

Alkane Resources

Boda resource estimate within five months

On 22 October, Alkane announced the results to a further 19 diamond core and reverse circulation (RC) drill holes at its Northern Molong Porphyry Project. As well as continuing to delineate the strike and dip extent of the porphyry mineralisation at Boda, in this case, Alkane also announced results from Boda Two and Three (to the south of Boda) and Kaiser (to the northwest). Individual intercepts at Boda ranged from 1m at 18.6g/t gold to 11m at 2.88g/t and wider, while one at Kaiser recorded 4.94g/t gold over 2m.

| Year end | Revenue (A\$m) | PBT* (A\$m) | EPS* (c) | DPS (c) | P/E (x) | Yield (%) |
|----------|----------------|-------------|----------|---------|---------|-----------|
| 06/20 | 72.5 | 20.6 | 2.56 | 0.00 | 36.5 | N/A |
| 06/21 | 127.8 | 46.3 | 5.35 | 0.00 | 17.5 | N/A |
| 06/22e | 136.4 | 27.8 | 3.27 | 0.00 | 28.6 | N/A |
| 06/23e | 128.2 | 31.4 | 3.70 | 0.00 | 25.3 | N/A |

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles and exceptional items.

Maiden resource estimate scheduled for Q1 CY22

Alkane is aiming to delineate a maiden mineral resource estimate for Boda in Q1 CY22. Initially, this is likely to be in the form of a tighter, higher-grade resource for the sulphide cemented breccia, plus a separate one for the massive, mineralised envelope (probably at an economic cut-off of c 0.3g/t). Until then, in the light of the information available, our best estimate of the potential mineral inventory at Boda is c 5.5–11.0Moz in total (±75%), containing a high-grade sulphide cemented breccia of 3.5Moz at a grade above 3.0g/t gold equivalent.

Tomingley continuing to deliver in the background

Tomingley continues to perform well. Production in Q122 was 12,141oz at an all-in sustaining cost (AISC) of A\$1,961/oz cf guidance of 55-60koz at an AISC of A\$1,450-1,600/oz for the full year. However, this was within budget, which anticipated the mining of lower grade stopes late in the quarter, before progressing to higher grade stopes in October. In the meantime, near mine exploration has shown additional mineralisation outside the existing resource models at Roswell and San Antonio, as well as intercepts at El Paso (to the south of San Antonio).

Valuation: Up to A\$1.56/share

Our base case valuation of the expanded and extended Tomingley operation is 33 cents per share, to which may be added (as contingencies) a further 6c for the eventual development of the Roswell underground extension and potentially 16c given the current gold price. To this total of 55c, an additional 4c may be added to reflect the value of residual (unmined) resources plus 3c for ongoing exploration success at Roswell, San Antonio and El Paso to take the total for the wider Tomingley operation to 62c (including cash held centrally). Beyond that, we value Alkane's interests in Calidus and Genesis at 15c per share and the exploration completed to date at Boda, Boda Two, Boda Three and Kaiser and Duke within the Northern Molong Porphyry Project at anything up to 79c with plenty of blue-sky upside still remaining to take the total to 156c (cf 130c previously, see Exhibit 13).

Exploration and Q122 operational results

Metals & mining

16 November 2021

Price **A\$0.935**

Market cap **A\$557m**

A\$1.3497/US\$

Net cash (A\$m) at June 2021 9.8

Shares in issue 595.4m

Free float 78%

Code ALKX

Primary exchange ASX

Secondary exchange OTC QX

Share price performance



% 1m 3m 12m

Abs (2.1) (9.7) (8.8)

Rel (local) (3.7) (8.5) (22.7)

52-week high/low A\$1.23 A\$0.67

Business description

Alkane Resources has two main assets in Central West New South Wales: the Tomingley gold mine, where recent exploration has increased the mine life by at least eight years from FY23 to FY31, and its Northern Molong project, which is shaping up to be a tier 1 alkaline porphyry district.

Next events

Maiden resource at Boda By end-Q1 CY22

Tomingley extension project approval Mid-CY22

Underground production at Roswell begins Q1 CY23

Open cut production at San Antonio begins Q3 CY23

Analyst

Lord Ashbourne (formerly Charles Gibson) +44 (0)20 3077 5724

mining@edisongroup.com

[Edison profile page](#)

Alkane Resources is a research client of Edison Investment Research Limited

Investment summary

Since our last note in September, Alkane has:

- released the assay results of 11 RC and eight diamond drill (DD) holes drilled over a total of 12,394m (average 652m per hole) at its Boda, Boda Two, Boda Three, Kaiser and Cactus prospects at its Northern Molong Porphyry Project in Central West New South Wales in Australia;
- announced its operational results for Q122.

This note updates our analysis of the company with respect to both announcements.

Boda drilling results

In its announcement of 22 October, Alkane reported the assay results of an additional four DD holes and an additional three RC holes at its Boda prospect at its Northern Molong Porphyry Project. The drilling is part of a 30,000m diamond and RC core exploration programme that began in July 2020 to test the dimensions and extensions to the large, low-grade mineralised envelope at Boda, as well as any internal high-grade zones.

In general, the Boda porphyry system is a series of near-vertical, northwest striking, intrusive related breccias hosted within a thick sequence of shallowly east-dipping andesite lavas. These magmatic breccias are hydrothermal in nature and zone towards higher gold-copper grades when associated with a chalcopyrite±pyrite dominant cement. Exploration to date has identified that the northeast shoulder of Boda (see Exhibit 2) in particular has a shallow blanket of epithermal gold mineralisation associated with colloform quartz-carbonate veining and abundant pyrite, with gold grades as high as 18.6g/t (included in hole KSDD042) and it is this area of the deposit that all seven holes were designed to test.

A summary of the seven drill holes – totalling 5,322m (or 760m per hole) – is as shown in Exhibit 1.

