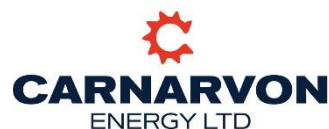# Over 1.5 billion boe prospective resource in Bedout Sub-basin top 20 targets
4 October 2022

Highlights

- **Over 1.5 billion boe potential resource (Pmean, gross) in top 20 Bedout Sub-basin prospects**
- **More than 100 prospects identified, with several high-graded for near-term drilling campaigns**
- **Exploration success rate of close to 70% for wells drilled in the Bedout Sub-basin using modern 3D seismic**
- **Data quality continually improving, leading to substantial de-risking of exploration prospects**
- **Increase in Pavo South prospective resource to 66 mmbbls (Pmean, gross) with confidence at 60%**

Carnarvon Energy Limited ("**Carnarvon**") (ASX:CVN) is pleased to provide an update on exploration prospectivity and potential near-term drilling opportunities across the company's acreage in the Bedout Sub-basin.

More than 100 prospects have been identified across Carnarvon's acreage (WA-435-P, WA-436-P, WA-437-P and WA-438-P (collectively "**Bedout Permits**")), covering a broad range of play styles. The top five prospects in each permit have been re-assessed following the successful Pavo discovery this year, with potential for high grading to drilling status. These top prospects contain both gas and liquids focused targets.

The mean prospective resources of the top 20 prospects add up to over 1.5 billion barrels of oil equivalent (Pmean, gross). This, and the high average probability of geological success, underscores the potential for more discoveries in the highly prospective Bedout Sub-basin.

ASX disclosure: The estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) relate to undiscovered accumulations. These estimates have both a risk of discovery and a risk of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially recoverable hydrocarbons.

Carnarvon Managing Director and CEO, Mr Adrian Cook, said:

"I am very excited to share this update on the significant prospectivity of the Bedout Sub-basin, with the top 20 out of over 100 identified prospects totalling over 1.5 billion barrels of oil equivalent.

Given the success rate in the basin of nearly 70%, Carnarvon is confident the drilling of these wells will add to our already extensive resource base, providing potential future tie-backs to Dorado or supporting new standalone project hubs.

Several prospects are now being high graded as potential near-term drilling campaigns. Discussions are ongoing within the joint venture to determine where we focus our drilling, and we look forward to sharing those plans as they unfold.

All this exciting potential is underpinned by the Dorado and Pavo discovered resources of over 200 million barrels of oil and associated gas, with the liquids development the first step in unlocking the significant potential of the Bedout Sub-basin."

Top 20 prospects

The below tables detail the top 20 prospects identified across Carnarvon's Bedout Permits. The estimated gross mean prospective resources are shown in Table 1 and Carnarvon's net prospective resources are shown in Table 2.

