharat PetroResources Ltd	24-Jun-2009
AC/P33	PTTEP Australasia (Ashmore Cartier) Pty Ltd	25-Jun-2004
AC/P34	PTTEP Australasia (Ashmore Cartier) Pty Ltd	06-Jul-2004
AC/P35	Natural Gas Corporation Pty Ltd Auralandia NL Vulcan Australia Pty Ltd Petrocorp Australia Pty Ltd	18-Oct-2005
AC/P36	Finder Exploration Pty Ltd Murphy Australia Oil Pty Ltd PTTEP Australia Offshore Pty	18-Oct-2005
AC/P37	Apache Northwest Pty Ltd Total E&P Pty Ltd	18-Oct-2005
AC/P39	Natural Gas Corporation Pty Ltd Auralandia NL Vulcan Australia Pty Ltd Petrocorp Australia Pty Ltd	07-Apr-2006
AC/P40	PTTEP Australasia (Ashmore Cartier) Pty Ltd	1-Mar-2007
AC/P41	Shell Development (Australia) Proprietary Limited Mitsui E&P Australia Pty Ltd	1-Mar-2007
AC/P42	Apache Energy Limited Total E&P Pty Ltd	15-Apr-2008
AC/P43	Apache Energy Limited Total E&P Pty Ltd	15-Apr-2008
AC/P44	Finder Exploration Pty Ltd Perenco (SE Australia) Pty Ltd	15-Apr-2008
AC/P45	Finder Exploration Pty Ltd Perenco (SE Australia) Pty Ltd	15-Apr-2008
AC/P46	TATA Petrodyne Pty Ltd	03-Mar-2009
AC/P47	Bengal Energy Ltd	03-Mar-2009
AC/P48	Woodside Energy Ltd Mitsui E&P Australia Pty Ltd	16-Mar-2009
AC/P49	Silver Wave Energy Pte Ltd	21-Apr-2009
AC/P50	MEO Australia Limited	21-Apr-2009
AC/P51	MEO Australia Limited	21-Apr-2009
AC/52	Finder Exploration Pty Ltd Sasol Petroleum Australia Limited	26-May-2009
AC/RL1	East Puffin Pty Limited AED Oil Limited	13-Mar-2006
AC/RL4	PTTEP Australia Timor Sea Pty Ltd Cosmo Oil Co. Ltd	7-May-2010
AC/RL5	PTTEP Australia Timor Sea Pty Ltd Cosmo Oil Co Ltd	7-May-2010
AC/RL6	PTTEP Australia Timor Sea Pty Ltd Cosmo Oil Co. Ltd	21-Jul-2006
AC/RL7	PTTEP Australasia (Ashmore Cartier) Pty Ltd Cue (Ashmore Cartier) Pty Ltd	27-Nov-2006
AC/RL8	Woodside Browse Pty Ltd BHP Billiton Petroleum (Australia) Pty Ltd	09-Jan-2007

Table 9. Territory of Ashmore and Cartier Islands Offshore Area Titles (continued on next page).

Title	Title holder	Date awarded/ renewed
AC/L1	Santos Offshore Pty Ltd PTTEP Australasia (Ashmore Cartier) Pty Ltd	26-Jun-2006
AC/L2	Santos Offshore Pty Ltd PTTEP Australasia (Ashmore Cartier) Pty Ltd	26-Jun-2006
AC/L3	Santos Offshore Pty Ltd PTTEP Australasia (Ashmore Cartier) Pty Ltd	20-Nov-2008
AC/L5	Woodside Energy Ltd Talisman Oil & Gas (Australia) Pty Limited	6-Feb-1997
AC/L6	AED Oil Limited East Puffin Pty Limited	12-Apr-2006
AC/L7	PTTEP Australasia (Ashmore Cartier) Pty Ltd	20-Mar-2007
AC/L8	PTTEP Australasia (Ashmore Cartier) Pty Ltd	09-Aug-2007
AC/L9	Nexus Energy WA Pty Ltd Osaka Gas Crux Pty Ltd	23-Feb-2009

Table 9. Territory of Ashmore and Cartier Islands Offshore Area Titles (continued from previous page).



