

GRAPHITE
Tsunami of Production?

FastMarkets

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FINANCING AND INVESTING IN GRAPHITE – A CLOSER LOOK AT NEW SUPPLY

- Are projections of oversupply for the next decade accurate?
- How many projects are expected to come online? How much extra capacity does this bring to the market?
- Cost analysis of projects - how are these projects being financed?
- Tipping point: how can miners secure financing in a bearish market?

OVERSUPPLY – THE CREDIBILITY GAP

Are projections of oversupply for the next decade accurate?

- This depends if you believe the companies in the graphite space
- Some honestly believe they will get to production, but are they deluding themselves more than the market?
- Much depends on the fate of Syrah....
- Some of the wannabe producers will end up producing less than their PEAs or DFSs might indicate
- Then there is the demand side... Will China have to scale back its EV ambitions?

THE RACE TO MARKETS

The first flush of the Graphite boom was in 2013. There had been graphite players before then but the real expansion came during a “dead time” for the rest of the mining space.

A swarm of new players appeared. However, financing dried up. Values faded and the graphite players joined the rest of the mining sector in the “dog house”.

Some determined companies soldiered on with funds raised during the “good days”. A number of other companies were repurposed (particularly in Canada) as gold stories or, ironically, as Lithium plays

The Lithium ion battery boom revived interest in battery materials (Lithium, Cobalt and to a lesser extent Graphite) generally. There has been a pullback in Lithium valuations over the since 2017.

THE RUNNERS & THE FIELD

	Ticker	CapEx	Grade Cg Resource	Cost per Tonne	Location	Status
Battery Minerals	ASX:BAT	US\$39.5mn	8.1%	US\$361	Mozambique	Feasibility Feb 2017
BlackEarth Minerals	ASX:BEM		7.1%		Madagascar	Resource
Ceylon Graphite	TSX-v:CYL	-			Sri Lanka	Bootstrapping
Elcora Resources	TSX: ERA	-	n/a	n/a	Sri Lanka	Mothballed
Focus Graphite	TSX.v: FMS	US\$141mn	15.0%	US\$468	Canada	Feasibility 2014
Graphex Mining	ASX:GPX	US\$43.6mn	10.5%	US\$500	Tanzania	PFS Sept 2018
Kibaran Resources	ASX: KNL	US\$77.5mn	8.3%	US\$500	Tanzania	Feasibility 2015
Leading Edge Materials	TSX.v: LEM	US\$16.7mn	9.3%	US\$730	Sweden	Mothballed
Magnis Energy	ASX:MNS	US\$269mn	5.4%	US\$502	Tanzania	BFS 2016
Mason Graphite	TSX.v: LLG	CAD\$258mn	28.0%	US\$484	Canada	Feasibility 2018
Nextsource Materials	TSX: NEXT	CAD\$18.4mn	6.1%	US\$353	Madagascar	Feasibility 2015
Northern Graphite Corp	TSX-v: NGC	US\$85.5mn	2.2%	US\$766	Canada	Feasibility 2012, PEA 2018
Nouveau Monde Mining	TSX-v: NOU	US\$230mn	4.0%	US\$532	Canada	PEA 2016
SRG Graphite	TSX-v:SRG	US\$105.1mn	5.6%	US\$502	Guinea	PEA 2018
Syrah Resources Ltd	ASX: SYR	US\$300mn	11.0%	US\$475	Mozambique	Producing at 50%
Triton Minerals	ASX:TON	US\$99.4mn	6.2%	US\$634	Mozambique	DFS Dec 2017
Volt Resources	ASX:VRC	US\$31.8mn	5.4%	US\$664	Tanzania	Feasibility July 2018
Walkabout Resources	ASX:WKT	US\$27.8mn	10.8%	US\$347	Tanzania	DFS March 2019
Zen Graphene	TSX-v: ZEN	US\$411mn	3.9%	US\$2,046	Canada	PEA 2015

PIPELINE OR LOGJAM?