Exhibit 1: Boda drill hole assay results

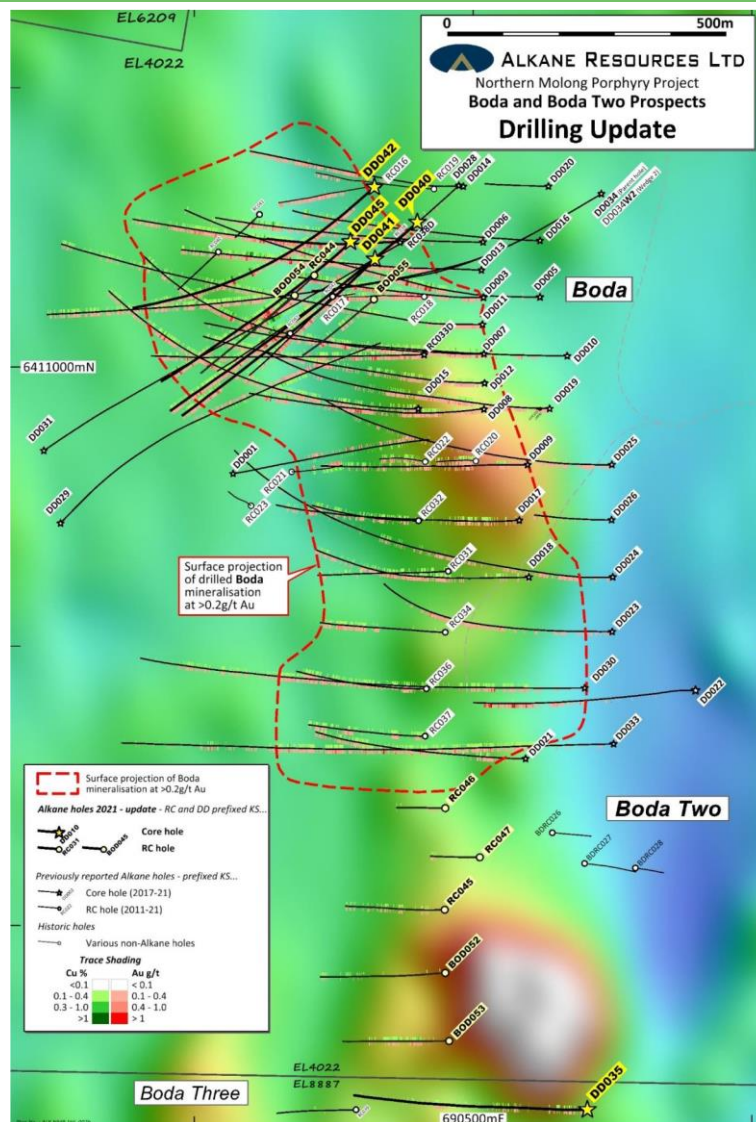
| | From (m) | To (m) | Average intercept (m) | Average gold grade (g/t) | Average Cu grade (%) |
|--|-------------|-----------|--------------------------|-----------------------------|-------------------------|
| Previously announced DD results | | | 653.2 | 0.26 | 0.12 |
| Previously announced RC results | | | 259.7 | 0.21 | 0.12 |
| Previously announced all holes | | | 539.5 | 0.25 | 0.12 |
| BOD054 | 21.0 | 163.0 | 142.0 | 0.21 | 0.15 |
| BOD055 | 9.0 | 345.0 | 158.0 | 0.46 | 0.09 |
| KSDD040 | 110.0 | 1,185.0 | 1,012.0 | 0.28 | 0.14 |
| KSDD041 | 4.0 | 859.0 | 414.0 | 0.26 | 0.12 |
| KSDD042 | 116.0 | 927.0 | 756.0 | 0.37 | 0.16 |
| KSDD045 | 10.0 | 840.0 | 774.0 | 0.29 | 0.14 |
| KSRC044 | 63.0 | 298.0 | 134.0 | 0.28 | 0.22 |
| New DD results | | | 739.0 | 0.30 | 0.14 |
| New RC results | | | 144.7 | 0.32 | 0.15 |
| All DD results | | | 662.7 | 0.26 | 0.12 |
| All RC results | | | 238.1 | 0.22 | 0.12 |
| All holes | | | 532.1 | 0.26 | 0.12 |

Source: Alkane Resources, Edison Investment Research. Note: RC holes denoted RC and BOD.

Gold and copper intercepts were calculated using a lower cut of 0.1g/t Au and 0.05% Cu, respectively. Internal dilution (<cut-off) is less than 15% of reported intercepts. True widths are estimated as approximately 50% of intersected widths (see [Alkane's announcement](#)).

At least four mineralised intrusive breccias have now been identified central to the Boda mineralisation, with drilling conducted with 50m spaced southwest-oriented drilling traverses with nominal 100m spaced drill holes (see Exhibit 2) to determine the strike and dip extensions of the deposit. Note that for the purposes of Exhibit 1, multiple intersections have been amalgamated and grades averaged according to the width of the individual intersections. In general, it may be seen that the four new DD holes reported widths of mineralisation that were wider and higher grade than those of previous holes, while the three RC holes reported widths that were narrower than previous holes, but grades that were, on average, higher than both previous RC holes and (unusually) the current round of diamond drill holes as well. As previously, the fact that DD holes continue to demonstrate wider overall intersections than their RC counterparts and extend to greater depths at higher grades may be attributed to the zonation of the system and the fact that the RC drill holes are testing the upper part of the system, where grades are anyway anticipated to be lower (as is typical of this type of porphyry system).

Exhibit 2: Boda, Boda Two and Boda Three prospect drilling



Source: Alkane Resources

Full details of the assay results are included in [Alkane's announcement](#). However, a summary of the significant intersections from the diamond core drilling is:

- Hole KSDD040

- 848m grading 0.29g/t gold and 0.17% copper, including
 - 19m grading 1.36g/t Au and 0.51% Cu
 - 14m grading 1.42g/t Au and 1.03% Cu from 753m
- Hole KSDD042
 - 676m grading 0.39g/t Au and 0.16% Cu, including
 - 1m grading 9.38g/t Au from 281m
 - 30m grading 1.29g/t Au and 0.21% Cu
 - 11m grading 1.24g/t Au and 1.66% Cu
 - 11m grading 2.88g/t Au and 1.03% Cu, including
 - 1m grading 18.6g/t Au, 1.70% Cu
- Hole KSDD045
 - 679m grading 0.30g/t Au and 0.15% Cu, including
 - 21m grading 1.11 Au and 0.28% Cu
 - 8m grading 2.17g/t Au and 0.90% Cu.

Significant intersections from the RC drilling included:

- Hole BOD054
 - 9m grading 1.09g/t Au and 0.43% Cu
- Hole BOD055
 - 6m grading 5.24g/t Au

A brief comparison between the results of the most recent assay results relative to those of comparable earlier holes – where comparison is possible – is provided in the table below:

Exhibit 3: Recent Boda assay results cf comparable earlier results

| Recent hole | | | | Prior comparable hole | | | |
|-------------|------------------|--------------------------|----------------------|-----------------------|------------------|--------------------------|----------------------|
| Hole | Intersection (m) | Average gold grade (g/t) | Average Cu grade (%) | Hole | Intersection (m) | Average gold grade (g/t) | Average Cu grade (%) |
| KSDD042 | 756.0 | 0.37 | 0.16 | KSDD034W2 | 655.0 | 0.12 | 0.13 |
| KSDD040 | 1,012.0 | 0.28 | 0.14 | KSDD031 | 407.2 | 0.77 | 0.31 |
| KSDD041 | 414.0 | 0.26 | 0.12 | KSDD028 | 839.0 | 0.38 | 0.17 |
| KSDD045 | 774.0 | 0.29 | 0.14 | KSDD029 | 220.3 | 0.22 | 0.14 |
| BOD054 | 142.0 | 0.21 | 0.15 | | | | |
| BOD055 | 158.0 | 0.46 | 0.09 | | | | |
| KSRC044 | 134.0 | 0.28 | 0.22 | | | | |