Permit	Carnarvon Energy Equity	Prospect	Liquids (Oil and Condensate; MMBBL)				Natural Gas (BSCF)				Barrels of Oil Equivalent (BOE)				Probability of Geological Success (Pg)	Risked Mean (MMBOE)
			P90	P50	Pmean	P10	P90	P50	Pmean	P10	P90	P50	Pmean	P10		
WA-435-P	20%	Ara	3.3	46.6	98.4	260.9	24.8	335.9	592.9	1,531.2	8.2	111.2	202.4	521.0	37%	74.9
		Bandy	4.5	49.3	73.5	171.9	6.6	79.8	131.1	318.7	5.9	65.4	96.5	227.1	31%	29.9
		Wendolene	3.6	24.4	55.1	147.5	29.7	171.6	334.7	859.2	9.7	57.2	114.7	295.7	15%	17.2
		Wallace	0.5	5.0	8.6	21.5	12.0	118.5	183.8	446.2	2.7	26.6	40.8	98.9	39%	15.9
		Bara	1.6	14.2	34.5	88.3	12.6	98.8	210.1	546.0	4.2	32.5	71.3	185.5	13%	9.3
WA-436-P	30%	Starbuck	8.2	39.0	58.4	131.9	13.9	66.9	100.5	228.9	11.4	52.1	76.0	172.7	32%	24.3
		McKean	3.3	39.5	98.8	260.6	5.3	63.0	164.1	438.3	4.4	52.2	127.6	336.0	14%	17.9
		Flint	6.6	28.6	43.1	97.1	10.8	48.5	73.5	166.6	9.0	38.1	56.0	124.7	30%	16.8
		Yuma	2.0	30.7	69.4	176.3	14.9	218.8	423.4	1,067.0	4.9	71.7	143.7	364.1	14%	20.1
		Arthur	6.7	34.3	56.1	129.5	10.9	57.2	95.7	223.7	9.1	45.8	72.9	168.6	9%	6.6
WA-437-P	20%	Vela	4.1	43.7	94.5	242.6	2.6	28.1	60.6	156.7	4.7	49.3	105.1	269.1	17%	17.9
		Petrus	5.7	22.6	40.5	95.3	8.5	35.2	60.5	140.1	7.8	29.2	51.1	119.8	29%	14.8
		Taurus	3.7	18.1	27.2	62.0	5.9	30.2	45.7	106.4	5.0	24.2	35.2	80.1	20%	7.0
		Diplock	3.8	14.6	18.3	37.4	5.2	20.8	26.5	55.3	5.1	18.6	22.9	46.3	29%	6.6
		Lund	1.7	9.6	14.8	33.9	42.3	212.9	299.6	668.7	9.4	48.2	67.4	149.3	8%	5.4
WA-438-P	30%	Pavo South	6.0	40.7	66.3	161.6	0.8	5.6	9.6	23.5	6.2	41.8	67.9	166.1	64%	43.5
		Torin	6.5	38.9	58.1	134.0	1.6	9.9	15.1	35.4	6.8	40.8	60.7	140.5	54%	32.8
		Orona	24.7	81.8	105.2	215.9	40.2	137.7	181.0	373.6	34.0	109.1	136.9	274.5	10%	13.7
		Diachi	1.7	10.2	14.8	33.3	0.4	2.6	3.8	8.8	1.7	10.7	15.5	34.9	54%	8.4
		Tucana	1.3	11.0	18.4	43.2	2.2	18.2	30.9	73.2	1.8	14.8	23.8	56.5	23%	5.5
Totals			100	603	1,054	2,545	251	1,760	3,043	7,468	152	940	1,588	3,831	Ave 30%	388

