

## Purchase order signals the inflection point for graphene

In times like these, when we are looking for indicators of when is a good time to re-enter the markets, we invariably take guidance from the big boys in town. Emails and newsletters early in the week were all about the recently published view of Goldman, quoted below. Maybe someone is ringing the bell at the bottom of the market.

*"Given the size of dislocations in commodity pricing relative to fundamentals -- with oil now having joined metals in pricing below cost support -- we believe commodities offer an extremely attractive entry point for longs in oil, gold and base," analysts including Jeffrey Currie said in a report.*

The gold bulls will also take comfort from the comment below, following on from a view that suggests the market has priced in 10 out of the 12 of the Federal Reserve's interest rate hikes that the bank expects.

*"If US growth slows down next year, as expected, gold would benefit from higher demand for defensive assets", adding support from central bank purchasing.*

### *Purchase order for PureGRAPH™*

Last week First Graphene confirmed its world leadership in the graphene business with the announcement of a purchase order for 2,000 kg of PureGRAPH™ to mining equipment supplier, newGen, for use in abrasion resistant polymer liners for heavy duty mining equipment. newGen supplies mining companies such as BHP, Fortescue and RIO, amongst others. The longer life of the new range of liners will mean reduced maintenance down-time for the mining companies, maximising their efficiency of capital.

The significance of the purchase order is two fold. Firstly, it confirms the leadership of FGR's product, vindicating a two year program to build production capacity with high quality controls, to enable a standardised commercial product acceptable to industry.

Secondly, a sale of this size takes the graphene business from being a concept overflowing with hyperbole to a real world industrial growth business. It takes graphene out of the laboratory and into industry in what looks like an inflection point in its large scale commercialisation.

Since newGen announced its ArmourGRAPH™ range of PureGRAPH™ enhanced products its phone has been running hot with enquires from companies wanting to know how they can use graphene in their equipment. That is a fair indication that there will be many more orders in the pipeline.

Shareholders can be looking forward to news flow from FGR on additional product verticals as we come into 2019. It is game on for the graphene business.

*Disclosure: The author is a non-executive director of First Graphene and associated parties own shares. Capital raising fees have been earned.*

### *Big intercepts keep coming*

BHP announced a truly exciting drill intercept of 180m at 6.1% Cu and 0.9 gpt Au on the Stuart Shelf, 65 km SE of Olympic Dam, pointing to a huge IOCG discovery. This was within a broader intercept of 425m at 3.04% Cu and 0.59 gpt Au, with 346 ppm uranium, starting at a depth of 1,063m. Whereas the proving and development of Olympic Dam took a very long time, this intercept's location near an established mining centre will lead to a faster and lower cost development. Exciting times indeed for South Australia.

In NSW, Peel has reported rich zinc mineralisation in a hole 170m down dip from the recently announced intercept of 18m at 40% Zn. Assays are pending for the latest intercept.

### *Real Energy - positioned to win from gas shortage*

With oil prices falling out of bed in recent weeks, some readers may be expecting gas prices to fall also, but it is not that simple. Gas pricing is much more localised and movements tend to lag and be influenced by regional considerations. This point was highlighted in an AFR article on Tuesday, venting Australia's east coast manufacturers frustration at not seeing commensurate falls in the LNG prices while the oil price is falling. In fact, the price has risen from \$8-9/Gj to \$10 /Gj, which is in contrast to what the LNG Netback price should be, at less than \$8/Gj (the price of LNG adjusted for liquefaction and shipping costs). Eventually it will come down, but it takes time.

Australia's east coast is still in a tight position regarding future gas supplies for domestic consumption. Real Energy (RLE) is well placed to benefit from this, with the ATP 927P licence in Queensland scheduled to come on stream in about 10 months. (We first mentioned RLE in the Weekly dated 22 September).

The Company still has another couple of months to go before the post-frack testing is complete on the Tamarama # 2 and 3 wells, but at this point there is no reason to amend the earlier estimate of 6-7 Gj/day from three wells. This testing will enable the conversion of resources to reserves, which should lead to a re-rating of the share price.

The next item on the agenda for Real will be the financing and construction of a 13 km, eight inch pipeline to feed the gas into Santos's network. This is expected to cost about \$6m for 20 Tj/day capacity, which allows room for expansion of the volumes beyond that which four or five wells could produce. The permit could support up to nine wells. Government approvals are still needed, but the local landowner and the Aboriginal council are both supportive.