Source: Alkane Resources, Edison Investment Research

Note that hole KSDD028 is significant for comparative purposes in that it was designed to intersect the north-west striking orebody at approximately 90°. The hole, collared in outer propylitic alteration, intersected a gold mineralised pyrite-sericite shell for approximately 300m downhole, which zoned in to extensive calc-potassic alteration with gold-copper (Au-Cu) mineralisation centred around a high-grade Au-Cu breccia. The breccia showed apparent sulphide zonation with the upper intercepts more pyrite rich, zoning towards the centre and at depth to more chalcopyrite rich with increasing Au-Cu grades, possibly vectoring towards a 'causative' intrusion to the Boda system.

Exhibit 4 updates our estimates of the potential mineralised inventory in the light of the seven new drill hole results at Boda. As previously, in recognition of the difference between RC and DD results, we have included two updated estimates: one based on the whole population of results and the other based on the results of the DD holes only. Our updated mineral inventory estimates are also compared with the resources disclosed by Newcrest for Cadia Ridgeway c 100km to the south (see Exhibit 9).

Exhibit 4: Edison estimate of the potential size of Boda mineralisation

| Source of underlying data | Edison | | | | Alkane Resources | | | | Newcrest |
|-------------------------------------|---------------------|--------------------|----------------------|---------------------|------------------------|----------------|--------------------|-----------------------|-------------------------------------|
| Characteristic (units) | Updated (all holes) | Updated (DD holes) | ***Prior (all holes) | ***Prior (DD holes) | Alkane est. dimensions | High-grade pod | Surface projection | Cadia Valley Ridgeway | Cadia Ridgeway underground actual** |
| Strike (m) | 1,037 | 1,037 | 1,037 | 1,037 | 1,000 | 150 | 1,069 | 250 | |
| Ave est true width (m) | 257 | 327 | 260 | 322 | 400 | 100 | 521 | 150 | |
| Est surface area (Mm ²) | | | | | | | 0.557 | | |
| Ave est true depth (m) | 830 | 1,008 | 875 | 1,031 | 1,100 | 800 | 1,020 | 600 | |
| Est volume (Mm ³) | 221 | 342 | 236 | 344 | 440 | 12 | 568 | 22.5 | |
| Est density (t/m ³) | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| Est tonnage (Mt) | 664 | 1,026 | 707 | 1,033 | 1,320 | 36 | 1,704 | 67.5 | 151 |
| Est ave gold grade (g/t) | 0.26 | 0.26 | 0.25 | 0.26 | *0.26 | | 0.2 | | 0.49 |
| Est ave copper grade (%) | 0.12 | 0.12 | 0.12 | 0.12 | *0.12 | | | | 0.32 |
| Est ave AuE grade (g/t) | 0.46 | 0.47 | 0.45 | 0.45 | *0.46 | 3.0 | | 2.0 | 0.84 |
| Est contained gold (koz) | 5,516 | 8,696 | 5,719 | 8,561 | 10,959 | | 10,957 | | 2,400 |
| Est contained copper (kt) | 827 | 1,276 | 862 | 1,259 | 1,643 | | | | 480 |
| Est contained AuE (koz) | 9,847 | 15,377 | 10,187 | 15,088 | 19,563 | 3,472 | | 4,340 | 4,925 |

Source: Edison Investment Research, Alkane Resources. Note: *Edison estimates; **From Newcrest reserve and resource statement, 31 December 2020; ***Conducted at prices of US\$1,794/oz Au and US\$9,299/t Cu. Updated gold equivalent resource inventory and grades calculated at US\$1,818/oz Au and US\$9,518/t Cu.

Given the information available, our best estimate of the overall size of the Boda deposit is broadly unchanged at 664–1,704Mt (cf 707–1,704Mt previously), albeit at a higher average gold grade of 0.26g/t (cf 0.25–0.26g/t previously) containing 5.5–11.0Moz Au plus copper (cf 5.7–11.0Moz previously), including a high grade sulphide cemented breccia of 3.5Moz (unchanged) at a grade above 3.0g/t AuE cut-off (see column entitled 'High grade pod').

Despite our interpretation of Alkane's drilling results, clearly such estimates are very far from being anything close to JORC code-compliant and experience suggests they have an accuracy of approximately $\pm 75\%$. Even the bottom end of this range, however, would suggest a multi-million ounce gold deposit at Boda, with a potential valuation (based on the US\$24.08/oz average valuation of in-situ ounces calculated in our report [Gold stars and black holes](#), published in January 2019) of A\$0.30–0.59 per Alkane share.

Boda Two and Boda Three drilling results

The Boda Two and Boda Three prospects are defined by a 1,100m x 500m coincident gold-copper soil and magnetic high footprint with separate conductive induced polarisation (IP) anomalies.

A summary of the six holes drilled at Boda Two and Boda Three (see Exhibit 2 for orientation) is as follows:

Exhibit 5: Boda Two and Three drill hole assay results

| | From (m) | To (m) | Average intercept (m) | Average gold grade (g/t) | Average Cu grade (%) |
|-------------------------------|----------|--------|-----------------------|--------------------------|----------------------|
| KSRC039 (previously reported) | 136.0 | 320.0 | 14.0 | 0.07 | 0.13 |
| BOD052 | 332.0 | 511.0 | 79.0 | 0.08 | 0.12 |
| BOD053 | 85.0 | 356.0 | 213.0 | 0.12 | 0.19 |
| KSDD035 | 0.0 | 762.0 | 305.0 | 0.12 | 0.12 |
| KSRC045 | 67.0 | 534.0 | 210.0 | 0.12 | 0.11 |
| KSRC046 | 3.0 | 196.0 | 34.0 | 0.09 | 0.12 |
| KSRC047 | 45.0 | 210.0 | 44.0 | 0.10 | 0.11 |
| All new holes | | | 147.5 | 0.12 | 0.13 |

Source: Alkane Resources, Edison Investment Research. Note: RC and BOD are RC holes.

Total metres drilled amounted to 2,953m, or an average of 492m per hole. As at Boda, multiple intersections have been amalgamated and grades averaged according to the width of the individual intersections. In addition, the one new diamond drill hole reported widths of mineralisation that were higher than those of its RC counterparts as well as being at higher grades (as expected). Otherwise, the five new RC holes generally reported both grades and widths that were higher than those of the previously reported RC hole (KSRC039), although readers should note that hole KSRC039 was drilled approximately 677m west-south-west of the Boda deposit (see Exhibit 2) to the far southwest of the area of mineralisation.

