

Australian & New Zealand Gold Operations December Quarter 2024

Overview

The average All-in Sustaining Cost (AISC) for Australia and New Zealand was A\$2,051/oz, which is down 4.6% (A\$99/oz) on the previous quarter average AISC of A\$2,150/oz. Evolution Mining's Ernest Henry and North Parkes operations were the lowest cost producers reporting an AISC of **-A\$2,156/oz**, **-A\$2,108/oz** respectively followed by Ramelius Resources' Mt Magnet operations with an AISC of A\$1,277/oz. The average gold spot price for the quarter was A\$4,071/oz (US\$2,661/oz). It should be noted that Ernest Henry and North Parkes benefit from significant base metal by-products. Aurum Analytics' estimate of these operations AISC on a co-product basis (Co-AISC) is as follows; Ernest Henry Co-AISC of A\$2,454/oz and North Parkes Co-AISC of A\$2,214/oz. The lowest cost "gold only" operations were Ramelius Resource's Mt Magnet operations with an AISC of A\$1,277/oz, Capricorn Metals' Karlawinda mine (A\$1,490/oz), followed by Gold Fields' Granny Smith mine (A\$1,596/oz).

Newmont's Boddington operation took out top spot as Australia's largest gold producer with 164,000 oz for the quarter, followed by AngloGold Ashanti's and Regis Resources Tropicana operation (143,397 oz) and Newmont's Tanami operations (117,000 oz). Of the mines where gold is a by-product, BHP's Olympic Dam produced the most gold 47,478 oz followed by their Carrapateena mine with 26,843 oz, then their Prominent Hill mine with 25,445 oz.

Grade wise for the companies that report AISC, the average reported mill head/feed grade was 2.61 g/t (Open Pit (OP) - 0.87 g/t, Underground (UG) - 3.79 g/t, Open Pit & Underground (OP/UG) - 1.95 g/t) which was up on the previous quarter, 2.44 g/t (+6.9%). Mandalay Resources' Costerfield mine took out the honour as the operation with the highest average feed grade with 11.82 g/t, followed by Gold Fields' Agnew mine 7.01 g/t. The lowest grade mine was Evolution's Mt Rawdon mine processing an average head grade of 0.35 g/t. The high-grade operations that do not report an AISC were Agnico Eagle's Fosterville mine with 7.65 g/t and Kaiser Reef's A1 mine with 5.08 g/t.