Figure 12. FPSO operating in Northern Territory DoR administered offshore areas: Northern Endeavour.

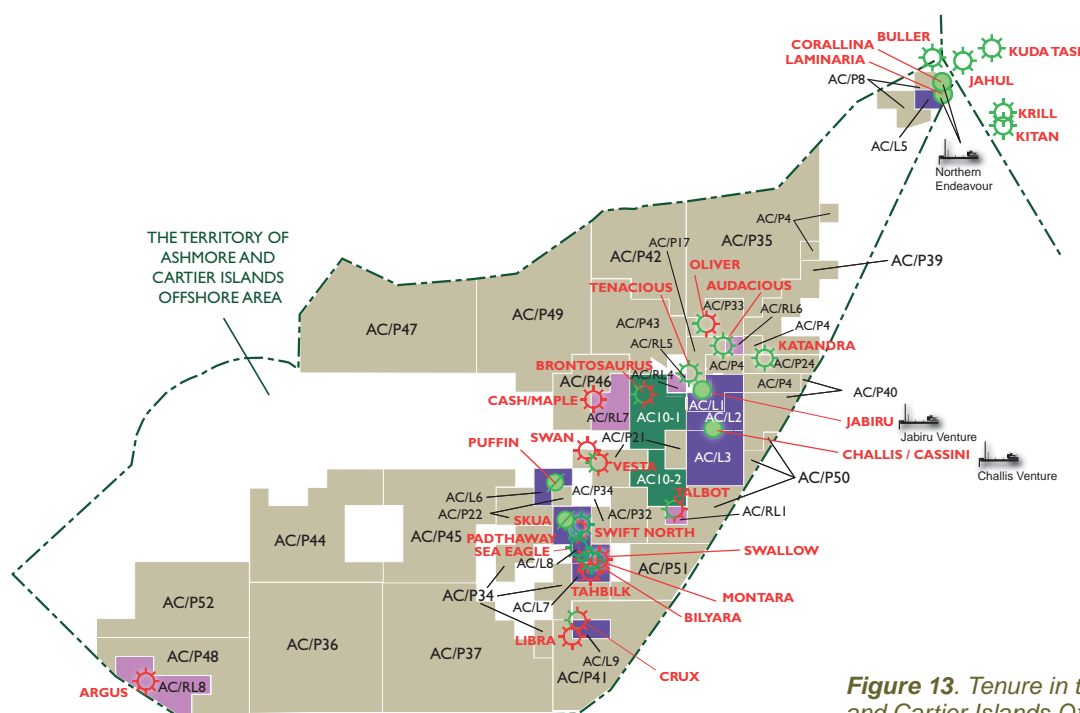


Figure 13. Tenure in the Territory of Ashmore and Cartier Islands Offshore Area.

2010 RELEASE OF OFFSHORE PETROLEUM EXPLORATION AREAS

Release area AC10-1 and AC10-2 Vulcan Sub-basin, Bonaparte Basin, Northern Territory

The acreages (**Figure 14**) have the following features:

- They are located in the Bonaparte Basin, about 650 km west of Darwin in the Timor Sea. Release area AC10-1 comprises 10 graticular blocks (about 840 km²) and AC10-2 comprises 6 graticular blocks (about 505 km²).
- The permits are surrounded by very large oil fields (Jabiru, Challis and Cassini); and also by discovered undeveloped accumulations, including Cash–Maple, Tenacious and Talbot.
- Release areas flank Jurassic depocentres containing oil-prone Upper Jurassic and oil/gas-prone Middle Jurassic source rocks.
- Release areas are covered by extensive open file 2D and 3D seismic datasets.
- Water depths in the release areas are less than 200 m.

Bids closed in November 2010.