Analysis and interpretation of Boda Two and Three drill results

While lower grade with generally narrower widths than Boda itself, drilling at Boda Two and Three nevertheless demonstrates many similarities with Boda, including an extensive zone of low grade gold-copper porphyry mineralisation with breccias that zone to higher grades. As such, the most recent round of drill hole results confirm the mineralisation continues for many metres to the south of Boda and possibly much further with the potential for additional high grade zones. These breccias will be targeted with a second phase of drilling in CY22. In the meantime, our best estimate of the mineral inventory that may be encompassed by current drilling (using the same methodology as for Boda, above) is shown in Exhibit 6, below. Given the relatively sparse drilling conducted at Boda Two and Boda Three so far (seven holes over a strike length of approximately 617m), for the moment our estimate is based on the whole population of results, rather than discriminating between the results implied by the diamond drill holes compared with those implied by the RC drill holes. Our mineral inventory estimate is also compared with the resource disclosed by Newcrest for Cadia Ridgeway c 100km to the south (see Exhibit 9).

Exhibit 6: Edison estimates of the potential size of Boda Two and Three mineralisation

| Source of underlying data | Edison | Alkane Resources | | Newcrest |
|-------------------------------------|---------------------|------------------------|-----------------------|-------------------------------------|
| Characteristic (units) | Updated (all holes) | Alkane est. dimensions | Cadia Valley Ridgeway | Cadia Ridgeway underground actual** |
| Strike (m) | 617 | 1,100 | 250 | |
| Ave est true width (m) | 64 | 500 | 150 | |
| Est surface area (Mm ²) | | 0.550 | | |
| Ave est true depth (m) | 318 | *318 | 600 | |
| Est volume (Mm ³) | 13.2 | 182.5 | 22.5 | |
| Est density (t/m ³) | 3 | 3 | 3 | |
| Est tonnage (Mt) | 39.5 | 547.5 | 67.5 | 151 |
| Est ave gold grade (g/t) | 0.12 | *0.12 | | 0.49 |
| Est ave copper grade (%) | 0.13 | *0.13 | | 0.32 |
| Est ave AuE grade (g/t) | 0.34 | *0.34 | 2.0 | 0.84 |
| Est contained gold (koz) | 148 | 2,049 | | 2,400 |
| Est contained copper (kt) | 53 | 739 | | 480 |
| Est contained AuE (koz) | 426 | 5,916 | 4,340 | 4,925 |

Source: Edison Investment Research, Alkane Resources. Note: *Edison estimates; **from Newcrest reserve and resource statement, 31 December 2020. Updated gold equivalent resource inventory and grades calculated at US\$1,818/oz Au and US\$9,518/t Cu.

Applying the same methodology to our estimate of the possible mineral inventory contained at Boda (see Exhibit 4), our best estimate of the mineral inventory contained within the Boda Two and Boda Three prospects is a modest 148koz Au at an average grade of 0.12g/t (see Exhibit 6, above), although we recognise that much of the basis of this estimate is dependent on the relatively narrow widths of mineralisation hitherto intersected and the observation that 'true widths are estimated as approximately 50% of intersected width.' If intersections in this area ultimately increase to those implied by the deposit's apparent 1,100m x 500m coincident gold-copper soil and magnetic high footprint with separate conductive IP anomalies, we believe a resource approximately 13.8x the size (ie 2,049koz; see column entitled 'Alkane est. dimensions' in Exhibit 6) could be delineated and, within this context, it is notable that hole KSRC046 ended in mineralisation.

As before, readers are cautioned that such estimates are very far from being anything close to JORC code-compliant and experience would suggest they have an accuracy of approximately $\pm 75\%$. Within this context, we calculate a value for our current resource estimate of 148koz of A\$0.01/share (based on the US\$24.08/oz average valuation of in-situ ounces calculated in our report [Gold stars and black holes](#), published in January 2019). In the event that the ultimate resource delineated expands to 2,049koz, we calculate a value for Boda Two and Boda Three of A\$0.11/share.

Kaiser drilling results

Historic drilling has defined a broad area of extensive alteration with two main zones of calc-potassic alteration and associated gold-copper mineralisation in the Kaiser Zone, centred over the Kaiser workings, and the Duke Zone, 200m to the northeast and parallel to it. These two zones exhibit many of the same characteristics as the Boda prospect, including their alteration assemblages and zonation with a similar northwest trend to the hydrothermal system.

To date, the area mapped by drilling at the Duke Zone is c 250m wide by over 800m in strike length and open along strike and at depth, with the potential for a large tonnage, low grade, shallow resource 1.5m to the northwest of Boda. On 22 October, Alkane reported the assay results of an additional three DD holes and one RC hole at Kaiser, totalling 3,425m of aggregate drilling (an average of 856m per hole).

A summary of the four holes drilled at Kaiser and Duke, within the context of the results from holes previously drilled, is as follows:

Exhibit 7: Kaiser drill hole assay results

| | From (m) | To (m) | Average intercept (m) | Average gold grade (g/t) | Average Cu grade (%) |
|-----------------------------------|-------------|-----------|--------------------------|-----------------------------|-------------------------|
| Previously announced holes | | | 124.2 | 0.34 | 0.24 |
| KAI039 | 6.0 | 188.0 | 121.0 | 0.24 | 0.16 |
| KSDD036 | 3.0 | 826.0 | 524.4 | 0.18 | 0.13 |
| KSDD037 | 22.0 | 1,152.8 | 368.8 | 0.32 | 0.12 |
| KSDD038 | 9.0 | 1,131.0 | 750.0 | 0.19 | 0.12 |
| All holes | | | 194.6 | 0.28 | 0.18 |

Source: Alkane Resources, Edison Investment Research. Note: DD: diamond drill holes; RC and BOD: RC holes.

As before, multiple intersections have been amalgamated and grades averaged according to the width of the individual intersections. Once again, it may be seen that the four new DD holes reported widths of mineralisation that were materially in excess of both those previously reported and comparable RC results, albeit at similar to lower gold grades and slightly lower copper grades.

Analysis and interpretation of Kaiser drill results

On the basis of these results, our best estimate of the mineral inventory that may be encompassed by drilling at Kaiser (using the same methodology as for Boda, above) is shown in Exhibit 8, below. Note that, as with Boda Two and Boda Three, given the relatively sparse drilling conducted at Kaiser and Duke to date, for the moment our estimate is based on the whole population of results, rather than discriminating between the results implied by the diamond drill holes compared with those implied by the RC drill holes. Our mineral inventory estimate is also compared with the resource disclosed by Newcrest for Cadia Ridgeway c 100km to the south.