Top 10 Gold Producing Operations

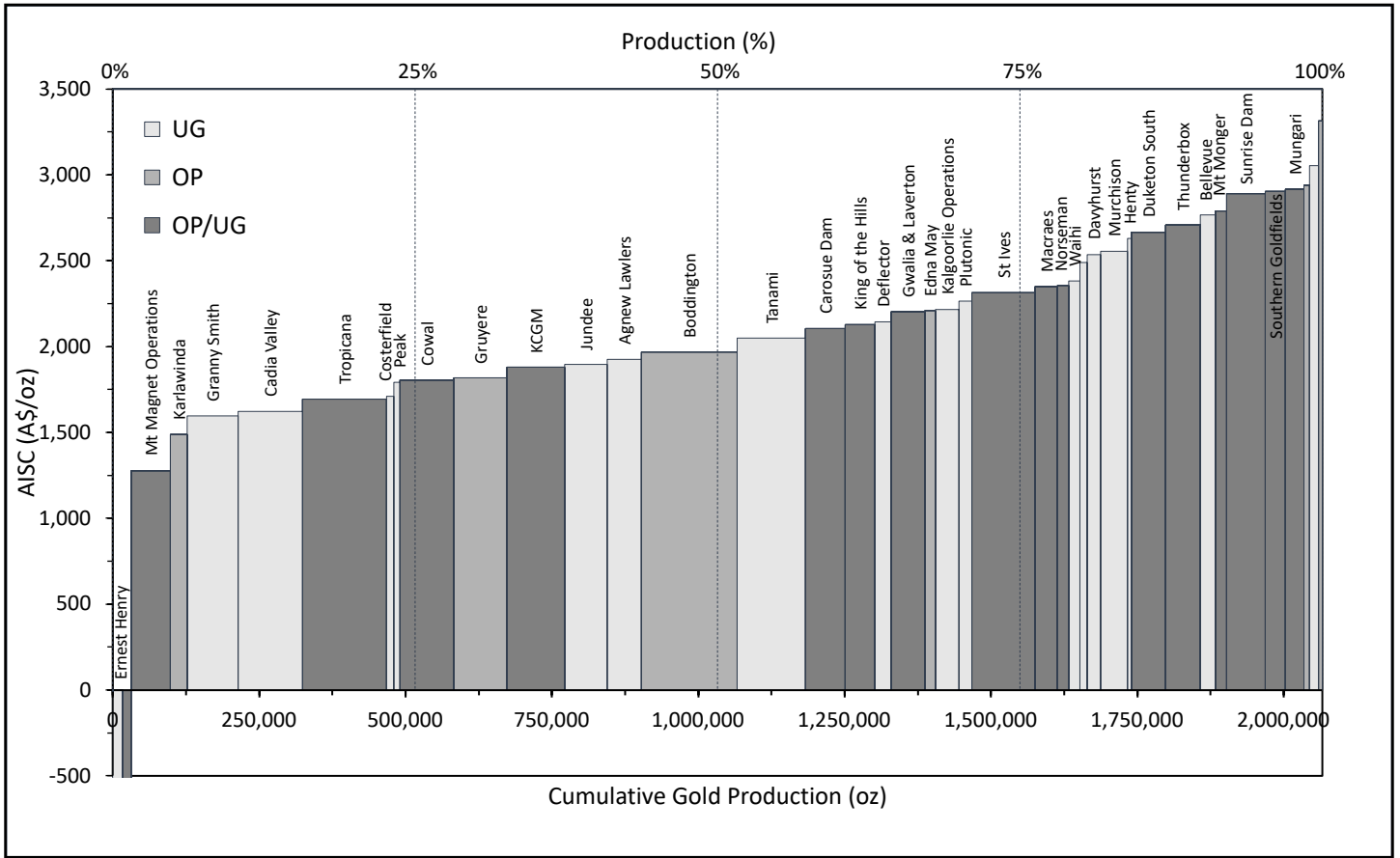
Rank	Operation	Company	Mine Type	Au Produced (oz)
1	Boddington	Newmont Corporation	OP	164,000
2	Tropicana	JV AngloGold Ashanti Limited/Regis Resources Limited	OP/UG	143,397
3	Tanami	Newmont Corporation	UG	117,000
4	Cadia Valley	Newmont Corporation	UG	110,000
5	St Ives	Gold Fields Limited	OP/UG	108,300
6	KCGM	Northern Star Resources Limited	OP/UG	98,305
7	Gruyere	JV Gold Fields Limited/Gold Road Resources Limited	OP	91,631
8	Cowal	Evolution Mining Limited	OP/UG	91,417
9	Granny Smith	Gold Fields Limited	UG	87,000
10	Jundee	Northern Star Resources Limited	UG	72,357

