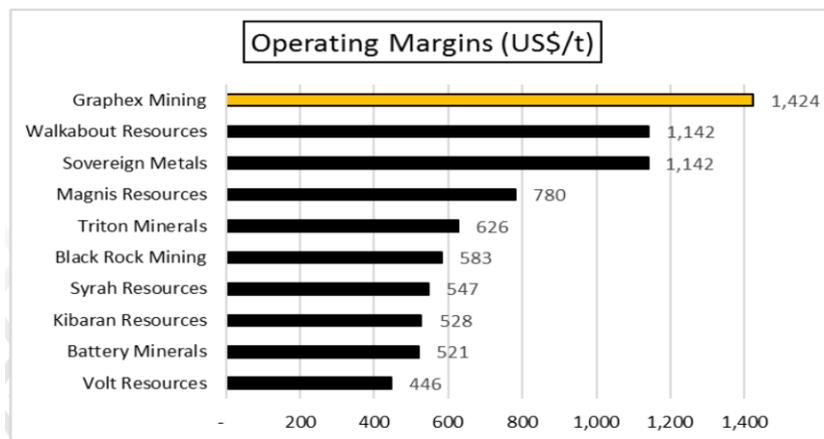




## **Graphex Mining (GPX AU, \$0.30. Market cap A\$21m)**

**GPX reports Chinese basket price estimate of US\$1914/t, 57% higher than the PFS. Our valuation for GPX more than doubles on this price deck.**

- Graphex has provided clarity regarding the likely pricing outcome for its Chilalo project.
- In a recent presentation (5 Feb 2018), GPX discloses a range of prices determined by partner CN Docking (a subsidiary of China National Building Materials, CNBM). Prices range from around US\$660/t for the fines to nearly US\$4000/t for very coarse flake (+20 mesh).
- CN Docking have confirmed that there is very strong demand for +35 mesh (500 to 850 micron) and +20 mesh graphite (>850 micron). Moreover, the Chilalo coarse flake product has excellent expandability properties, which makes it highly suitable for use in flame retardant building materials. There is currently no new supply available. Recall that the Chilalo project offers an uncommonly coarse product, with nearly 60% reporting into the +300 micron fraction (“jumbo flake” and above).
- Based on these pricing estimates and product size distribution, GPX is estimated to offer the highest margins in the sector, significantly higher than those companies targeting the battery anode market. Here prices for small and medium flake are estimated at under US\$900/t.
- We would urge investors to ignore cost curves presented by other pre-production graphite hopefuls. The margin curve is the only relevant basis for comparison.



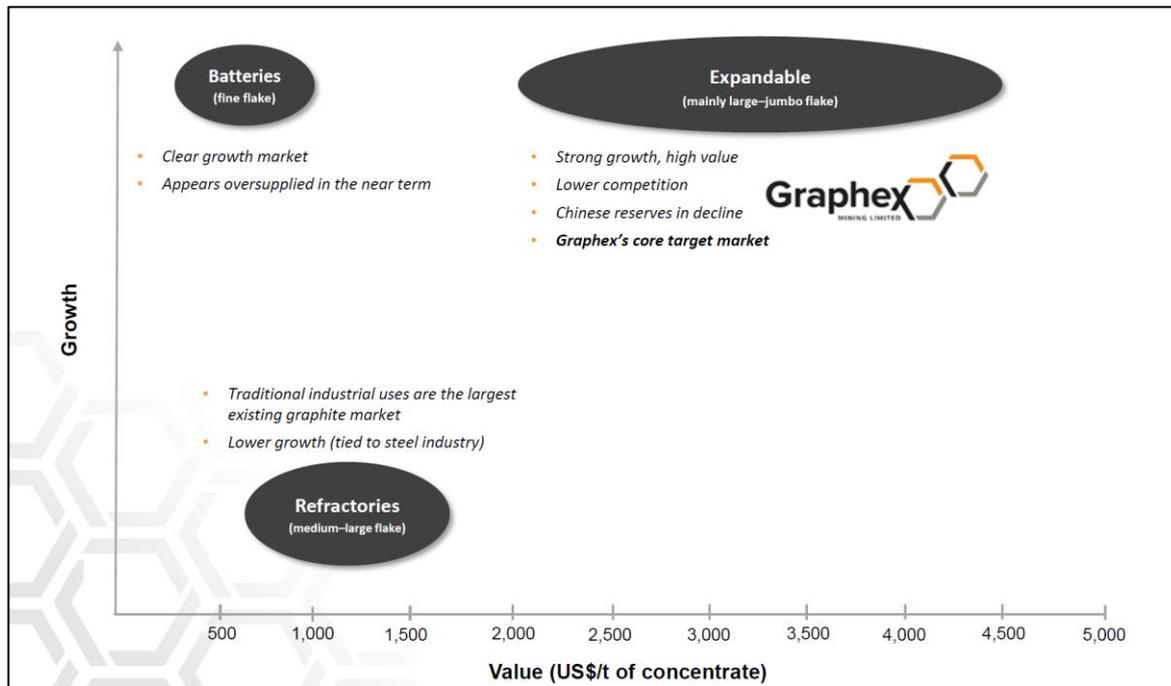
Source: GPX presentation, 5 February, 2018