Exhibit 8: Edison estimate of the potential size of Kaiser mineralisation

| Source of underlying data | Edison | Alkane Resources | | Newcrest |
|-------------------------------------|---------------------|------------------------|-----------------------|-------------------------------------|
| Characteristic (units) | Updated (all holes) | Alkane est. dimensions | Cadia Valley Ridgeway | Cadia Ridgeway underground actual** |
| Strike (m) | 986 | 800 | 250 | |
| Ave est true width (m) | 85 | 250 | 150 | |
| Est surface area (Mm ²) | | 0.200 | | |
| Ave est true depth (m) | 315 | *315 | 600 | |
| Est volume (Mm ³) | 26.3 | 63.1 | 22.5 | |
| Est density (t/m ³) | 3 | 3 | 3 | |
| Est tonnage (Mt) | 79.0 | 189.2 | 67.5 | 151 |
| Est ave gold grade (g/t) | 0.28 | *0.28 | | 0.49 |
| Est ave copper grade (%) | 0.18 | *0.18 | | 0.32 |
| Est ave AuE grade (g/t) | 0.57 | *0.57 | 2.0 | 0.84 |
| Est contained gold (koz) | 702 | 1,681 | | 2,400 |
| Est contained copper (kt) | 142.2 | 340.6 | | 480 |
| Est contained AuE (koz) | 1,446 | 3,464 | 4,340 | 4,925 |

Source: Edison Investment Research, Alkane Resources. Note: *Edison estimates; **from Newcrest reserve & resource statement, 31 December 2020. Updated gold equivalent resource inventory and grades calculated at US\$1,818/oz Au and US\$9,518/t Cu.

Applying the same methodology as to our estimate of the possible mineral inventory contained at Boda (see Exhibit 4), our best estimate of the mineral inventory contained within the Kaiser prospect is 702koz Au at an average grade of 0.28g/t (see Exhibit 8, above), albeit we recognise that this could more than double to 1,681koz if the drilling widths intersected ultimately increase to close to the 250m width mapped by drilling to date (see column entitled 'Alkane est. dimensions').

As before, readers are cautioned that such estimates are very far from being anything close to JORC code-compliant and experience would suggest they have an accuracy of approximately $\pm 75\%$. Within this context, we calculate a value for our current resource estimate of 702koz of A\$0.04/share (based on the US\$24.08/oz average valuation of in-situ ounces calculated in our report [Gold stars and black holes](#), published in January 2019). If the ultimate resource delineated expands to 1,681koz, we calculate a value for it of A\$0.09/share.

Northern Molong Porphyry Project background

The Northern Molong Porphyry Project is 100% owned by Alkane, covers c 115km² of the northern Molong Volcanic Belt and is around 80km to the north-east of its Tomingley Gold Mine, in Central West New South Wales (Exhibit 9).

Exhibit 9: Location of the Northern Molong Porphyry Project

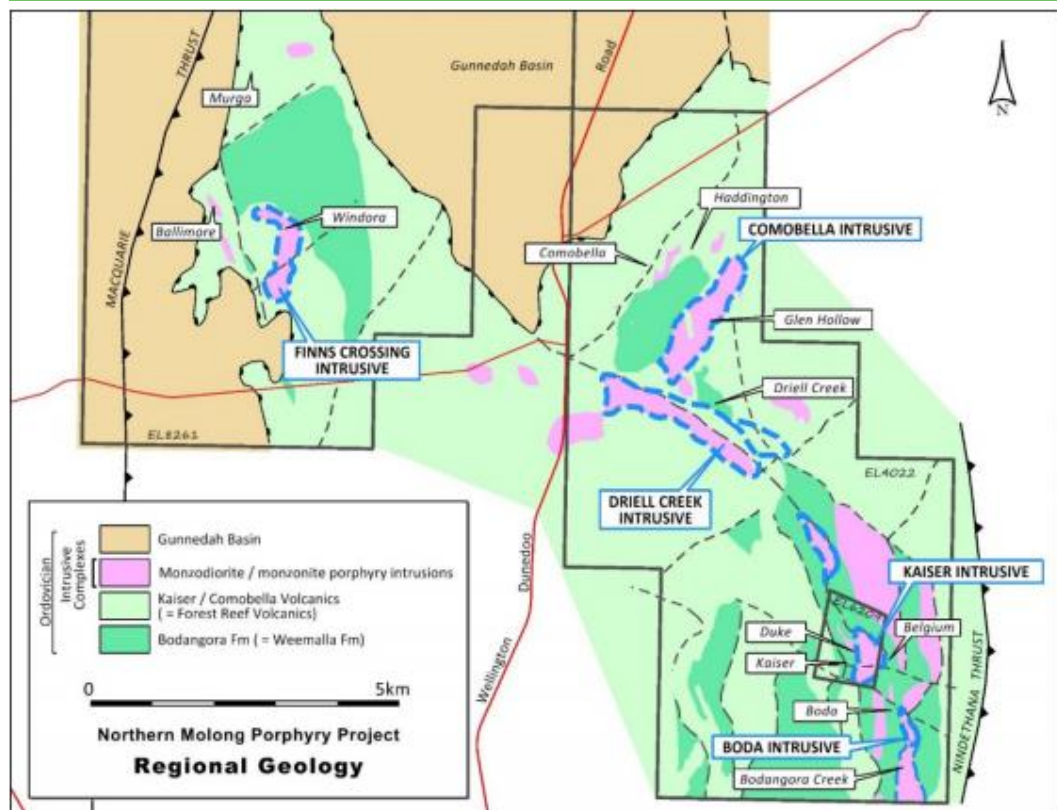


Source: Alkane Resources

To date, Alkane's drill results at Boda have shown both a similar stratigraphic sequence and style of alteration and mineralisation to Newcrest's Cadia Province mines 110km to the south, although it is also more structurally complex. Nevertheless, the Cadia Province mines host a JORC-compliant mineral resource estimate of 36.1Moz Au at a grade of 0.35g/t Au and 8.2Mt of copper at a grade of 0.26% Cu plus silver and molybdenum and produced 843koz of gold in FY20 at an AISC of US\$160/oz Au (net of by-product credits) to generate US\$991m in free cash flow.

The Northern Molong Porphyry Project now comprises four exploration licences, Bodangora, Boda South, Kaiser and Finns Crossing, within which Alkane has defined five magnetic anomalies interpreted to be intrusive complexes, denoted Kaiser, Boda, Comobella, Driell Creek and Finns Crossing, all within a 15km north-west to south-east trending corridor (Exhibit 10) and all close to road, rail, gas and water infrastructure. Importantly, the Boda anomaly correlates with a historical IP survey completed by CRA Exploration (now Rio Tinto) over the Boda Intrusive Complex (BIC). This survey showed a strong high chargeable anomaly along the northern edge of the survey area coincident with the magnetic anomaly, as a result of which Alkane subsequently completed a 70-line kilometre IP survey over the 6km strike extensions of the BIC to generate drilling targets.