Gold Operations That Report AISC

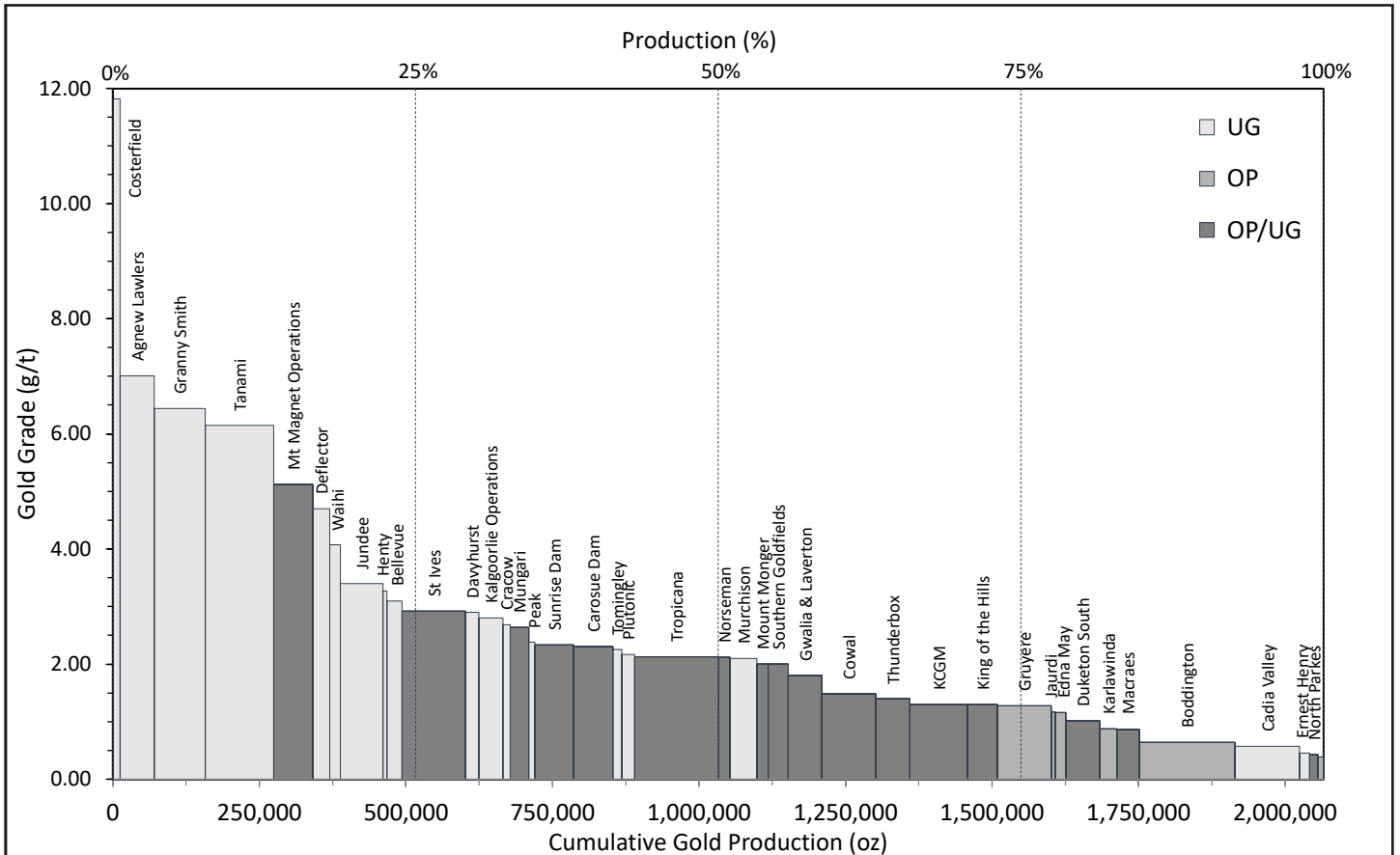
AISC Rank	Operation	Company	Mine Type	AISC (A\$/oz)	Grade (g/t)	Grade Rank	Au Produced (oz)
1	Ernest Henry	Evolution Mining Limited	UG	-2,156	0.45	39	17,263
2	North Parkes	Evolution Mining Limited	OP/UG	-2,108	0.43	40	14,119
3	Mt Magnet Operations	Ramelius Resources Limited	OP/UG	1,277	5.12	5	67,050
4	Karlawinda	Capricorn Metals Limited	OP	1,490	0.88	35	28,702
5	Granny Smith	Gold Fields Limited	UG	1,596	6.44	3	87,000
6	Cadia Valley	Newmont Corporation	UG	1,623	0.57	38	110,000
7	Tropicana	JV AngloGold/Regis Resources	OP/UG	1,695	2.13	21	143,397
8	Costerfield	Mandalay Resources Limited	UG	1,711	11.82	1	12,125
9	Peak	Aurelia Metals Limited	UG	1,793	2.38	16	10,951
10	Cowal	Evolution Mining Limited	OP/UG	1,804	1.48	27	91,417
11	Gruyere	JV Gold Fields/Gold Road	OP	1,817	1.28	31	91,631
12	KCGM	Northern Star Resources Limited	OP/UG	1,879	1.30	29=	98,305
13	Jundee	Northern Star Resources Limited	UG	1,897	3.40	8	72,357
14	Agnew Lawlers	Gold Fields Limited	UG	1,926	7.01	2	58,300
15	Boddington	Newmont Corporation	OP	1,968	0.64	37	164,000
16	Tanami	Newmont Corporation	UG	2,050	6.15	4	117,000
17	Carosue Dam	Northern Star Resources Limited	OP/UG	2,106	2.30	18	67,298
18	King of the Hills	Vault Mineral Limited	OP/UG	2,129	1.30	29=	50,717
19	Deflector	Vault Mineral Limited	UG	2,145	4.70	6	28,050
