

NEW RESOURCE ASSESSMENT

FOR *Dampier & Rankin*

Geoscience Australia has updated medium-term forecasts for hydrocarbon discovery in the Carnarvon Basin.

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The next ten to fifteen years could see the discovery of 167 million barrels of oil, 0.4 trillion cubic feet of gas, and 26 million barrels of condensate in the Dampier Sub-basin and the adjoining Rankin Platform (table 1).

These predictions—generated by Geoscience Australia’s resource assessment program AUSTPLAY—are the risked mean values from a distribution. They take into account the geological risk at both the play level and the prospect level; however, play-level risk is zero in these assessment areas, where hydrocarbons have already been discovered.

It is important to recognise that this is not an estimate of the ultimate potential for this region.

Table 1. Summary of Geoscience Australia’s medium-term, medium drilling scenario assessment for the Dampier Sub-basin and Rankin Platform.

		Probability			
		90%	50%	10%	Mean
Oil	gigalitres	4	21	56	27
	million barrels	27	133	354	167
Gas	billion cubic metres	0.3	2.9	34.7	12.5
	trillion cubic feet	0.0	0.1	1.2	0.4
Condensate	gigalitres	0	1	12	4
	million barrels	0	5	77	26

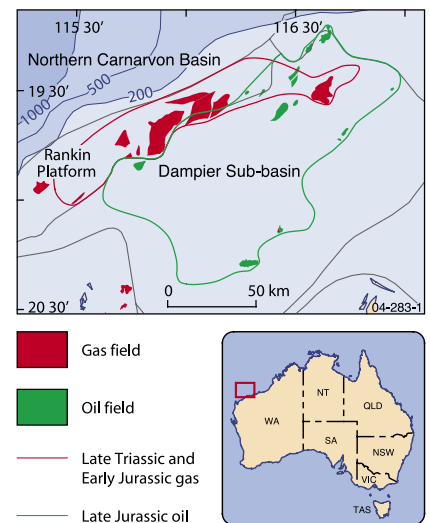
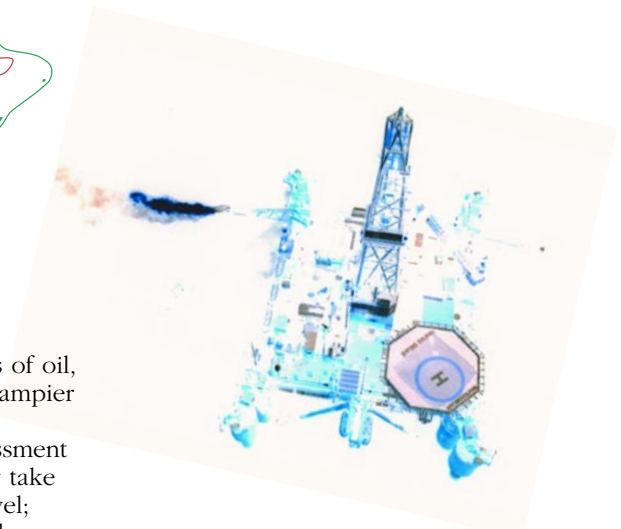
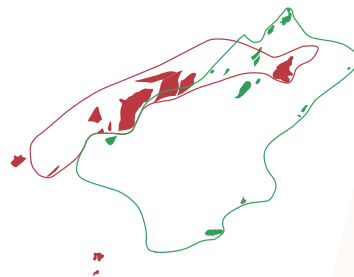
Assessment units

AUSTPLAY considered two defined assessment units: a wet gas area on the Rankin Platform extending into the Dampier Sub-basin to include the Angel accumulation, and an oil area restricted to the Dampier Sub-basin (figure 1).

The gas area comprises the giant accumulations at North Rankin (including Perseus), Goodwyn and Angel. Of sixteen wells in the area defined as new field wildcats for the purpose of assessment, nine have discovered significant hydrocarbons and three are currently under production. Modelled drilling for the assessment expects to maintain this high success rate.

The southern limit of the assessment unit was defined by the Wilcox accumulation which contains relatively wet gas. All other accumulations to the west—including the recent Pluto and Wheatstone discoveries—contain very dry gas, suggesting a different hydrocarbon source.

The oil area includes current production at Cossack, Exeter, Lambert, Legendre, Mutineer, Stag, Wanaea and Wandoo, and also includes the depleted Talisman accumulation. Nineteen non-commercial discoveries have also been made in this area where a total of 76 wildcats have been drilled.



▲ **Figure 1.** Assessment units for the Dampier Sub-basin/Rankin Platform.



Table 2. Summary of Geoscience Australia's medium-term, low and high drilling scenario assessments for the Dampier Sub-basin and Rankin Platform.

		P ₉₀	P ₅₀	P ₁₀	Mean
Low drilling scenario – 0 wells gas assessment unit, 10 wells oil assessment unit					
Oil	gigalitres	0	5	28	10
	million barrels	0	33	176	64
Gas	billion cubic metres	0	0.3	3.3	1.2
	trillion cubic feet	0	0.0	0.1	0.0
Condensate	gigalitres	0	0	1	0
	million barrels	0	0	4	1
High drilling scenario – 6 wells gas assessment unit, 60 wells oil assessment unit					
Oil	gigalitres	11	37	84	43
	million barrels	71	231	526	272
Gas	billion cubic metres	0.8	5.7	45.3	17.6
	trillion cubic feet	0.0	0.2	1.6	0.6
Condensate	gigalitres	0	1	16	6
	million barrels	1	8	102	36



Forecast uncertainties

Forecasts of future wildcat drilling strongly influenced the assessment. Current permit drilling commitments were used as a starting point but these provide an outlook for only six years and drilling commitments in secondary work programs generally have a lower likelihood of occurring.

The assessment presented in Table 1 reflects the medium drilling scenario of 30 wildcats in the Dampier Sub-basin oil assessment unit—based on the historic drilling rate for the area of two wildcat wells per year—and only three in the gas assessment unit.

For the gas area, the model is based on possible permit commitments. It is feasible that no new wildcats will be drilled in the gas assessment area over the next 15 years and that any drilling could be considered to be extension drilling to the large gas accumulations.

Assessment outcomes for low and high drilling scenarios are presented in Table 2.

Table 3. Forecast volumes for next discoveries in the gas and oil assessment units.

		Well number	P ₉₀	Mean	P ₁₀
Oil	gigalitres	1.5	1	7	17
	million barrels		7	44	110
Gas	billion cubic metres	4.0	17	39	73
	trillion cubic feet		0.6	1.5	2.6

Discoveries

AUSTPLAY predicts that the next discovery in the gas assessment unit will have a mean volume of 39 billion cubic metres (1.4 trillion cubic feet) and will, on average, be found with well number 1.5. In the oil assessment unit it predicts that the next discovery will have a mean volume of 7 gigalitres (44 million barrels) and will be found with well number 4.0. Table 3 shows the P₉₀ and P₁₀ values for the first discoveries.

The predicted first gas discovery appears to exceed the assessment outcome shown in Table 1. This emphasises that the assessment outcome is represented by a distribution, and that the predicted size of the first discovery is a product of many statistical realisations.

Other updates

Geoscience Australia is currently using AUSTPLAY to assess the Exmouth Sub-basin of the Carnarvon Basin, with results due to be released in late 2005. Geoscience Australia is also collaborating with the Victorian Department of Primary Industries in generating an updated assessment of the Gippsland Basin.

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