Exhibit 10: Northern Molong Porphyry Project regional geology



Source: Alkane Resources

Four of these targets have now been drill tested: Kaiser, Boda, Comobella and Glen Hollow. Exploration has identified the margins of major monzonite intrusive complexes that provide the primary control for porphyry and epithermal mineralisation with significant intersections being reported along the western margin of both the Kaiser Intrusive Complex and the BIC. Specifically, gold mineralisation has been discovered at Kaiser, Boda and Glen Hollow (which is part of Comobella), with recent drilling identifying multiple phases of monzonite to monzogabbro intrusion that are plumbing a north-west structural corridor hosting extensive (calc-)potassic alteration and significant gold-copper mineralisation. In this case, the north-west orientation of the structural zones is significant in that similarly oriented structural zones are important controls to Macquarie Arc alkali gold-copper porphyry mineralisation such as the Lachlan Transverse Zone at the Cadia Valley (and Northparkes) deposits. Within this context, the alteration at Boda suggests the prospect is positioned in the upper parts of an alkali porphyry system with high-level epithermal gold veins observed in some of the drilling coincident with strongly pyritic zones, while deeper drilling has defined strong pervasive hydrothermal alteration that is dominantly calc-potassic (ie, a biotite+actinolite+epidote+magnetite+chalcopyrite±kspars±bornite mineral assemblage), phasing out to a more distal propylitic alteration (albite+epidote+chlorite+pyrite±chalcopyrite).

Quarterly results and FY22 estimates

Q122 operational results and FY22 estimates

Production of 56,958oz gold at Alkane in FY21 at an AISC of A\$1,320/oz was materially ahead of the company's most recent guidance of 50–55koz at an AISC of A\$1,400–1,550/oz and its original guidance of 45–50koz gold at an AISC of A\$1,450–1,600/oz. Production in Q122 (which was announced on 29 October) was 12,141oz at an AISC of A\$1,961/oz cf guidance for FY22 of 55–

60koz at an AISC of A\$1,450–1,600/oz. However, this production result was within budget, which anticipated mining lower grade stopes late in the quarter, before progressing to higher grade stopes in October. A summary of Alkane's recent quarterly results plus our estimate of those required in each of the remaining three quarters for it to hit approximately the middle of its guidance range for the full year is provided in the table below:

Exhibit 11: Tomingley quarterly operating results, Q420–Q422e

| | Q420 | Q121 | Q221 | Q321 | Q421 | Q122 | Q222e | Q322e | Q422e | FY22e |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|
| Ore milled (t) | 204,269 | 254,423 | 235,217 | 237,455 | 201,437 | 247,884 | 270,947 | 270,947 | 270,947 | 1,060,725 |
| Head grade (g/t) | 2.20 | 1.56 | 2.50 | 2.40 | 2.16 | 1.79 | 1.99 | 1.99 | 1.99 | 1.94 |
| Contained gold (g/t) | 14,448 | 12,761 | 18,906 | 18,323 | 13,989 | 14,266 | 17,299 | 17,299 | 17,299 | 66,164 |
| Recovery (%) | 89.3 | 88.4 | 88.1 | 91.0 | 87.1 | 85.1 | 87.4 | 87.4 | 87.4 | 86.9 |
| Gold poured (oz) | 13,358 | 11,499 | 15,919 | 16,040 | 13,500 | 12,141 | 15,120 | 15,120 | 15,120 | 57,500 |
| Gold sold (oz) | 12,992 | 11,945 | 16,613 | 15,844 | 11,526 | 13,359 | 15,120 | 15,120 | 15,120 | 58,718 |
| Gold price (US\$/oz) | 1,713 | 1,911 | 1,875 | 1,796 | 1,814 | 1,790 | 1,802 | 1,819 | 1,819 | 1,807 |
| Forex (A\$/US\$) | 1.5226 | 1.3987 | 1.2929 | 1.2943 | 1.2989 | 1.3613 | 1.3494 | 1.3497 | 1.3497 | 1.3525 |
| Average realised price (A\$/oz) | 2,327 | 2,261 | 2,302 | 2,203 | 2,401 | 2,467 | *2,432 | *2,455 | *2,455 | *2,452 |
| C1 site cash costs (A\$/oz) | 981 | 1,178 | 720 | 803 | 1,199 | 1,531 | 1,181 | 1,181 | 1,181 | 1,261 |
| AISC (A\$/oz) | 1,368 | 1,575 | 1,201 | 997 | 1,669 | 1,961 | 1,454 | 1,452 | 1,453 | 1,569 |

Source: Alkane Resources, Edison Investment Research. Note: *Excludes forward sales.

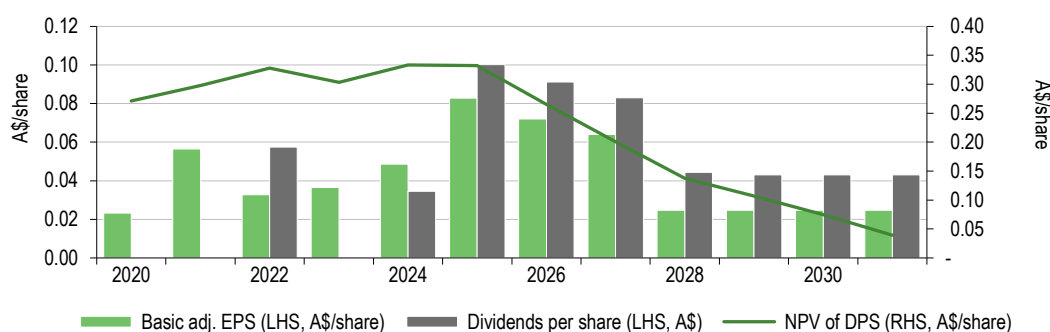
Alkane/Tomingley valuation

As previously, our valuation of Tomingley is based on the present value of our forecast life of operations dividend stream to investors in Alkane as a result of the execution of the Tomingley mine plan (including Roswell and San Antonio) discounted back to present value at a rate of 10% per year, excluding exploration expenditure.

In the wake of Q122 results, our valuation of the dividend stream potentially available to Alkane shareholders from its immediate Tomingley operations is now A\$0.328/share (cf A\$0.348/share previously – albeit with the decline solely attributable to the strengthening in the relevant forex rate, from A\$1.3771/US\$ to A\$1.3497/US\$). However, to this must be added the value of residual resources at the end of the life of operations, which we estimate to be 0.8Moz with a current value of US\$18.2m (A\$24.5m), or A\$0.041/share, to bring our total valuation of Tomingley to A\$0.369/share including cash.