Table 1: Top 20 Prospective Resources (gross) in Carnarvon's Bedout Permits

Permit	Carnarvon Energy Equity	Prospect	Liquids (Oil and Condensate) MMBL				Natural Gas (BSCF)				Barrels of Oil Equivalent (BOE)				Probability of Geological Success (Pg)	Risked Mean (MMBOE)
			P90	P50	Pmean	P10	P90	P50	Pmean	P10	P90	P50	Pmean	P10		
WA-435-P	20%	Ara	0.7	9.3	19.7	52.2	5.0	67.2	118.6	306.2	1.6	22.2	40.5	104.2	37%	15.0
		Bandy	0.9	9.9	14.7	34.4	1.3	16.0	26.2	63.7	1.2	13.1	19.3	45.4	31%	6.0
		Wendolene	0.7	4.9	11.0	29.5	5.9	34.3	66.9	171.8	1.9	11.4	22.9	59.1	15%	3.4
		Wallace	0.1	1.0	1.7	4.3	2.4	23.7	36.8	89.2	0.5	5.3	8.2	19.8	39%	3.2
		Bara	0.3	2.8	6.9	17.7	2.5	19.8	42.0	109.2	0.8	6.5	14.3	37.1	13%	1.9
WA-436-P	30%	Starbuck	2.5	11.7	17.5	39.6	4.2	20.1	30.2	68.7	3.4	15.6	22.8	51.8	32%	7.3
		Flint	2.0	8.6	12.9	29.1	3.2	14.6	22.1	50.0	2.7	11.4	16.8	37.4	30%	5.0
		McKean	1.0	11.9	29.6	78.2	1.6	18.9	49.2	131.5	1.3	15.7	38.3	100.8	14%	5.4
		Yuma	0.6	9.2	20.8	52.9	4.5	65.6	127.0	320.1	1.5	21.5	43.1	109.2	14%	6.0
		Arthur	2.0	10.3	16.8	38.9	3.3	17.2	28.7	67.1	2.7	13.7	21.9	50.6	9%	2.0
WA-437-P	20%	Vela	0.8	8.7	18.9	48.5	0.5	5.6	12.1	31.3	0.9	9.9	21.0	53.8	17%	3.6
		Petrus	1.1	4.5	8.1	19.1	1.7	7.0	12.1	28.0	1.6	5.8	10.2	24.0	29%	3.0
		Taurus	0.7	3.6	5.4	12.4	1.2	6.0	9.1	21.3	1.0	4.8	7.0	16.0	20%	1.4
		Diplock	0.8	2.9	3.7	7.5	1.0	4.2	5.3	11.1	1.0	3.7	4.6	9.3	29%	1.3
		Lund	0.3	1.9	3.0	6.8	8.5	42.6	59.9	133.7	1.9	9.6	13.5	29.9	8%	1.1
WA-438-P	30%	Pavo South	1.8	12.2	19.9	48.5	0.2	1.7	2.9	7.1	1.9	12.5	20.4	49.8	64%	13.0
		Torin	2.0	11.7	17.4	40.2	0.5	3.0	4.5	10.6	2.0	12.2	18.2	42.2	54%	9.8
		Orona	7.4	24.5	31.6	64.8	12.1	41.3	54.3	112.1	10.2	32.7	41.1	82.4	10%	4.1
		Diachi	0.5	3.1	4.4	10.0	0.1	0.8	1.1	2.6	0.5	3.2	4.7	10.5	54%	2.5
		Tucana	0.4	3.3	5.5	13.0	0.7	5.5	9.3	22.0	0.5	4.4	7.1	17.0	23%	1.6
Totals			27	156	270	647	60	415	718	1,757	39	236	396	950	Ave 30%	97

Table 2: Top 20 Prospective Resources (net to Carnarvon Energy) in the Bedout Permits