- Our valuation based on the new price deck is around A\$2.30-2.40/fully diluted share, which incorporates a sell-down to the Chinese partners (which will leave GPX’s share largely funded), and a free-carry of 16% to the Tanzanian Government. In our view, the significant share price discount (ca. 85%) reflects uncertainty regarding the Tanzanian situation and risk attached to the Chinese deal. It also reflects the market’s current uncertainty with graphite pricing, particularly coarse flake expandable. Graphite is one of the least well understood of the global commodity suite.

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## Industrial uses of graphite

GPX presents a useful graphical representation of the uses of graphite and their view of the future demand for the various commodity types. We concur with the views of GPX.



Source: GPX presentation, 5 February, 2018

- **Battery or anode grade flake** will undoubtedly be in high demand, given the emerging demand from the battery manufacturers. Flake sizes here are typically under 150 microns, with quite tight quality constraints (high total graphitic carbon levels, usually >98-99% and other parameters based on performance testing). There does not seem to be a shortage of supply of this category of graphite flake (China have supplied until recently and Syrah Resources is capable of producing ~270ktpa). Syrah Resources in its Sales and Marketing Presentation (April 2017) speculates that anode graphite will make up over 50% of total demand for natural graphite in 2020.
- **Traditional markets.** These are the steel industry and producers of refractory products which are generally leveraged to the economic cycle. Demand growth is low. Total demand is currently around 50% of total.
- **Expandable graphite.** This is an often-overlooked segment of the graphite market, but one where supply constraints in the world's number one graphite producer, China, is a cause for concern for industry. Syrah's analysis makes no mention of expandable graphite, and we assume that it fits into the "other" category, some 100kt of a +900kt estimated market in 2020. GPX in its February 2018 presentation quote a senior executive from CNBM which suggests the market for expandable graphite for use in fire retardant building materials could be as large as 2 million tonnes per year. Easy to see why CNBM (via CN Docking) are keen on Chilalo.

## The impact on GPX's valuation

Our previous base-line valuation for GPX of \$1.05/share is based on the following assumptions, derived from the 2015 PFS:

- Production of 69ktpa flake graphite product at a cash cost of US\$490/t of product.
- Up-front capex of US\$67m (with US\$7m attributable to the earth moving contractor).
- A product basket price of US\$1217/t.
- 4% royalty and 30% corporate tax rate.
- A 16% free carried interest to the Tanzanian Government.
- A sell-down of 50% of 84% equity in the project to Chinese partners for US\$17m.

Many of these estimates are now over 2 years old, and many assumptions will have been updated in a feasibility study undertaken by the Suzhou Design and Research Institute for Non-Metallic Minerals on behalf of CN Docking. Details of this study are not yet public. However, GPX state that the production profile will likely exceed the 69ktpa, for no additional capital spend.

We have undertaken a 'what if' valuation estimate, employing the assumptions above, increasing production to 75ktpa and using the CN Docking basket price quoted by GPX in the February 2018 presentation (US\$1914/t).

