

31 July 2015

Origin Energy 2015 Annual Reserves Report

This Annual Reserves Report provides an update on the reserves and resources of Origin Energy Limited (Origin) and its share of Australia Pacific LNG (APLNG), as at 30 June 2015. The data is compared with and reconciled to the position at 30 June 2014.

Summary of 2P Reserves

Origin proved plus probable (2P) reserves decreased by 213 PJe (66 PJe excluding production) to a total of 6,260 PJe, when compared to 30 June 2014. The key changes in 2P reserves include:

- 66 PJe increase from new bookings from the Speculant (Otway Basin) and Waitsia / Senecio (Perth Basin) discoveries
- 132 PJe net decrease due to revisions and extensions in various assets
- 147 PJe decrease due to production

Table 1: Origin 2P reserves (by area)

2P Reserves by area (PJe)	2P 30/06/14	Acquisition/ Divestment	New Booking /Discovery	Revisions/ Extensions	Production	2P 30/06/15
Australia Pacific LNG						
Surat/Bowen (Unconventional) ¹	5,284	-	-	(52)	(65)	5,167
Cooper Basin						
SA Cooper Basin	214	-	0	(16)	(12)	187
SWQ Cooper Basin	58	-	1	1	(6)	53
Other Onshore Australia						
Perth Basin	23	-	16	7	(4)	43
Ironbark (Unconventional)	259	-	-	(3)	-	256
Australia Offshore						
Otway Basin	325	-	49	(27)	(33)	313
Bass Basin	129	-	-	(32)	(7)	90
New Zealand						
Onshore Taranaki	10	-	-	(9)	(1)	-
Offshore Taranaki (Kupe)	170	-	-	-	(19)	151
Total	6,473	-	66	(132)	(147)	6,260

(1) Includes Denison Trough conventional downward revision/extensions of 8.4 PJe and 0.4 PJe of production.

During the year, changes were recorded in the following areas:

- APLNG 2P reserves decreased by 118 PJe to 5,167 PJe with 52 PJe due to revisions and extensions predominantly associated with lower oil prices and 65 PJe due to production. Further detail provided in Appendix A.
- Cooper Basin 2P reserves decreased by 32 PJe to 240 PJe, with revisions to field development plans accounting for a decrease of 15 PJe and the remainder due to 18 PJe of production.
- Perth Basin 2P reserves increased by 20 PJe to 43 PJe, primarily due to the initial Waitsia / Senecio discovery adding 16 PJe.
- Ironbark 2P reserves decreased by 3 PJe to 256 PJe. 3P reserves decreased by 155 PJe to 714 PJe due to re-classification of these Possible reserves to 2C contingent resources as a result of ongoing analysis of low permeability areas. 2C contingent resources have increased by 288 PJe to 326 PJe due to the abovementioned re-classification from Possible reserves in addition to the encouraging results in neighbouring acreage.
- Otway Basin 2P reserves decreased by 12 PJe to 313 PJe, with a new booking for the Speculant discovery of 49 PJe more than offset by the downward revision of 27 PJe in the Geographe field due to lower than expected reservoir performance and production of 33 PJe.

- Bass Basin 2P reserves decreased by 39 PJe to 90 PJe. Results from the Yolla 5 and 6 drilling campaign provided an updated view of the connectivity of the reservoirs resulting in a downward revision of 32 PJe. Production was 7 PJe.
- Onshore Taranaki Basin 2P reserves have been reclassified to contingent resources following the impairment of the assets at 31 December 2014.

Minor revisions to reserves occurred in other areas as additional data and technical studies are incorporated into forward estimates. Around 87% of 2P reserves are unconventional.

Table 2: Origin 2P reserves (by product and development type)

2P Reserves by area (PJe)	Gas	LPG	Condensate	Oil	Total (PJe)		Total (PJe)
	(PJ)	(KT)	(kbbl)	(kbbl)	Developed	Undeveloped	
Australia Pacific LNG							
Surat/Bowen (Unconventional)	5,167	-	-	-	1,012	4,155	5,167
Cooper Basin							
SA Cooper Basin	148	286	2,198	2,206	98	88	187
SWQ Cooper Basin	45	50	508	418	31	22	53
Other Onshore Australia							
Western Australia	42	-	15	-	43	-	43
Ironbark (Unconventional)	256	-	-	-	-	256	256
Australia Offshore							
Otway Basin	270	492	3,539	-	159	154	313
Bass Basin	67	213	2,366	6	38	52	90
New Zealand							
Onshore Taranaki	-	-	-	-	-	-	-
Offshore Taranaki (Kupe)	105	451	4,376	0	88	63	151
Total	6,100	1,492	13,002	2,631	1,470	4,790	6,260