A comparison of our updated and prior expectations for Alkane's EPS and DPS stream and valuation from the present to the end of its life of operations is as follows:

Exhibit 12: Alkane life of operations' forecast EPS and (maximum potential) DPS (A\$/share)



Source: Edison Investment Research.

Note that the DPS columns in Exhibit 12 represent theoretical, maximum potential dividends that we believe could be paid by the company, rather than actual dividends forecast and are used solely

for valuation purposes. In reality, we would expect a portion of any dividends that could be paid instead to be re-invested into the business, either in the form of exploration expenditure (eg at the Northern Molong Porphyry Project) or capital expenditure.

Combined valuation of Alkane

A summary of our updated valuation of Alkane in the light of both our updated Boda estimates (see Exhibits 4, 6 and 8) and Q122 results (see Exhibit 11) is as follows:

| Exhibit 13: Alkane Resources valuation summary (Australian cents per share) | | | | | | |
|--|----------------------------|------------------------------|-----------------|----------------------------|------------------------------|-----------------|
| Asset | Previous | | | Current/updated | | |
| | Existing assets' valuation | Contingent assets' valuation | Potential total | Existing assets' valuation | Contingent assets' valuation | Potential total |
| Tomingley plus cash | 39 | | 39 | 37 | | 37 |
| Roswell underground | | 6 | 6 | | 6 | 6 |
| El Paso and ongoing Tomingley extension exploration | | 3 | 3 | | 3 | 3 |
| Investments in Calidus and Genesis* | 9 | | 9 | 15 | | 15 |
| Boda exploration | | 32-61 | 61 | | 30-59 | 59 |
| Boda Two & Three exploration | | | | | 1-11 | 11 |
| Kaiser & Duke exploration | | | | | 4-9 | 9 |
| Spot gold price level cf long-term forecast | | 12 | 12 | | 16 | 16 |
| Total | 48 | 53-82 | 130 | 52 | 60-104 | 156 |

Source: Edison Investment Research. Note: *At prevailing share prices of A\$0.64/share for Calidus and A\$0.155/share for Genesis. Totals may not add up owing to rounding.

Financials

Alkane reported A\$34.4m in cash on its balance as at end-September 2021, partially balanced by an assumed A\$24.9m in net debt financing from its Macquarie working capital facility plus lease financing during the quarter, to result in an overall estimated net cash position of A\$9.5m at the quarter's end (cf A\$9.8m as at end-FY21). In addition, Alkane had A\$4.9m of bullion on hand and, we estimate, an updated A\$87.8m in listed investments in Calidus and Genesis (cf A\$51.1m previously). Excluding cash flows from financing activities, Alkane generated A\$71.1m in cash from operating activities in FY21. Hereafter, we estimate that cash flow from operations will contribute meaningfully to capex as the Tomingley mine extension is constructed. However, we expect management will nevertheless seek to fund a portion of the project with debt put in place over the next 12 months.

Exhibit 14: Financial summary (A\$000s)