Finance for the pipeline could come from a convertible note facility that is yet to be negotiated. The aim is to have the pipeline operational by September 2019.

As at 30 September, Real had \$5m in cash. By the end of December this is likely to be closer to \$3m, so at some

point in Q1 of 2019, it will need to raise in the order of \$4-5m. That will put it in the position whereby it could spud the next production well in July, thereby having it ready to bring on stream quickly and feeding into the new pipeline. The estimated well cost is about \$3m to drill and the total rises to about \$5m to frack, complete and bring on stream. Payback is about 12 months at recent gas prices.

Real is starting to witness an increased level of activity in the region with a number of smaller companies looking around for permits into which they can farm-in. Maybe this is a financing option for the Company going ahead as it has 100% ownership of the permits today, but the issue may rest upon what sort of share price Real is trading at as it de-risks the project and moves closer to cash flow. Where is the greatest dilution? Keeping 100% ownership of a producing asset would certainly be easier to manage. You never know how new business partners will behave.

The share price has been improving over recent months, though it has recently taken a hit along with the rest of the market. Having a market capitalisation of \$30m, it is still too small for institutions. Rather, it is one for private investors looking for value and a re-rating in the lead up to production. The fundamentals look sound.

### *Po Valley Energy - a low risk gas development story awaiting better promotion*

We received a visit from Po Energy last week. By all accounts it is a decent company but it is probably on no-one's radar. That could change. We will give you a quick overview.

Operations are based in northern Italy where there is good infrastructure and a sophisticated gas market, with 91% of Italy's gas having to be imported. Its main project is the 63%-owned **Selva** onshore gas project, for which a production licence is expected to be granted in 2019. This is located in a known gas production area that has already yielded 84 Bcf. Thus the geology is well understood.

Late in 2017, Po drilled and identified two gas reservoirs of high quality methane (99.1%). The 2C attributable resource to Po is 10.7 Bcf. Development of this project is estimated to cost only Euro3m, leading to EBITDA of Euro5m p.a. from Q4 2020, for a period of 10 years (on recent gas prices) and production of 5.3 mmscf/day. It is a simple equation for a very profitable return on the investment, but where is the upside?

Additional leads on the same concession could result in substantially greater production levels if they are proved up by the planned 3D seismic survey, in 2019. East Selva could hold 34 Bcf. Riccardina and the South Flank plays have potential for 35 Bcf and 11 Bcf respectively.

A larger opportunity is the Teodorico exploitation concession, a 100%-owned offshore gas project with 2P reserves of 36.5 Bcf and best prospective resources of 15.9 Bcf. Though offshore, the water depth is only 30m. The estimated capex of Euro52m is somewhat larger but the payback would only be two years, based on estimates of EBITDA of Euro29m p.a. Gas could be flowing as early as Q2 in 2021. The fundamentals are sufficiently robust that debt will be an important source of development capital.

This is another junior gas company capitalised at around \$30m, with a potential strong cash flow from impending

production, from projects that would be considered de-risked by most. Thus it is more suitable to investors who want value plays with real earnings potential, as opposed to hot trading stocks.

The shares are tightly held with three parties accounting for 75% of the issued capital. Maybe this is a detracting feature - lack of free float - but that could lead to larger movements in the share price if someone wants to get set. Maybe the only way to get volume is to take a placement of shares (the company will need to raise capital soon, as it only has \$200,000 in the bank) and then wait for the re-rating as production becomes a reality.

### *Truthfulness; a follow-up*

Judging by the number of comments I received on the Weekly of 17th November, the low level of truth in the industry is of concern to many people.