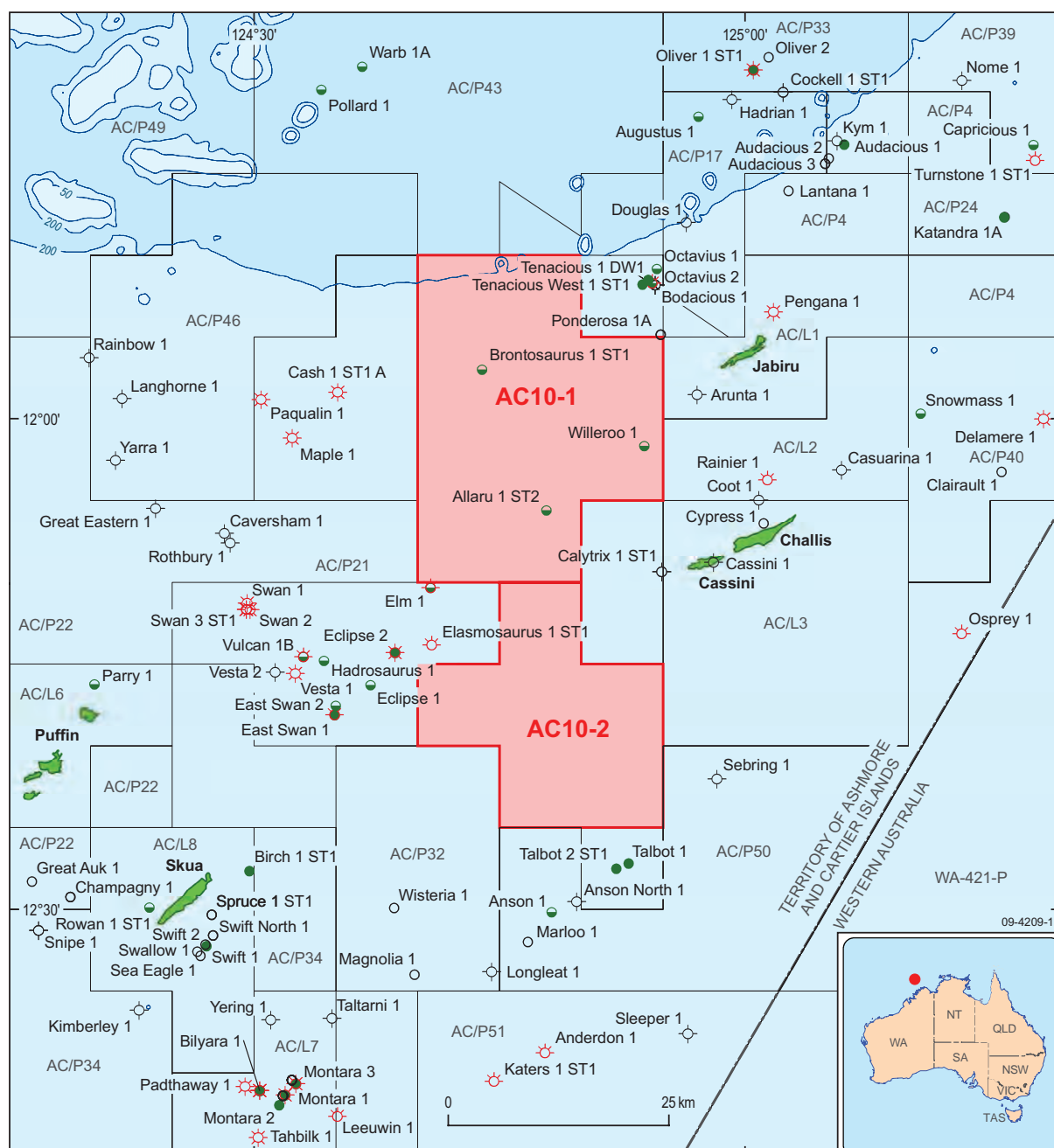


Figure 14. 2010 release of offshore petroleum exploration areas in Bonaparte Basin, Northern Territory.