| | 2018 | 2019 | 2020 | 2021 | 2022e | 2023e | 2024e | 2025e |
|--|------------|------------|------------|------------|------------|------------|------------|-------------|
| 30 June | IFRS | IFRS | IFRS | IFRS | IFRS | IFRS | IFRS | IFRS |
| INCOME STATEMENT | | | | | | | | |
| Revenue | 129,973.6 | 93,994.9 | 72,549.0 | 127,833.0 | 136,445.5 | 128,192.5 | 145,659.7 | 239,268.2 |
| Cost of Sales | (51,080.9) | (53,656.4) | (32,868.0) | (45,313.0) | (76,806.2) | (63,528.6) | (85,327.0) | (150,500.0) |
| Gross Profit | 78,892.7 | 40,338.5 | 39,681.0 | 82,520.0 | 59,639.4 | 64,663.9 | 60,332.7 | 88,768.2 |
| EBITDA | 70,378.7 | 32,971.7 | 29,412.0 | 70,527.0 | 52,272.6 | 57,297.2 | 52,965.9 | 81,401.4 |
| Normalised operating profit | 31,658.3 | 25,808.8 | 20,171.0 | 49,940.0 | 27,659.0 | 31,083.6 | 42,000.9 | 70,436.4 |
| Reported operating profit | 31,658.3 | 25,808.8 | 20,171.0 | 49,940.0 | 27,659.0 | 31,083.6 | 42,000.9 | 70,436.4 |
| Net Interest | (579.0) | (418.8) | 389.0 | (2,741.0) | 146.6 | 362.9 | 135.0 | 383.5 |
| Joint ventures & associates (post tax) | 0.0 | 0.0 | 0.0 | (870.0) | 0.0 | 0.0 | 0.0 | 0.0 |
| Exceptionals | 0.0 | 0.0 | (646.0) | 1,741.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Profit before tax (norm) | 31,079.3 | 25,390.0 | 20,560.0 | 46,329.0 | 27,805.6 | 31,446.5 | 42,136.0 | 70,819.9 |
| Profit before tax (reported) | 31,079.3 | 25,390.0 | 19,914.0 | 48,070.0 | 27,805.6 | 31,446.5 | 42,136.0 | 70,819.9 |
| Reported tax | (6,919.9) | (2,266.1) | (6,569.0) | (14,503.0) | (8,341.7) | (9,434.0) | (12,640.8) | (21,246.0) |
| Profit after tax (norm) | 24,159.4 | 23,123.9 | 13,991.0 | 31,826.0 | 19,463.9 | 22,012.6 | 29,495.2 | 49,573.9 |
| Profit after tax (reported) | 24,159.4 | 23,123.9 | 13,345.0 | 33,567.0 | 19,463.9 | 22,012.6 | 29,495.2 | 49,573.9 |
| Minority interests | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Discontinued operations | 0.0 | 0.0 | (583.0) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Net income (normalised) | 24,159.4 | 23,123.9 | 13,991.0 | 31,826.0 | 19,463.9 | 22,012.6 | 29,495.2 | 49,573.9 |
| Net income (reported) | 24,159.4 | 23,123.9 | 12,762.0 | 33,567.0 | 19,463.9 | 22,012.6 | 29,495.2 | 49,573.9 |
| Basic average number of shares outstanding (m) | 506 | 506 | 547 | 595 | 595 | 595 | 595 | 595 |
| EPS – basic normalised (A\$) | 0.05 | 0.05 | 0.03 | 0.05 | 0.03 | 0.04 | 0.05 | 0.08 |
| EPS – diluted normalised (A\$) | 0.05 | 0.04 | 0.02 | 0.05 | 0.03 | 0.04 | 0.05 | 0.08 |
| EPS – basic reported (A\$) | 0.05 | 0.05 | 0.02 | 0.06 | 0.03 | 0.04 | 0.05 | 0.08 |
| Dividend (A\$) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Revenue growth (%) | 10.3 | (-27.7) | (-22.8) | 76.2 | 6.7 | (-6.0) | 13.6 | 64.3 |
| Gross margin (%) | 60.7 | 42.9 | 54.7 | 64.6 | 43.7 | 50.4 | 41.4 | 37.1 |
| EBITDA margin (%) | 54.1 | 35.1 | 40.5 | 55.2 | 38.3 | 44.7 | 36.4 | 34.0 |
| Normalised operating margin (%) | 24.4 | 27.5 | 27.8 | 39.1 | 20.3 | 24.2 | 28.8 | 29.4 |
| BALANCE SHEET | | | | | | | | |
| Fixed assets | 138,275.0 | 172,196.0 | 129,077.0 | 203,161.0 | 217,637.4 | 245,013.7 | 258,638.7 | 257,763.7 |
| Intangible assets | 93,136.0 | 103,894.0 | 32,745.0 | 57,794.0 | 67,794.0 | 77,794.0 | 87,794.0 | 97,794.0 |
| Tangible assets | 36,266.0 | 51,038.0 | 62,322.0 | 99,411.0 | 103,887.4 | 121,263.7 | 124,888.7 | 114,013.7 |
| Investments & other | 8,873.0 | 17,264.0 | 34,010.0 | 45,956.0 | 45,956.0 | 45,956.0 | 45,956.0 | 45,956.0 |
| Current assets | 93,306.0 | 76,501.0 | 59,096.0 | 33,054.0 | 42,531.2 | 26,817.3 | 44,479.1 | 100,284.7 |
| Stocks | 19,153.0 | 4,816.0 | 7,647.0 | 11,648.0 | 5,233.5 | 4,917.0 | 5,586.9 | 9,177.4 |
| Debtors | 2,030.0 | 1,998.0 | 2,940.0 | 1,894.0 | 3,364.4 | 3,160.9 | 3,591.6 | 5,899.8 |
| Cash & cash equivalents | 72,003.0 | 69,582.0 | 48,337.0 | 18,991.0 | 33,412.3 | 18,218.4 | 34,779.6 | 84,686.6 |
| Other | 120.0 | 105.0 | 172.0 | 521.0 | 521.0 | 521.0 | 521.0 | 521.0 |
| Current liabilities | (27,430.0) | (21,762.0) | (14,238.0) | (18,179.0) | (22,668.7) | (12,318.5) | (14,110.2) | (19,466.9) |
| Creditors | (9,299.0) | (8,007.0) | (9,425.0) | (11,082.0) | (15,571.7) | (5,221.5) | (7,013.2) | (12,369.9) |
| Tax and social security | (6,929.0) | (9,317.0) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Short-term borrowings | 0.0 | 0.0 | (2,090.0) | (3,294.0) | (3,294.0) | (3,294.0) | (3,294.0) | (3,294.0) |
| Other | (11,202.0) | (4,438.0) | (2,723.0) | (3,803.0) | (3,803.0) | (3,803.0) | (3,803.0) | (3,803.0) |
| Long-term liabilities | (13,647.0) | (13,059.0) | (19,522.0) | (26,471.0) | (26,471.0) | (26,471.0) | (26,471.0) | (26,471.0) |
| Long-term borrowings | 0.0 | 0.0 | (4,515.0) | (5,922.0) | (5,922.0) | (5,922.0) | (5,922.0) | (5,922.0) |
| Other long-term liabilities | (13,647.0) | (13,059.0) | (15,007.0) | (20,549.0) | (20,549.0) | (20,549.0) | (20,549.0) | (20,549.0) |
| Net assets | 190,504.0 | 213,876.0 | 154,413.0 | 191,565.0 | 211,028.9 | 233,041.5 | 262,536.7 | 312,110.6 |
| Minority interests | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Shareholders' equity | 190,504.0 | 213,876.0 | 154,413.0 | 191,565.0 | 211,028.9 | 233,041.5 | 262,536.7 | 312,110.6 |
| CASH FLOW | | | | | | | | |
| Operating cash flow before WC and tax | 69,941.3 | 33,135.8 | 28,173.0 | 72,065.0 | 52,182.6 | 57,207.2 | 52,875.9 | 81,311.4 |
| Working capital | (9,498.0) | (5,172.0) | (3,481.0) | (2,840.0) | 9,433.7 | (9,830.1) | 691.0 | (541.9) |
| Exceptional & other | 1,277.0 | 1,454.0 | 3,704.0 | 4,632.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Tax | (6,919.9) | 7,047.9 | (249.0) | 0.0 | (8,341.7) | (9,434.0) | (12,640.8) | (21,246.0) |
| Net operating cash flow | 54,800.5 | 36,465.7 | 28,147.0 | 73,857.0 | 53,274.7 | 37,943.2 | 40,926.1 | 59,523.5 |
| Capex | (9,224.0) | (19,621.0) | (46,122.0) | (59,477.0) | (29,000.0) | (43,500.0) | (14,500.0) | 0.0 |
| Acquisitions/disposals | 0.0 | 4.0 | (20,068.0) | 1,522.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Net interest | (579.0) | (418.8) | 389.0 | (2,741.0) | 146.6 | 362.9 | 135.0 | 383.5 |
| Equity financing | (5.0) | 0.0 | 39,442.0 | (31.0) | 0.0 | 0.0 | 0.0 | 0.0 |
| Exploration and Evaluation | (10,969.0) | (11,578.0) | (20,132.0) | (26,642.0) | (10,000.0) | (10,000.0) | (10,000.0) | (10,000.0) |
| Other | (4,317.0) | (7,442.0) | (9,522.0) | (18,129.0) | 0.0 | 0.0 | 0.0 | 0.0 |
| Net cash flow | 29,706.4 | (2,590.1) | (27,866.0) | (31,641.0) | 14,421.3 | (15,193.9) | 16,561.2 | 49,907.0 |
| Opening net debt/(cash) | (41,969.0) | (72,003.0) | (69,582.0) | (41,732.0) | (9,775.0) | (24,196.3) | (9,002.4) | (25,563.6) |
| FX | 311.6 | 169.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other non-cash movements | 16.0 | 0.0 | 16.0 | (316.0) | 0.0 | 0.0 | 0.0 | 0.0 |
| Closing net debt/(cash) | (72,003.0) | (69,582.0) | (41,732.0) | (9,775.0) | (24,196.3) | (9,002.4) | (25,563.6) | (75,470.6) |

Source: Company sources, Edison Investment Research

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Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
1185 Avenue of the Americas
3rd Floor, New York, NY 10036
United States of America

Sydney +61 (0)2 8249 8342
Level 4, Office 1205
95 Pitt Street, Sydney
NSW 2000, Australia