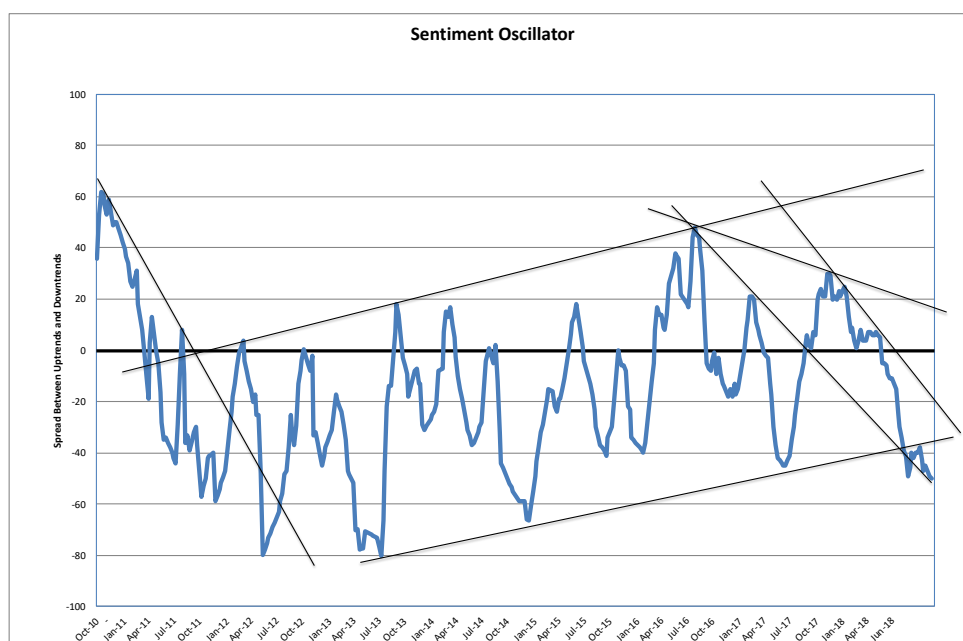
To be fair one has to acknowledge that truth is not black and white; it is a matter of degree. Truth comes from adherence to a belief system rather than a factual basis, though people often quote facts in support of their belief that they are telling the truth. Promoters will tell you that they are telling the truth, as they seek to make you believe what they believe. But, they will always be heavily biased and you need to remember that.

Similarly, a lie to one person might not be a lie to another, if they believe it to be true. Everyone lies to some extent, even if only to simplify a situation or assist in an explanation. It might only be a white lie or a fib, and the evil in it may be non-existent, though it is best assessed by the outcome rather than its mere existence. Serious deception is a completely different matter, especially where money is involved. That is where it becomes criminal.

The point of my note last week was that the standard of truthfulness is dropping. We all have to work harder to reverse the trend and minimise the levels of fibbing, lying, deceiving and manipulating. It is not good enough to attribute it to effective marketing, to sway the opinions of investors. It would be nice to not have to be a cynic and think the worst of people, but remember the maxim; a fool and his money are quickly separated.

It is ironic that the standard of truth has dropped notably over the last 10 years, coinciding with the increasingly onerous regulation that is supposed to be improving levels of transparency. Yet, that should not be surprising if you look at history. It is akin to a command (communist) society where the government tells industry what to do. Sound economic judgement is replaced by a set of orders based on political, not economic or fundamental value. Intuitive business sense is replaced by a desire to do as you are told in order to stay out of jail.

In a similar fashion, when behaviour in markets is dictated by an authority with the power to prosecute you for non-compliance rather than by a sound moral code, people lose the ability to judge what is right and what is wrong. Borrowing a term from economics, you get a scenario of "crowding-out" taking place, where government directives replace private (morally-based) judgement. You start to get real problems when the rules are made by people who don't understand the nature of markets, which is becoming increasingly apparent. That is the path to which we seem condemned.












**Sentiment Oscillator:** There wasn't much change over the week, with 15% (15%) of the charts in uptrend and 65% (64%) in downtrend on Friday's close.

### Detailed Chart Comments

*NB. Only the bold comments have been updated. Comments in grey type are from previous weeks and will be less relevant. Please note that this list is a cross section of the market. It IS NOT a list of recommendations.*

Indices	Code	Trend Comment	
All Ordinaries	XAO	still falling	
Metals and Mining	XMM	still falling	
Energy	XEJ	still falling	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
Adriatic Resources	ADT	uptrend	zinc
Aeon Metals	AML	downtrend confirmed	copper + cobalt
Alacer Gold	AQG	testing downtrend	gold – production
Alkane Resources	ALK	sideways at lows	gold, zirconia
Acacia Resources	AJC	Sideways at the bottom	coal
Alchemy Resources	ALY	sideways	nickel, cobalt
Alicanto Minerals	AQI	back to lows	gold exploration
Allegiance Coal	AHQ	holding LT uptrend	coal
Alliance Resources	AGS	resting on support line	gold exploration
Altech Chemicals	ATC	down	industrial minerals - synthetic sapphire
Anova Metals	AWV	new low on poor production report	gold
Apollo Consolidated	AOP	holding support line	gold exploration
Archer Exploration	AXE	breach of support	magnesite, graphite
Argent Minerals	ARD	down	silver
Aurelia Metals	AMI	testing uptrend	gold + base metals
AusTin	ANW	rally	tin, cobalt