20	Gwalia & Laverton	Genesis Minerals Limited	OP/UG	2,202	1.80	26	57,055
21	Edna May	Ramelius Resources Limited	NM	2,209	1.16	33	18,261
22	Kalgoorlie Operations	Northern Star Resources Limited	UG	2,217	2.80	13	40,512
23	Plutonic	Catalyst Metals Limited	UG	2,265	2.17	20	21,803
24	St Ives	Gold Fields Limited	OP/UG	2,315	2.92	11	108,300
25	Macraes	OceanaGold Corporation	OP/UG	2,349	0.87	36	37,900
26	Norseman	Pantoro Limited	OP/UG	2,356	2.12	22	19,438
27	Waihi	OceanaGold Corporation	UG	2,382	4.07	7	19,000
28	Cracow	Aeris Resources Limited	UG	2,488	2.68	14	12,200
29	Davyhurst	Ora Banda Mining Limited	UG	2,536	2.90	12	22,973
30	Murchison	Westgold Resources Limited	UG	2,556	2.10	23	46,461
31	Henty	Catalyst Metals Limited	UG	2,631	3.27	9	6,594
32	Duketon South	Regis Resources Limited	OP/UG	2,667	1.01	34	58,275
33	Thunderbox	Northern Star Resources Limited	OP/UG	2,709	1.40	28	59,065
34	Bellevue	Bellevue Gold Limited	UG	2,765	3.10	10	26,059
35	Mount Monger	Vault Mineral Limited	OP/UG	2,791	2.00	24=	19,156
36	Sunrise Dam	AngloGold Ashanti Limited	OP/UG	2,889	2.33	17	66,000
37	Southern Goldfields	Westgold Resources Limited	OP/UG	2,903	2.00	24=	34,425
38	Mungari	Evolution Mining Limited	OP/UG	2,918	2.64	15	31,578
39	Mt Rawdon	Evolution Mining Limited	NM	2,938	0.39	41	9,751
40	Tomingley	Alkane Resources Limited	UG	3,053	2.25	19	14,852
41	Jaurdi	Beacon Minerals Limited	OP	3,314	1.17	32	6,861

