

Origin Energy 2014 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 2014. The data is compared with and reconciled to the position at 30 June 2013.

Origin proved plus probable (2P) reserves increased by 272 PJe (after production) to a total of 6,473 PJe, when compared to 30 June 2013. The key changes in 2P reserves include:

- 312 PJe net increase within APLNG
- 94 PJe net increase due to Ironbark revisions
- 8 PJe increase due to other net revisions and extensions
- 142 PJe decrease due to production

APLNG 2P reserves increased by 709 PJe after production (to a total of 14,091 PJe) when reconciled to end June 2013, a 5% increase. Origin's effective interest in APLNG is 37.5%.

Summary of 2P Reserves

Table 1 reconciles the 2P reserves reported at 30 June 2013.

Table 1: Origin 2P reserves (by area).

Reserves (2P) by area (PJe)	2P 30/06/13	Acquisition/ Divestment	New Booking /Discovery	Production	Revisions/ Extensions	2P 30/06/14
Australia Pacific LNG						
Surat/Bowen (Unconventional)	5,006	3	-	(46)	312	5,276
Denison	12			(0)	(3)	9
Cooper Basin						
SA Cooper Basin	233			(12)	(7)	214
SWQ Cooper Basin	67			(6)	(4)	58
Other Onshore Australia						
Western Australia	27			(3)	0	23
Surat Basin	0			(0)	(0)	0
Ironbark (Unconventional)	165			-	94	259
Australia Offshore						
Otway Basin	337		33	(46)	-	325
Bass Basin	144			(10)	(5)	129
New Zealand						
Onshore Taranaki	20			(1)	(9)	10
Offshore Taranaki (Kupe)	189			(19)	-	170
Total	6,201	3	33	(142)	378	6,473

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

- APLNG – 2P reserves increased by 266 PJe (to 5,284 PJe) with 309 PJe for revisions and extension, 3 PJe for an acquisition and 46 PJe of production.
- Cooper Basin – 2P reserves decreased by 29 PJe (to 272 PJe) based on an 11 PJe change due to revised field development plans and 18 PJe of production.
- Ironbark (ATP788P) – 2P reserves increased by 94 PJe (to 259 PJe) based on positive drilling results during the year. Additionally, 3P reserves decreased by 13 PJe (to 869 PJe) and 2C contingent resources increased by 10 PJe (to 38 PJe).
- Otway Basin – 2P reserves decreased by 12 PJe (to 325 PJe) due to a 33 PJe new booking to Halladale as the project matures and 46 PJe of production.

Minor revisions to reserves occurred in other areas as additional data and technical studies are incorporated into forward estimates. Around 86% of 2P reserves are unconventional.

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

2P reserves	Gas (PJ)	LPG (KT)	Condensate (kbbl)	Oil (kbbl)	Total (PJe)	Total (PJe)	
						Developed	Undeveloped
Australia Pacific LNG							
Surat/Bowen (Unconventional)	5,276	-	-	-	5,276	746	4,529
Denison	9	-	13	-	9	9	-
Cooper Basin							
SA Cooper Basin	168	343	2,661	2,498	214	98	117
SWQ Cooper Basin	49	55	547	454	58	21	36
Other Onshore Australia							
Western Australia	23	-	16	-	23	23	-
Surat Basin	-	-	-	57	0	0	-
Ironbark (Unconventional)	259	-	-	-	259	-	259
Australia Offshore							
Otway Basin	276	543	4,061	-	325	204	121
Bass Basin	94	307	3,529	6	129	14	114
New Zealand							
Onshore Taranaki	1	2	-	1,475	10	4	6
Offshore Taranaki (Kupe)	117	502	5,180	-	170	107	63
Total	6,274	1,752	16,007	4,490	6,473	1,227	5,245

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

	Gas (PJ)	LPG (KT)	Condensate (kbbl)	Oil (kbbl)	Total (PJe)
2P (30/06/13)	5,980	1,935	17,900	4,925	6,201
Acquisition/divestment	3	0	0	0	3
New bookings/discoveries	29	48	355	0	33
Production	(122)	(159)	(1,828)	(383)	(142)
Revisions/extensions	384	(72)	(419)	(53)	378
2P (30/06/14)	6,274	1,752	16,007	4,490	6,473
Change	294	(183)	(1,893)	(436)	272
Change (percentage)	5%	(9%)	(11%)	(9%)	4%

Summary of 1P Reserves

Origin proved (1P) reserves increased by 291 PJe (after production) to a total of 2,218 PJe, when compared to 30 June 2013. Table 4 reconciles the 1P reserves reported at 30 June 2013. Around 77% of 1P reserves are unconventional.

Table 4: Origin 1P reserves (by area).