With a very large and diverse seriatim of prospects and leads within the Bedout Permits, Carnarvon continues to review and high-grade the best for drilling.
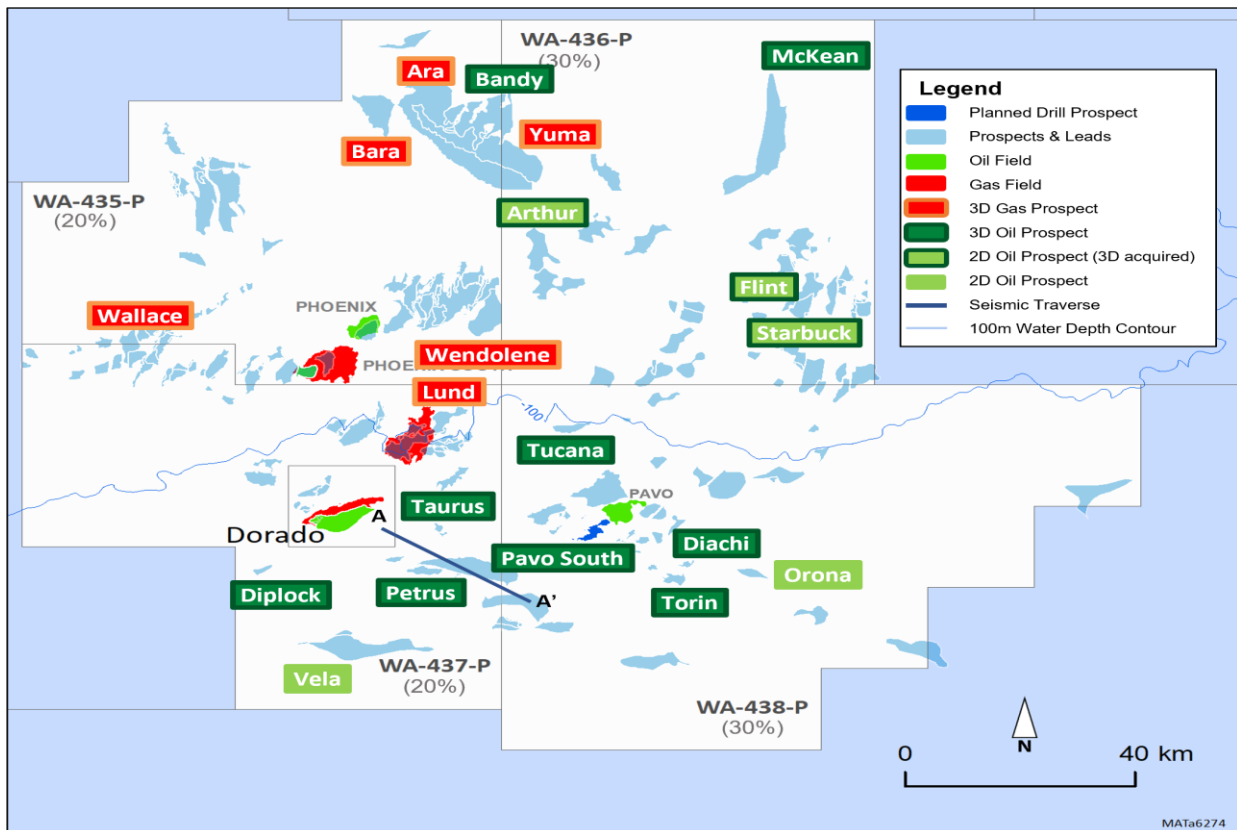

Figure 1: Map of top 20 Prospects, and discovered Fields in the Bedout Permits

Potential near-term drilling candidates

Carnarvon has equity of between 20% and 30% across the Bedout Permits, with operator Santos Limited holding the remaining equity. The joint venture is now high-grading the following prospects for potential inclusion in near-term drilling campaigns:

- **Pavo**: Further drilling into the Pavo structure in WA-438-P will help both appraise the southern culmination adjacent to the highly successful Pavo discovery and confirm deliverability of the valuable, high-quality fluids. Proving up the low-risk (Pg 60%) Pavo South accumulation will add **66 million barrels** (Pmean, gross) to the already proven 43 million barrels (P50, gross) at Pavo North, which if successful would prove volumes roughly two thirds as big as Dorado. Further success at Pavo South would also enhance nearby prospectivity, such as at Torin, a 58-million-barrel (Pmean, gross) closure located around 15 km southeast of Pavo;

- **Ara**: An almost 600 bcf prospective gas field with 100 million barrels of associated condensate (Pmean, gross) has benefited from a review of the reprocessed Zeester 3D. Not only is Ara a 'game-changer' in terms of the size of the prospect itself, at 200 million barrels of oil equivalent, but exploration success in this northern area will de-risk numerous additional gas prospects in the vicinity such as Wendolene (335 bcf, Pmean, gross) and Yuma (434 bcf, Pmean, gross), which are similar in nature. Unlocking the gas play in this area has the potential to aggregate several tcf of gas and provide further confidence for the Stage 2 gas development at Dorado; and

- **Starbuck**: The **Starbuck** (76 mmboe, Pmean, gross) and **Flint** (56 mmboe, Pmean, gross) prospects in WA-436-P are examples of already medium risk prospects (32% and 30% respectively) that will be high-graded through analysis of the Keraudren 3D and its areal extensions, acquired in 2019-2022. Success at either of these wells, on-trend with the recent Pavo-1 discovery, would unlock further prospectivity, such as Arthur (73 mmboe, Pmean, gross).