Notes: Operations shown on a 100% basis, except North Parkes only Evolution's 80% interest is shown.

Gold Production Cost Curve Ranked By Reported AISC



Gold Production Grade Curve Ranked By Average Mill Feed/Head Grade



Gold Mines That Did Not Report All-in Sustaining Costs

Rank	Operation	Company	Mine Type	Grade (g/t)	Au Produced (oz)
1	Telfer	Newmont Corporation & Greatland Gold plc	OP/UG	0.72	61,864
2	Fosterville	Agnico Eagle Mines Limited ¹	UG	7.65	37,139
3	Coolgardie	Focus Minerals Limited	OP	1.04	9,596
4	Kal East	Black Cat Syndicate Limited	OP	1.57	5,381
5	Kundana EKJV	JV Tribune Resources Limited/Rand Mining Limited	UG	3.77	5,369
6	Mineral Hill	Kingston Resources Limited	OP	1.56	3,333
7	A1	Kaiser Reef Limited	UG	5.08	841
NR	Ravenswood	EMR Capital ²	OP	NA	NA
NR	Paddington	Zijin Mining Group Company Limited ²	OP/UG	NA	NA
NR	Marvel Loch	Barto Gold Pty Ltd ²	OP/UG	NA	NA
NR	Pajingo	Minjar Gold Pty Ltd ²	UG	NA	NA

1. Agnico Eagle Mines Limited does not report quarterly AISC values for individual mines.
2. These companies do not provide detailed quarterly production statistics.

Mines Where Gold Is A By-Product

Rank	Operation	Company	Mine Type	Au Produced (oz)
1	Olympic Dam	BHP Group Limited	UG	47,478
2	Carrapateena	BHP Group Limited	UG	26,843
3	Prominent Hill	BHP Group Limited	UG	25,445
4	Ernest Henry	Evolution Mining Limited	UG	17,263
5	North Parkes ¹	Evolution Mining Limited	OP/UG	14,119
6	Rosebery	MMG Limited	UG	8,442
7	Golden Grove	29Metals Limited	UG	6,150
8	Mt Colin	Aeris Resources Limited	UG	1,800
9	Eloise	AIC Mines Limited	UG	1,351
10	Tritton	Aeris Resources Limited	UG	1,100
11	Federation	Aurelia Metals Limited	UG	502
12	Kanmantoo	Hillgrove Resources Limited	UG	490

1. North Parkes is a joint venture between Evolution Mining Limited (80%) and Sumitomo Australia Pty Ltd (20%). Gold produced represents Evolutions 80% interest for part ownership of the quarter only.

Quarter on Quarter Change in AISC and Grade

Statistic	AISC (A\$/oz)	Change (%)	Grade (g/t)	Change (%)
Average (Simple) ¹	2,051	-4.6%	2.61	6.7%
Average (Weighted) ²	2,024	-4.3%	1.41	3.5%
Minimum	-2,156	-18.8%	0.39	25.8%
First Quartile ³	1,804	-6.9%	1.28	3.2%
Median ³	1,968	-5.7%	2.13	6.5%
Third Quartile ³	2,315	-3.3%	2.92	-5.8%
Maximum	3,314	-14.3%	11.82	46.1%

Notes: This table of statistics is only based on mines that report an AISC.

1. Simple averages done by number of mining operations.
2. AISC weighted by gold ounces produced, Au grade weighted by ore tonnes milled.
3. First Quartile, Median and Third Quartile values are based on production in the AISC Cost Curve and Grade Curve.

Top 5 Gold Operations - Major Gold Miners

Gold Production (Attributable)			All-in Sustaining Costs		
Rank	Operation	oz	Rank	Operation	A\$/oz
1	Boddington	164,000	1	Granny Smith	1,596
2	Tanami	117,000	2	Cadia Valley	1,623
3	Cadia Valley	110,000	3	Tropicana (70% AngloGold Ashanti Limited) ¹	1,662
4	St Ives	108,300	4	Gruyere	1,822
5	Tropicana (70% AngloGold Ashanti Limited) ¹	100,000	5	KCGM	1,879

1. Tropicana's gold produced represents AngloGold Ashanti Limited's 70% attributable interest.

Top 5 Gold Operations - Mid-Tier Gold Miners

Gold Production (Attributable)			All-in Sustaining Costs		
Rank	Operation	oz	Rank	Operation	A\$/oz
1	Cowal	91,417	1	Ernest Henry	-2,156
2	Mt Magnet Operations	67,050	2	North Parkes	-2,108
3	Duketon South	58,275	3	Mt Magnet Operations	1,277
4	Gwalia & Laverton	57,055	4	Tropicana	1,773
5	King of the Hills	50,717	5	Cowal	1,804