Table 3: Origin 2P reserve changes (by product)

2P Reserves by area (PJe)	Gas (PJ)	LPG (KT)	Condensate (kbbl)	Oil (kbbl)	Total (PJe)
2P 30/06/14	6,274	1,752	16,007	4,490	6,473
Acquisition/divestment	-	-	-	-	-
New bookings/discoveries	60	58	426	155	66
Revisions/extensions	(104)	(176)	(1,845)	(1,696)	(132)
Production	(130)	(142)	(1,586)	(318)	(147)
2P 30/06/15	6,100	1,492	13,002	2,631	6,260
Change	(173)	(260)	(3,005)	(1,859)	(213)
Change (percentage)	(3)	(15)	(19)	(41)	(3)

Summary of 1P Reserves

Origin proved (1P) reserves increased by 544 PJe (after production) to a total of 2,763 PJe, when compared to previous reporting period, as stated in Table 4. Around 82% of 1P reserves are unconventional.

Table 4: Origin 1P reserves (by area)

1P Reserves by area (PJe)	1P 30/06/14	Acquisition/ Divestment	New Booking /Discovery	Revisions/ Extensions	Production	1P 30/06/15
Australia Pacific LNG						
Surat/Bowen (Unconventional) ¹	1,718	-	-	620	(65)	2,272
Cooper Basin						
SA Cooper Basin	86	-	-	8	(12)	82
SWQ Cooper Basin	25	-	1	7	(6)	26
Other Onshore Australia						
Western Australia	13	-	8	(2)	(4)	15
Ironbark (Unconventional)	-	-	-	-	-	-
Australia Offshore						
Otway Basin	168	-	28	25	(33)	188
Bass Basin	90	-	-	(1)	(7)	83
New Zealand						
Onshore Taranaki	3	-	-	(2)	(1)	-
Offshore Taranaki (Kupe)	116	-	-	-	(19)	97
Total	2,218	-	37	655	(147)	2,763

(1) Includes Denison Trough conventional reserves revisions/extensions of -5.2 PJe and production of 0.4 PJe.

Table 5: Origin 1P reserves (by product and development type)

1P Reserves by area (PJe)	Gas (PJ)	LPG (KT)	Condensate (kbbbl)	Oil (kbbbl)	Total (PJe)		Total (Pje)
					Developed	Undeveloped	
Australia Pacific LNG							
Surat/Bowen (Unconventional)	2,272	-	-	-	1,012	1,260	2,272
Cooper Basin							
SA Cooper Basin	66	120	906	829	38	44	82
SWQ Cooper Basin	22	22	233	240	16	10	26
Other Onshore Australia							
Western Australia	15	-	7	-	15	-	15
Ironbark (Unconventional)	-	-	-	-	-	-	-
Australia Offshore							
Otway Basin	161	311	2,254	-	103	85	188
Bass Basin	61	196	2,172	1	35	48	83
New Zealand							
Onshore Taranaki	-	-	-	-	-	-	-
Offshore Taranaki (Kupe)	68	291	2,634	0	79	18	97
Total	2,666	940	8,207	1,070	1,298	1,465	2,763

Table 6: Origin 1P reserve changes (by product)

1P Reserves by area (PJe)	Gas (PJ)	LPG (KT)	Condensate (kbbbl)	Oil (kbbbl)	Total (PJe)
1P 30/06/14	2,110	988	9,291	1,638	2,218
Acquisition/divestment	-	-	-	-	-
New bookings/discoveries	33	33	253	102	37
Revisions/extensions	652	61	248	(351)	655
Production	(130)	(142)	(1,586)	(318)	(147)
1P 30/06/15	2,666	940	8,207	1,070	2,763
Change	556	(48)	(1,085)	(568)	544
Change (percentage)	26	(5)	(12)	(35)	25

Appendix A: APLNG Reserves and Resources

Reserves and resources held by 100% APLNG have been prepared independently by NSAI (Netherland, Sewell & Associates, Inc.). The reserves and resources data are based on technical, commercial and operational information provided by Origin on behalf of APLNG.