The joint venture continues to high-grade the prospect portfolio in the Bedout Permits. Potential future drilling campaigns are subject to ongoing joint venture and government approvals.

Bedout Sub-basin exploration history

The March 2022 Pavo-1 discovery marked another exciting period of exploration in the Bedout Sub-Basin, following a string of successful wells between 2014 and 2018 including the Phoenix South, Roc and Dorado discoveries.

Carnarvon recognised the promise shown by BP's Phoenix-1 discovery in 1980 (which discovered around 10 million boe of gas in the Barret and Hove member sandstones) and the potential for 3D seismic to improve imaging and acquired the Bedout Permits in 2009.

The first 3D seismic acquired in 2012 showed dramatic data quality improvement. Four out of the six exploration wells drilled in the 3D-era of the past decade have encountered oil and/or gas condensate. This success rate of 67% from 3D-era exploration wells is world-leading.

In early 2022 Pavo-1 encountered a 60m gross oil column, with 46m of net oil pay. The reservoirs have high porosities, ~19%, and permeabilities in the range of 100 to 1,000 millidarcies (mD). Initial analysis indicates light sweet oil with about 52 degrees API and a low gas-oil ratio. The 2C (unrisked best estimate contingent) resources are about 43 million barrels of oil.

Pavo-1 was drilled on the northern culmination of a pair of closures, Pavo North. Further low-risk upside exists in the undrilled southern structure, Pavo South. Interim analysis of rock samples and fluid samples acquired during the drilling has supported a review of the potential of Pavo South, and Carnarvon has upgraded the Pavo South Prospective Resource to **66 million barrels of oil (Pmean, gross)** with an improved **chance of success of 60% (Pg).** This is in addition to the discovered oil in Pavo North.

Pavo represents a low-cost tieback opportunity to the planned Dorado development.

Pavo is also significant in that it discovered hydrocarbons over 40km east of the Phoenix-Dorado Corridor, substantially de-risking and opening up the exploration potential of a very large area.

Following Pavo-1, the joint venture has been assessing prospects in the Bedout Sub-basin which have the potential to generate material further value through either tie-back opportunities to the Dorado project, or as potential standalone development hubs.

Data quality improvement

Improved seismic data acquisition and reprocessing technology, combined with feedback from the growing number of wells drilled in the Bedout Sub-basin, has enabled the quality of information used to define future potential drilling prospects to improve.

An example is shown in Figure 2, which compares 2D and 3D lines south-east of Dorado. Substantial data quality improvement can be seen from 2D seismic to 3D, and again in further reprocessing of the 3D. This allows far more accurate interpretation and mapping of trapping elements, allowing for significant prospect de-risking and better estimation of prospect volumes.