Top 5 Gold Operations - Junior Gold Miners

Gold Production (Attributable)			All-in Sustaining Costs		
Rank	Operation	oz	Rank	Operation	A\$/oz
1	Gruyere (50% Gold Road Resources Limited) ¹	45,816	1	Karlawinda	1,490
2	Karlawinda	28,702	2	Costerfield	1,711
3	Bellevue	26,059	3	Peak	1,793
4	Davyhurst	22,973	4	Gruyere (50% Gold Road Resources Limited) ¹	1,811
5	Plutonic	21,803	5	Plutonic	2,265

1. Gruyere's gold produced represents Gold Road Resources Limited's 50% attributable interest.

Top 5 Pure Gold Operations (No Base Metal By or Co-Products)

Gold Production (Total)			All-in Sustaining Costs		
Rank	Operation	oz	Rank	Operation	A\$/oz
1	Tropicana ¹	143,397	1	Mt Magnet Operations	1,277
2	Tanami	117,000	2	Karlawinda	1,490
3	St Ives	108,300	3	Granny Smith	1,596
4	KCGM	98,305	4	Tropicana	1,695
5	Gruyere	91,631	5	Cowal	1,804

1. Tropicana is a joint venture between AngloGold Ashanti Limited (70%) and Regis Resources Limited (30%).

General Notes

Data was sourced from company quarterly reports. Aurum Analytics created the cost and grade curves. Mine Type reflects the source of the ore mined for the quarter, OP - Open Pit, UG - Underground, OP/UG - Open Pit and Underground and NM - No Mining.

For operations in joint venture such as Gruyere and Tropicana AISC values were apportioned by equity ownership percentages.

Where AISC values were reported in US\$ and no A\$ equivalent provided, the quarterly average US\$/A\$ exchange rate (0.6563) from the Reserve Bank of Australia was used.

Disclaimer

The information contained in this report is provided for information purposes only. Accordingly, it is provided on the basis of no liability whatsoever to Aurum Analytics, or the directors, officers and employees of Aurum Analytics who will not be responsible for any damages arising from any use made of the information herein. While all care has been taken in its preparation, this information has not been independently audited and Aurum Analytics, or the directors, officers and employees of Aurum Analytics make no representation and give no warranty or undertaking, express or implied, nor assume any responsibility for the authenticity, origin, validity, accuracy or completeness, or for any errors or omissions contained in the information. The assumptions that were made in its preparation were based on publicly available information which has not been verified by Aurum Analytics, or formally audited.



ARGONAUT
The Natural Choice in Resources

About Argonaut

Argonaut is a full-service corporate finance, stockbroking and investment house based in Perth with a Foreign Broker-Dealer Agreement for the USA and an International Dealer Exemption for Canada. Argonaut is technically driven & focused on natural resource companies & businesses that service the metals, mining, energy, industrial and agri-business sectors. Argonaut is led by an experienced executive team with deep industry knowledge, who have previously held senior executive roles at leading international investment and securities houses. In our target markets, Argonaut is recognised as a trusted, independent corporate advisor with a strong track record of success. Argonaut has proven expertise across the full capital spectrum, being able to deliver optimal financing solutions during a company's entire life cycle.



About Aurum Analytics

Aurum Analytics is an independent business providing information and analysis on the Australian and New Zealand gold industry. The information and analysis given is a by-product of Sam Ulrich's PhD research at The University of Western Australia's Centre for Exploration Targeting titled "Insights into the Economic Cost Structure of Gold Mining: From All-in Sustaining Costs to Quantifying Externalities."

Contact

Sam Ulrich

Aurum Analytics

E sam@aurumanalytics.com.au
W www.aurumanalytics.com.au
T +61 439 997 814

Liam Twigger

Argonaut Group

E ltwigger@argonaut.com
W www.argonaut.com
T +61 8 9224 6888