This generates a fully funded, after tax valuation of A\$2.30-2.40/share.

This excludes the potential for additional 'value add' with downstream processing in Tanzania should this prove viable.

Graphex NAV			Notes
Cashflow NPV (10%, post-tax, real)	US\$m	417.2	
Capex	US\$m	67.0	Assumes contract mining
<b>Equity NPV</b>	<b>US\$m</b>	<b>484.2</b>	
Exchange rate	AUDUSD	0.75	
<b>Equity NPV</b>	<b>A\$m</b>	<b>645.7</b>	
<b>Project debt</b>	<b>A\$m</b>	<b>(67.0)</b>	Reduce NPV by debt component
<b>NPV less debt</b>	<b>A\$m</b>	<b>578.7</b>	
Ownership by GPX	%	42%	Sell-down to 42% (50% of 16% FCI to Tz Govt)
<b>Implied equity</b>	<b>A\$m</b>	<b>243.0</b>	
Cash	A\$m	3.5	\$1.5m + est. \$2m for new capital in 2018
Cash from option exercise	A\$m	3.6	All options in the money
Corporate office cost	A\$m	(20.0)	PV, after tax
<b>Corporate NAV</b>	<b>A\$m</b>	<b>230.2</b>	
Fully diluted shares outstanding	m shares	96.9	Incl. options and small capital raise going forward
<b>Implied valuation per share</b>	<b>A\$</b>	<b>2.38</b>	

## The situation in Tanzania

The Government of Tanzania has begun the process of formally establishing the Mining Commission which is a newly formed body that will be responsible for licencing of mineral projects and negotiating agreements between mining companies and the Government. The Commissioner for Minerals has been appointed as the Acting CEO of the Commission and we understand that the recruitment process for members of the Mining Commission Secretariat has begun as a matter of urgency.

In GPX's release of 5 February, the MD commented that the meeting between the Chinese delegation, led by CN Docking, and senior officials of the Ministry of Minerals has resulted in several key issues being referred to the President's Office. While details of these issues were not specified, we would guess they relate to the proposed 16% free carry and perhaps the ability for GPX to export graphite concentrate.

Importantly the Chinese were reportedly "pleased" with the Government meetings. We get the impression – and it is only that – that the Tanzanian situation is not a show-stopper for their involvement.

## The Chinese JV

We take comfort from GPX's recent release. The fact that CN Docking and their partners are still in the room with all that has happened speaks to (1) the quality of the Chilalo deposit, and their urgent need for very large flake expandable graphite, and (2) the capacity of Graphex to deliver the project.

We are expecting a further update regarding the status and structure of the JV in March, after Chinese New Year.

We note with interest a comment in GPX's most recent presentation (Schroder Equities Conference Presentation, February 2018) that "Graphex continues to receive strong interest from alternative financiers". This suggests to us that GPX cannot be held hostage by their Chinese partners. The deal is not exclusive.

## Investment View

There has always been plenty of value in GPX. However, its progressive derisking/rerating was abruptly halted by the turmoil in Tanzania. There is a clear opportunity for value to re-emerge, and that will be contingent on the following milestones:

- Finalisation of the ownership and fiscal environment for the Chilalo mining lease.
- Finalisation of the binding agreement with GPX's partners.
- Publication of details of the Suzhou feasibility study.
- The 'de-mystification' of graphite as a commodity as the Balama project moves into production, and revenues are reported by Syrah.

The outlook for expandable graphite appears only to be improving, as Chinese reserves dwindle. This we see as providing nice tailwind for coarse flake graphite for the next few years.

It is important to remember that GPX's equity in the project is largely fully funded, under what we believe will be the final terms of the Chinese JV.

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Dr Chris Baker, an authorised representative of BCP, certifies that the advice in this report reflects his honest view of the company. He has 29 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends, but will declare this when providing advice. He currently owns shares and options in GPX. He is not paid a fee by BCP for providing this report. BCP are Corporate Advisors to GPX and receive fees from GPX for services provided.