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Australian Bauxite	ABX		gently higher	bauxite
Australian Potash	APC		testing downtrend	potash
Australian Mines	AUZ		down again	cobalt/nickel
Australian Vanadium	AVL		down heavily	vanadium
Bounty Coal	B2Y		down	coal
BHP	BHP		still in steep downtrend	diversified
Base Resources	BSE		down	mineral sands
Bathurst Resources	BRL		slump	coal
Battery Minerals	BAT		sideways at lows	graphite
BBX Minerals	BBX		secondary downtrend	gold
Beach Energy	BPT		down	oil and gas
Beadell Resources	BDR		secondary downtrend	gold
Bellevue Gold	BGL		return to strong uptrend - placement	gold
Berkeley Energia	BKY		collapse - Spanish media	uranium
Blackstone Minerals	BSX		back to lows	gold, cobalt
Breaker Resources	BRB		rising	gold
Broken Hill Prospect.	BPL		down	minerals sands, cobalt
Buru Energy	BRU		down	oil
Cardinal Resources	CDV		breaching downtrend	gold exploration
Cassini Resources	CZI		stronger	nickel/Cu expl.
Celsius Resources	CLA		falling again	copper/cobalt
Chalice Gold	CHN		sideways	gold
Cobalt Blue	COB		free fall on study results	cobalt
Comet Resources	CRL		breached downtrend, but correction down	graphite
Crusader Resources	CAS		suspended	gold
Dacian Gold	DCN		continuing down	gold
Danakali	DNK		breached uptrend	potash
Davenport Resources	DAV		steep rise	potash
Doray Minerals	DRM		sideways - merger	gold
Eden Innovations	EDE		new uptrend being tested	carbon nanotubes in concrete
Egan Street Resources	EGA		new low	gold
Emerald Resource	EMR		broad downtrend	gold
Evolution Mining	EVN		higher	gold
Exore Resources	ERX		rising	gold exploration
FAR	FAR		crunched down on dud oil well	oil/gas
First Graphene	FGR		rising again	graphene
Frontier Diamonds	FDX		breached downtrend	diamonds
Fortescue Metals	FMG		rallied out of steepest, but still in LT downtrend	iron ore
Galaxy Resources	GXY		strong rally	lithium
Galilee Energy	GLL		turned down	oil and gas, CBM
Gascoyne Resources	GCY		collapse	gold
Gold Road	GOR		breached uptrend	gold exploration
Golden Rim	GMR		new low	gold exploration
Graphex Mining	GPX		rally then retracement	graphite

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Heron Resources	HRR	sideways	zinc
Highfield Resources	HFR	rallied to meet resistance line	potash
Highlands Pacific	HIG	down	nickel, cobalt
Hillgrove Resources	HGO	sideways	copper
Hipo Resources	HIP	down	battery metals
Iluka Resources	ILU	down heavily	mineral sands
Image Resources	IMA	downtrend	mineral sands
Independence Group	IGO	back in downtrend	gold, nickel
ioneer (was Global Geoscience)	INR	down	lithium
Jervois Mining	JVR	heavy fall	nickel/cobalt
Jindalee Resources	JRL	downtrend commenced	lithium
Karoon Gas	KAR	new low	gas
Kasbah Resources	KAS	still in downtrend	tin
Kibaran Resources	KNL	weaker	graphite
Kin Mining	KIN	heavy fall	gold
Legend Mining	LEG	down	exploration
Lepidico	LPD	continuing down	lithium
Lithium Australia	LIT	continuing downtrend	lithium
Lucapa Diamond	LOM	continuing downtrend	diamonds
Lynas Corp.	LYC	steeply higher	rare earths
Macphersons Res.	MRP	still down	gold/silver
Mako Gold	MKG	down	gold
Marmota	MEU	sideways	gold exploration
MetalsX	MLX	down again	tin, nickel
Metro Mining	MMI	down	bauxite
Mincor Resources	MCR	sideways	gold
Myanmar Minerals	MYL	bg	zinc
MZI Resources	MZI	downtrend still	mineral sands
Nelson Resources	NES	down	gold exploration
Neometals	NMT	down	lithium
Northern Cobalt	N27	down again	cobalt
Northern Minerals	NTU	new low	REE
Northern Star Res.	NST	still strong	gold
NTM Gold	NTM	back into downtrend	gold
Oceana Gold	OGC	rising again	gold
Oklo Resources	OKU	down	gold expl.
OreCorp	ORR	breached downtrend	gold development
Orinoco Gold	OGX	down	gold development
Orocobre	ORE	strong rally	lithium
Oz Minerals	OZL	testing downtrend	copper
Pacific American Coal	PAK	down	coal
Pantoro	PNR	down	gold
Panoramic Res	PAN	downtrend again	gold , nickel
Peel Mining	PEX	breached downtrend on drill intercept	copper