Ongoing learnings are constantly being applied to the rest of the acreage resulting in improved understanding of the many plays, greater confidence in, and de-risking of the entire prospect portfolio.
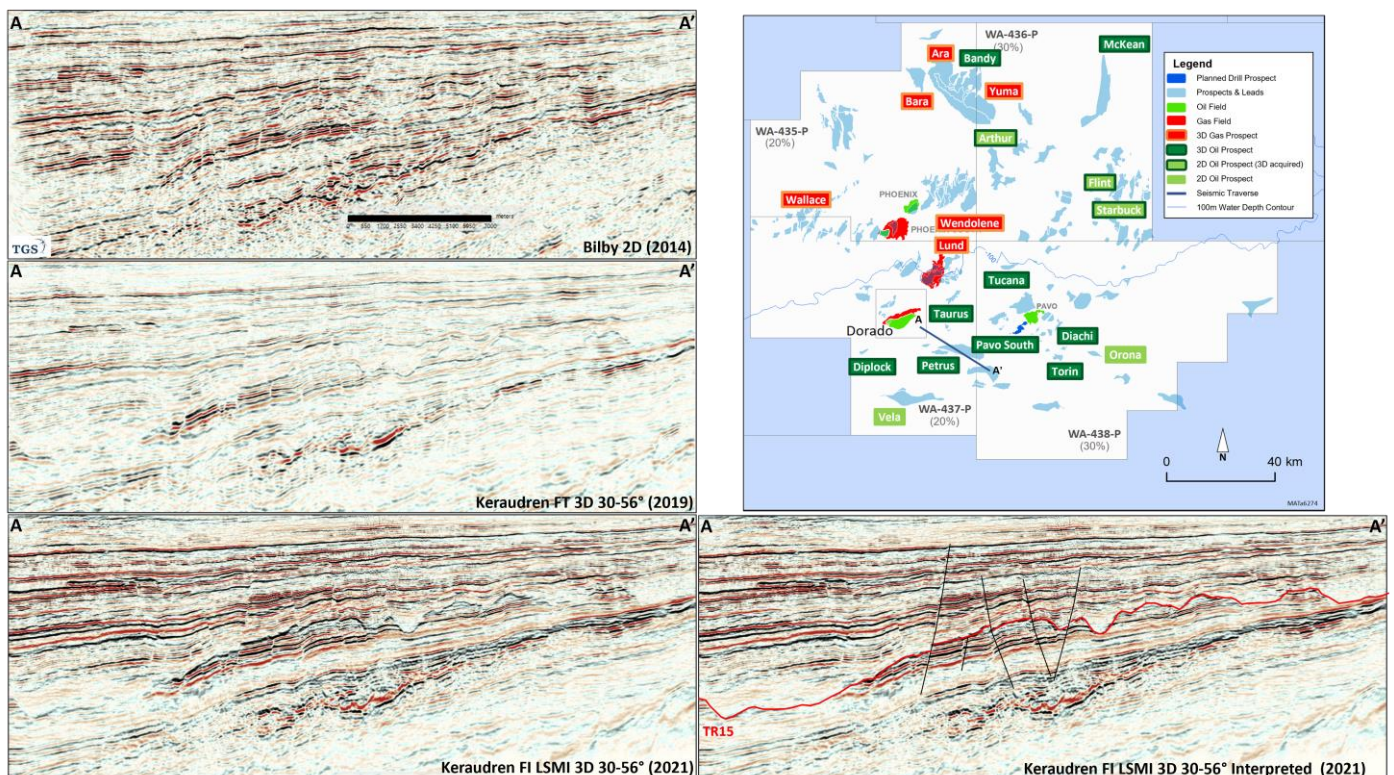

Figure 2: Example of seismic data quality improvements southeast of the Dorado field

Approved by:

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ASX Listing Rules resource information

ASX Listing Rules (Amended 1 July 2022)	Comments
5.25	This update contains estimates of prospective resources
5.25.1	The effective date for this update is 4 October 2022
5.25.2	Carnarvon calculates reserves and resources according to the Society of Petroleum Engineers Petroleum Resource Management System ("SPE-PRMS") definition of petroleum resources. Carnarvon reports reserves and resources in line with the ASX Listing Rules.
5.25.3 & 5.25.4	Carnarvon has not disclosed total petroleum initially-in-place
5.25.5	Carnarvon's net economic interest in the prospective resources is given in Table 2
5.25.6	Carnarvon uses probabilistic methods for estimation of petroleum resources in this report. Unless otherwise stated, all petroleum estimates reported at the company level are aggregated by arithmetic summation by category.
5.25.7	Unless otherwise stated, all petroleum resource estimates are quoted at standard oilfield conditions of 14.696 psi (101.325 kPa) and 60 degrees Fahrenheit (15.56 deg Celsius). MMBOE means millions of barrels of oil equivalent. Dry gas volumes, defined as 'C4 minus' hydrocarbon components and non-hydrocarbon volumes that are present in sales product, are converted to oil equivalent volumes via a constant conversion factor, which for Carnarvon is 5.7 Bcf of dry gas per 1 MMboe. Volumes of oil and condensate, defined as 'C5 plus' petroleum components, are converted from MMbbls (million stock tank barrels) to MMboe on a 1:1 ratio.
5.26	Carnarvon is not reporting reserves in this report.
5.27	Carnarvon is not reporting contingent resources in this report.
5.28	Carnarvon is reporting a revised table of prospective resources
5.28.1	Carnarvon has reported prospective resources in P90 (low estimate), P50 (best estimate) and P10 (high estimate) and has included the mean.
5.28.2	A cautionary statement proximate to the reported prospective resource has been included.
5.28.3	The mean estimate of prospective resource has been reported accompanied by the low estimate, best estimate, and high estimate.
5.28.4	The prospective resources for Ara, Bandy, Mensa, Wallace, Weekend, Starbuck, Sampati and Horus are made up of multiple potential reservoir horizons and these are "rolled-up" statistically into a single Prospective Resource. Prospective Resources are statistically aggregated up the field level and arithmetically summed to the project level.
5.28.5	Where the Prospective Resources have been aggregated beyond the field level in this report by arithmetic summation, the aggregate low estimate may be a very conservative estimated and the