Table 7 provides 1P, 2P and 3P reserves and 2C resources for APLNG (100%) and Table 8 shows Origin's 37.5% interest in these APLNG reserves and resources.

Table 7: Reserves/resources held by APLNG (100% share).

Reserves (PJe)	30/06/14 Reserves	Acquisition/ Divestment	New Booking /Discovery	Revisions/ Extensions	Production	30/06/15 Reserves
1P	4,581	-	-	1,653	(174)	6,059
2P	14,091	-	-	(139)	(174)	13,778
3P	17,459	-	-	(1,111)	(174)	16,174
Resources (PJe)	Resources					Resources
2C	2,679	-	-	81	-	2,760

Table 8: Reserves/resources held by Origin (37.5% share in APLNG).

Reserves (PJe)	30/06/14 Reserves	Acquisition/ Divestment	New Booking /Discovery	Revisions/ Extensions	Production	30/06/15 Reserves
1P	1,718	-	-	620	(65)	2,272
2P	5,284	-	-	(52)	(65)	5,167
3P	6,547	-	-	(417)	(65)	6,065
Resources (PJe)	Resources					Resources
2C	1,005	-	-	30	-	1,035

The 620 PJe increase in 1P revisions and extensions is due to development drilling.

The 52 PJe decrease in 2P revisions and extensions is predominantly due to lower oil price assumptions.

The 417 PJe decrease in 3P revisions and extensions is primarily due to re-classification of low permeability 3P reserves to 2C contingent resources. There is ongoing investigation on this contingent resource opportunity.

The 30 PJe increase in 2C revisions and extensions is largely due to the above mentioned re-classification from 3P reserves. This uplift was offset by reductions associated with drilling and pilot results across the acreage.

Appendix B: Notes Relating to this Report

a. Methodology regarding Reserves and Resources

The Reserves Report has been prepared to be consistent with the Petroleum Resources Management System (PRMS) 2007 published by Society of Petroleum Engineers (SPE). This document may be found at the SPE website: spe.org/industry/docs/Petroleum_Resources_Management_System_2007.pdf. Additionally, this Reserves Report has been prepared to be consistent with the ASX reporting guidelines.

The conventional (non-CSG) reserves estimates are prepared by employees who are qualified petroleum reserves and resource evaluators working in each of our assets utilising an Origin approved Reserves and Resources Process.

An independent assessment of our CSG reserves, which include the ATP 788P (Ironbark) permit and reserves held by Australia Pacific LNG, has been undertaken by NSAI. For these assets Origin reports NSAI's independent estimate of reserves and resources consistent with the SPE guidelines, as follows: proved reserves (1P); proved plus probable reserves (2P); proved plus probable plus possible reserves (3P); best estimate contingent resource (2C).

Origin does not intend to report Prospective or Undiscovered Resources as defined by the SPE in any of its areas of interest on an ongoing basis.

b. Economic test for reserves

The assessment of reserves requires a commercial test to establish that reserves can be economically recovered. Within the commercial test, operating cost and capital cost estimates are combined with fiscal regimes and product pricing to confirm the economic viability of producing the reserves.

In the case of oil, condensate and LPG forward estimates of prices are used in line with the forward curves available through various international benchmarking agencies, appropriately adjusted for local market conditions.

Gas reserves are assessed against existing contractual arrangements, local market conditions, as appropriate. In the case of gas reserves where contracts are not in place a forward price scenario based on monetisation of the reserves through domestic markets has been used, including power generation opportunities, direct sales to LNG and other end users and utilisation of Origin's wholesale and retail channels to market.

For CSG reserves that are intended to supply the APLNG CSG to LNG project, the economic test is based on gas prices calculated using the Residual Pricing Method (RPM). The RPM mechanism is used within the Petroleum Resource Rent Tax (PRRT) regime to determine an appropriate transfer price for integrated gas to liquids projects.