Release area NT10-1 Petrel Sub-basin, Bonaparte Basin, Northern Territory

This acreage has the following features:

- Located in the Joseph Bonaparte Gulf, about 400 km southwest of Darwin. Release area NT10-1 comprises 53 blocks (about 4075 km²).
- The permit is within close proximity to the Petrel, Tern and Blacktip gas fields.
- Underexplored shallow-water area (<50 m) in a proven Palaeozoic gas province.
- Play types includes: horst blocks, rotated fault blocks, anticlines, stratigraphic traps, pinchouts and unconformity truncations.
- Proven gas-prone Permian petroleum system.

Bids closed in November 2010.

Conferences

The Northern Territory Government attended several national and international petroleum conferences throughout 2010.

Highlights included:

- 2010 marked the 50th anniversary of the Australian Petroleum Production and Exploration (APPEA) Conference, where the Chief Minister, the Hon Paul Henderson MLA, hosted a Northern Territory Government breakfast, with key industry representatives attending for an update on petroleum developments and opportunities in the Northern Territory and offshore waters.
- Through its partnership with the Institute of International Research (IIR), the Northern Territory Government hosted the 16th annual South East Asia Australia Offshore Conference (SEAAOC) at the Darwin Conference and Exhibition Centre. The conference was again co-located with the Australian Minerals Council's Mining the Territory conference to form NT Resources Week.
- At SEAAOC, the Chief Minister, the Hon Paul Henderson MLA, hosted the 'Welcome Reception' and delivered the keynote opening address. Keynote addresses were also delivered by the Minister for Resources, Energy and Tourism Australia, the Hon Martin Ferguson MLA, and the Hon Ian Macfarlane, Shadow Minister for Energy and Resources.
- Some prominent speakers at SEAAOC included:
 - Mr Feisal Ahmed, Executive Vice President Project Development, Woodside Petroleum.
 - Mr David Knox, Chief Executive Officer and Managing Director, Santos.
 - Ms Belinda Robinson, Chief Executive, APPEA.
 - Mr Antonio Baldassarre, Managing Director, Eni Australia.
 - Mr William Hastings, Managing Director, Magellan Petroleum.
 - Mr Mark Nelson, Manager New Ventures, ConocoPhillips.
 - Mr Hitoshi Tagawa, President, Tokyo Electric Power Company.
- SEAAOC 2010 represented an excellent opportunity for key stakeholders to promote their contribution to the industry, and to discuss and debate the challenges faced by the oil and gas industry in a rapidly changing world.
- The Department of the Chief Minister led a delegation to the Australasian Oil and Gas (AOG) Conference held in Perth, Western Australia (March 2010). The Conference promoted the Northern Territory Government's strategy to transform Darwin and the Northern Territory into a world-class support supply base for the oil and gas industries, and the INPEX Ichthys Project.
- The largest oil and gas exposition in the Asia Pacific region, the 2010 Offshore South East Asia (OSEA) exposition in Singapore, was attended by a delegation led by the Department of the Chief Minister. It presented an excellent opportunity to promote Darwin as a centre of significance to the oil and gas industry and to make contact with potential investors into the Territory.

Acknowledgements

this annual report is a compilation of contributions made by several sections within the Northern Territory Government. The report was edited and formatted by the Publications and Graphic Design section of the Northern Territory Geological Survey. The author acknowledges and expresses his gratitude to all contributors.

DoR Team:

Chief Executive: Richard Galton
Executive Director: Alister Trier
Director of Energy: Alan Holland
Director Northern Territory Geological Survey: Ian Scrimgeour

Key contacts:

Director of Energy
Ph: +61 8 8999 5357
Fax: +61 8 8981 7106
Email: Directorenergy@nt.gov.au

Petroleum Registrar
Ph: +61 8 8999 7112
Fax: +61 8 8981 7106
Email: petroleum.operations@nt.gov.au

Team Leader - Energy Operations:
Ph: +61 8 8999 5460
Fax: +61 8 8981 7106
Email: petroleum.operations@nt.gov.au