	aggregate high estimate may be a very optimistic estimate due to the portfolio effects of the arithmetic summation.
5.28.6	No financial information has been forecast.
5.29	No new geophysical surveys are being reported.
5.30	No new exploration or drilling results are being reported.
5.31 & 5.32	No petroleum reserves are being reported.
5.33 & 5.34	No contingent resources are being reported.
5.35	The prospective resources of the Company have been updated as a result of nearby well results and ongoing technical reviews.
5.35.1	The prospective resources are held within Exploration Permits WA-435-P, WA-436-P, WA-437-P and WA-438-P as depicted in Tables 1 and 2.
5.35.2	The estimates of prospective resources included in this report have been prepared in accordance with the definitions and guidelines set forth in the SPE-PRMS. Work is ongoing in these permits, including interpretation of recently acquired seismic surveys and updating of prospective resource parameters from updated well results.
5.35.3	The chance of discovery for each of the prospective resources is included in Tables 1 and 2.
3.53.4	The risked resource as listed in Table 1 has accounted for risk by the application of the chance of geological success (Pg), which takes into account the chance of the prospect encountering the necessary elements of trap, seal, reservoir and source and migration of hydrocarbons.
5.36	The prospective resources as listed in Table 1 have not materially changed and are just being updated to take into account ongoing technical work.
5.36.1	As a result of ongoing analysis of well results, and improvements in seismic data due to updated processing, new information has been used to review the prospective resources.
5.36.2	The new data and information has allowed better definition of the Prospective Resource and Probability of Geological Success (Pg)
5.36.3	There has been no material changes to the information in 5.35.1 to 5.35.4.
5.37 to 5.40	Applies to annual reports
5.41, 5.42 & 5.43	The resource estimates outlined in this report were compiled by Carnarvon's Chief Operating Officer, Mr Philip Huizenga, who is a full-time employee of the Company. Mr Huizenga has over 25 years' experience in petroleum exploration and engineering. Mr Huizenga holds a Bachelor's Degree in Engineering, a Master's Degree in Petroleum Engineering and is a member of the Society of Petroleum Engineers (**SPE**). Mr Huizenga is qualified in accordance with the ASX Listing Rules and has consented to the form and context in which this statement appears.
5.44	No reserves statement is included in this report.

Forward-looking statements

This announcement contains certain "forward-looking statements", which can generally be identified by the use of words such as "will", "may", "could", "likely", "ongoing", "anticipate", "estimate", "expect", "project", "intend", "plan", "believe", "target", "forecast", "goal", "objective", "aim", "seek" and other words and terms of similar meaning. Carnarvon cannot guarantee that any forward-looking statement will be realised. Achievement of anticipated results is subject to risks, uncertainties and inaccurate assumptions. Should known or unknown risks or uncertainties materialise, or should underlying assumptions prove inaccurate, actual results could vary materially from past results and those anticipated, estimated or projected. You should bear this in mind as you consider forward-looking statements, and you are cautioned not to put undue reliance on any forward-looking statement.