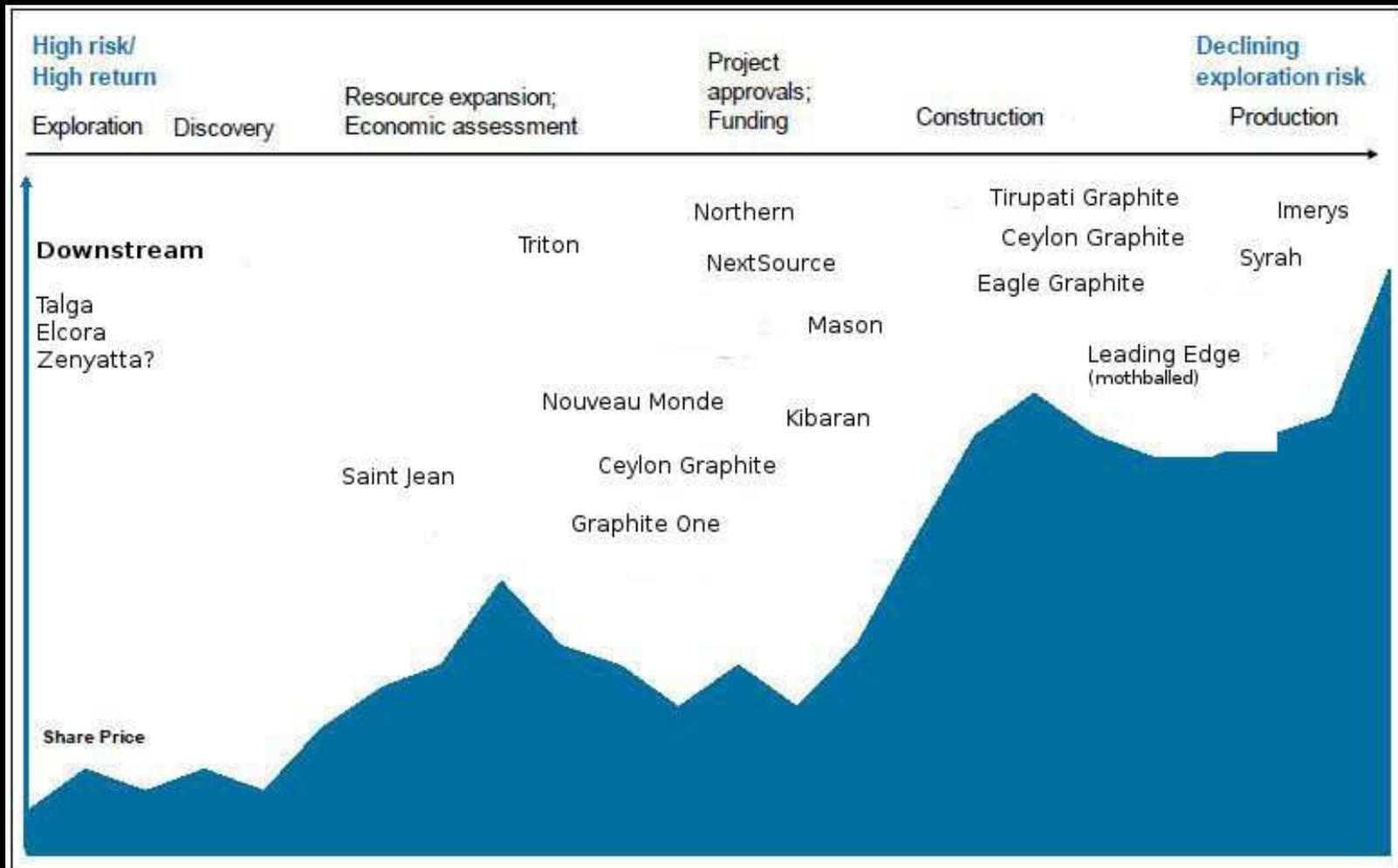
How many projects are expected to come online?