RPM applies the same rate of return to the upstream and downstream businesses of the APLNG project, and divides residual profit equally between the businesses. The residual profit is a function of the upstream "cost plus" and the downstream "net back" prices. The residual price is exposed to changes in the supply/demand balance in the market through the oil price-linked LNG contract, as well as other market forces through the long term bond rate.

c. Reversionary Rights

Some of Australia Pacific LNG CSG reserves and resources are subject to reversionary rights to transfer back to Tri-Star a 45% interest in Australia Pacific LNG's share of those CSG interests that were acquired from Tri-Star in 2002 if certain conditions are met. Origin has assessed the potential impact of reversionary rights associated with such interests based on economic tests consistent with these reserves and resources and based on that assessment does not consider that reversion will impact the reserves and resources quoted in this report. In October 2014, Tri-Star filed proceedings against Australia Pacific LNG claiming that reversion has occurred. Australia Pacific LNG will defend the claim.

d. Information regarding the preparation of this Reserves Report

The internationally recognised petroleum consultant NSAI has prepared assessments of the reserves and resources for APLNG and the Ironbark asset based on technical, commercial and operational data provided by Origin on behalf of APLNG.

The statements in this Report relating to reserves and resources as of 30 June 2015 for APLNG and the Ironbark asset are based on information in the NSAI reports dated 27 July 2015 and 22 July 2015, respectively. The data has been compiled by Mr. Dan Paul Smith, a full-time employee of NSAI. Mr. Dan Paul Smith has consented to the statements based on this information, and to the form and context in which these statements appear.

The statements in this Report relating to reserves and resources for other assets have been compiled by Andrew Mayers, a full-time employee of Origin. Andrew Mayers is a qualified reserves and resources evaluator and has consented to the form and context in which these statements appear.

e. Rounding

Information on reserves is quoted in this report rounded to the nearest whole number. Some totals in tables in this report may not add due to rounding. Items that round to zero are represented by the number 0, while items that are actually zero are represented with a dash "-".

f. Abbreviations

bbl	barrel
Bscf	billion standard cubic feet
CSG	coal seam gas
kbbbls	kilo barrels = 1,000 barrels
ktonnes	kilo tonnes = 1,000 tonnes
mmboe	million barrels of oil equivalent
PJ	petajoule = 1×10^{15} joules
PJe	petajoule equivalent

g. Conversion Factors for PJe

Crude oil	0.00583 PJ/kbbbls = 5.83 PJ / mmboe
Condensate	0.00541 PJ/kbbbls
LPG	0.0493 PJ/ktonnes
CSG	1.038 PJ/Bscf

h. Reference Point

Reference points for Origin's petroleum reserves and contingent resources are defined points within Origin's operations where normal exploration and production business ceases, and quantities of the produced product are measured under defined conditions prior to custody transfer. Fuel, flare and vent consumed to the reference points are excluded.

i. Preparing and Aggregating Petroleum Resources

Petroleum reserves and contingent resources are typically prepared by deterministic methods with the support from probabilistic methods. Petroleum reserves and contingent resources are aggregated by arithmetic summation by category and as a result, proved reserves may be a conservative estimate due to the portfolio effects of the arithmetic summation. Proved plus probable plus possible may be an optimistic estimate due to the same aforementioned reasons.

j. Methodology and Internal Controls

The reserves estimates undergo an assurance process to ensure that they are technically reasonable given the available data and have been prepared according to our reserves and resources process, which includes adherence to the PRMS Guidelines. The assurance process includes peer reviews of the technical and commercial assumptions. The annual reserves report is reviewed by management with the appropriate technical expertise, including Chief Petroleum Engineer and Integrated Gas General Managers.

k. Qualified Petroleum Reserves and Resources Evaluators

The material presented in this report is based on, and fairly represents, information and supporting documentation prepared by, or under the supervision of the listed qualified reserves and resources evaluators. These individuals have consented to the statements based on this information, and to the form and context in which these statements appear.

Name	Employer	Professional Organisation*
Andrew Mayers	Origin Energy (Chief Petroleum Engineer)	SPE, APEGA, RPEQ
Chung Chen	Origin Energy	SPE, EA, RPEQ
Samantha Phillips	Origin Energy	APEGA
Simon Smith	Origin Energy	SPE
Jason Billings	Origin Energy	SPE, P.E (Alaska)
Reneke van Soest	Origin Energy	SPE
Petrina Weatherstone	Origin Energy	SPE
Sarah Bishop	Origin Energy	SPE, EA, RPEQ
Jocelyn Young	Origin Energy	SPE
David MacDougal	Origin Energy	SPE
Alan Mourgues	Origin Energy	SPE, EA, RPEQ

* SPE: Society of Petroleum Engineers; AAPG: American Association of Petroleum Geologists; APEGA: The Association of Professional Engineers and Geoscientists of Alberta; EA: Engineers of Australia; RPEQ: Board of Professional Engineers Queensland