Reserves (1P) by area (PJe)	1P 30/06/13	Acquisition/ Divestment	New Booking /Discovery	Production	Revisions/ Extensions	1P 30/06/14
Australia Pacific LNG						
Surat/Bowen (Unconventional)	1,361	3	-	(46)	394	1,712
Denison	8	-	-	(0)	(2)	6
Cooper Basin						
SA Cooper Basin	93	-	-	(12)	5	86
SWQ Cooper Basin	31	-	-	(6)	(1)	25
Other Onshore Australia						
Western Australia	16	-	-	(3)	0	13
Surat Basin	0	-	-	(0)	(0)	0
Ironbark (Unconventional)	-	-	-	-	-	-
Australia Offshore						
Otway Basin	183	-	30	(46)	-	168
Bass Basin	98	-	-	(10)	3	90
New Zealand						
Onshore Taranaki	3	-	-	(1)	1	3
Offshore Taranaki (Kupe)	134	-	-	(19)	-	116
Total	1,927	3	30	(142)	400	2,218

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

1P reserves	Gas (PJ)	LPG (KT)	Condensate (kbbl)	Oil (kbbl)	Total (PJe)	Total (PJe)	
						Developed	Undeveloped
Australia Pacific LNG							
Surat/Bowen (Unconventional)	1,712	-	-	-	1,712	746	966
Denison	6	-	9	-	6	6	-
Cooper Basin							
SA Cooper Basin	69	127	978	893	86	34	52
SWQ Cooper Basin	22	21	217	184	25	14	11
Other Onshore Australia							
Western Australia	13	-	8	-	13	13	-
Surat Basin	-	-	-	31	0	0	-
Ironbark (Unconventional)	-	-	-	-	-	-	-
Australia Offshore							
Otway Basin	142	290	2,159	-	168	113	55
Bass Basin	66	207	2,483	1	90	20	70
New Zealand							
Onshore Taranaki	0	0	-	529	3	1	2
Offshore Taranaki (Kupe)	80	342	3,438	-	116	98	18
Total	2,110	988	9,291	1,638	2,218	1,044	1,174

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

	Gas (PJ)	LPG (KT)	Condensate (kbbl)	Oil (kbbl)	Total (PJe)
1P (30/06/13)	1,804	1,104	10,626	1,824	1,927
Acquisitions/divestments	3	0	0	0	3
New bookings/discoveries	26	44	322	0	30
Production	(122)	(159)	(1,828)	(383)	(142)
Revisions/extensions	398	0	172	196	400
1P (30/06/14)	2,110	988	9,291	1,638	2,218
Change	305	(116)	(1,335)	(186)	291
Change (percentage)	17%	(10%)	(13%)	(10%)	15%

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)	30/06/13 Reserves	Acquisition/ Divestment	New Booking /Discoveries	Production	Revisions/ Extensions	30/06/14 Reserves
1P	3,649	8	0	(123)	1,046	4,581 ¹
2P	13,382	8	0	(123)	824	14,091 ¹
3P	16,155	8	0	(123)	1,420	17,459 ¹
Resources (PJe)	Resources					Resources
2C	3,644	0	0	0	(965)	2,679 ¹

⁽¹⁾ Includes: 15, 23, 34 and 8 PJe, for 1P, 2P, 3P and 2C, respectively, for conventional reserves in Denison Trough.

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

Reserves (PJe)	30/06/13 Reserves	Acquisition/ Divestment	New Booking /Discoveries	Production	Revisions/ Extensions	30/06/14 Reserves
1P	1,369	3	0	(46)	392	1,718 ¹
2P	5,018	3	0	(46)	309	5,284 ¹
3P	6,058	3	0	(46)	532	6,547 ¹
Resources (PJe)	Resources					Resources
2C	1,367	0	0	0	(362)	1,005 ¹

⁽¹⁾ Includes: 6, 9, 13 and 3 PJe, for 1P, 2P, 3P and 2C, respectively, for conventional reserves in Denison Trough.

The increase in APLNG 2P reserves was driven by results of APLNG's exploration and appraisal program in addition to extensive development drilling as part of the Phase 1 project.

Some 99.6% and 99.8% of APLNG 1P and 2P reserves are unconventional, respectively.

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/spe-app/spe/industry/reserves/. 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 three categories 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

Origin's interests in exploration and production tenements (held directly or indirectly) may change from time to time and some of APLNG's CSG tenements are subject to commercial arrangements under which, after the recovery of acquisition, royalty, development and operating costs, plus an uplift on development and operating costs, a portion of some of the interests may revert to previous holders of the tenements. Origin has assessed the potential impact of reversionary rights associated with such interests based on economic tests consistent with these reserves and based on that assessment does not consider that reversionary rights will impact the reserves quoted within this report.

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 2014, for APLNG and the Ironbark asset are based on information in the NSAI reports dated 24 July 2014 and 18 July 2014, 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 Upstream 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
Reneke van Soest	Origin Energy	SPE
Jocelyn Young	Origin Energy	SPE
David MacDougall	Origin Energy	SPE

* 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