- Three or four more projects over the next two years would be enough (or maybe even too much)

How much extra capacity does this bring to the market?

- This depends whether it is sane economic judgements driving the decision making process or just forward momentum

THE CLIMB TO PRODUCTION



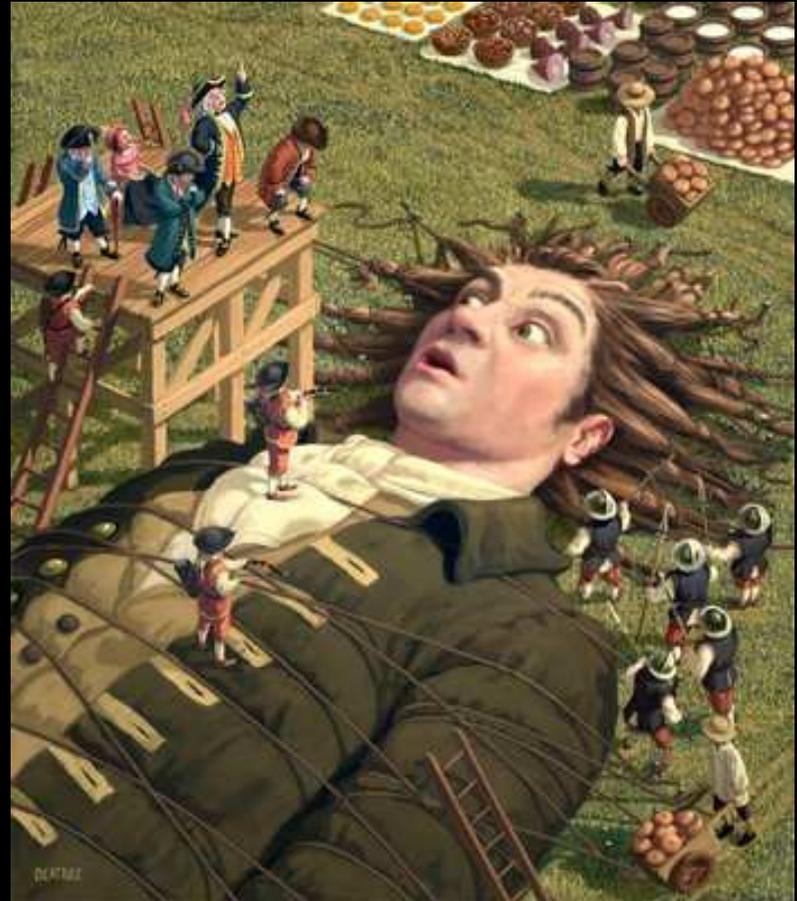
THE END OF GARGANTUANISM

The mining industry has been inflicted by gargantuanism over the last 20 years and in most cases it has ended in tears. Oversized projects with over sized capex become like unsteerable supertankers. They cannot respond to price signals nor to demand fluctuations.

This has been particularly notable in the Nickel space, in Rare Earths and in Graphite in one notorious case.

They frequently come to grief due to their inflexibility created by their oversized nature.

The era of project bloat is over.....



FINANCING IN A “TIME OF CHOLERA”

Equity financings – at best a dripfeed

Canadian markets are doubly afflicted by faddism – In recent years mining financings have been overshadowed by first, Blockchain and, now, Weedmania

Fate of graphite is tied to sentiments towards battery metals in particular and EV growth expectations in general

Offtakers have now become key financing sources, however their number is limited

Private Equity & Hedge Funds are now players – the latter can be predatory – naïve managements have fallen prey to them in other parts of the mining space with debt financings being particularly dangerous

FUTUROLOGY

- In ten years from now all regions will probably have at least one graphite mine and many larger economies will have one or more mines
- China will not be a threat to supply - it will have reduced market share
- There will be a realisation that graphite mining is neither a high capex nor particularly complex endeavour – nor will it be regarded as highly profitable
- Graphite is the least supply constricted and least geographically restricted element in the battery supply chain and as such should be of least concern to manufacturers and other end-users