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Peninsula Energy	PEN		downtrend again	uranium
Perseus Mining	PRU		improving within a downtrend	gold
Pilbara Minerals	PLS		down	lithium/tantalum
PNX Metals	PNX		lower	gold, silver, zinc
Polarex	PXX		still down	polymetallic
Prodigy Gold	PRX		down	gold exploration
Real Energy	RLE		rallying	gas
Red5	RED		down	gold
Red River Resources	RVR		down	zinc
Regis Resources	RRL		rising	gold
Resolute Mining	RSG		testing downtrend	gold
RIO	RIO		down	diversified
Salt Lake Potash	SO4		re-entering downtrend	potash
Saracen Minerals	SAR		up	gold
St Barbara	SBM		up	gold
Sandfire Resources	SFR		strong rally	copper
Santana Minerals	SMI		new low	silver
Santos	STO		short term down	oil/gas
Sheffield Resources	SFX		testing uptrend	mineral sands
St George Mining	SGQ		starting uptrend	nickel
Sipa Resources	SRI		sideways	general exploration - Ni,Cu, Co, Au
Stanmore Coal	SMR		new high	coal
Sundance Energy	SEA		downtrend again	oil/gas
Syrah Resources	SYR		new low	graphite
Talga Resources	TLG		down	graphite
Tanami Gold	TAM		slump	gold
Technology Metals	TMT		short term down	vanadium
Tiger Realm	TIG		down	coal
Triton Minerals	TON		down	graphite
Troy Resources	TRY		down	gold
Tyranna Resources	TYX		back in downtrend	gold exploration
Vango Mining	VAN		correcting	gold
Vector Resources	VEC		down again	gold
Venturex	VXR		testing downtrend	zinc
Vimy Resources	VMY		down	uranium
Volt Resources	VRC		sideways	graphite
West African Resources	WAF		down	gold
Westwits	WWI		down	gold
Western Areas	WSA		down	nickel
Whitehaven Coal	WHC		down	coal
Totals	15%	22	Uptrend	
	65%	93	Downtrend	
		143	Total	

### Guides to Chart Interpretations

- Charts usually go pass from one trend (up or down) into the other via a period of indecision and uncertainty during which the trend can either recover or change. This period is signified by the orange colour. The orange represent both the greatest risk and greatest reward possibilities.
- Once a chart is in confirmed up or downtrends it is not uncommon for 10-20% of that trend to have already transpired.
- There are trends within trends. The focus of this chart review is the immediate trend that affects the sentiment i.e. it can be a downtrend within a long-term uptrend.
- Not every chart warrants a new comment every week. The new comments are in bold type. Grey type comments may be dated.
- Individual charts provide a single view. It is valuable to look at charts of other companies in similar commodities, and the overall sentiment is also very valuable. Not many stocks can swim against the tide.
- We periodically add or delete charts, some times for obscure reasons. If a chart consistent gives poor signals or is very erratic, we may delete it. Sometimes we add a chart because we want to see what all the fuss is about. We do have a preference for charting stocks that we cover in our research as well.
- Errors and omissions may occur from time to time, especially in fast moving markets.

Amber Lights in Tables: Just a reminder if when the amber light is used in the table – it is when the charts are ambiguous or when there is a change of trend taking place. If a chart is breaching a downtrend it can either be a positive sign or a trap. Only once it has done more work can it be confirmed as a new uptrend. Maybe it is a new uptrend (or conversely a new downtrend); the risk takers can decide to jump on board early (or sell). They will maximise their profits (or minimise their losses if indeed it is the start of the new uptrend (downtrend). More risk-averse investors should wait a little longer, being prepared to give up some of the gains in return for greater certainty.

Weightings of Sectors Represented in the Company Charts			
Sector	No. of Companies	Weighting	
Gold	39	27.3%	
Gold Exploration	14	9.8%	
Graphite	9	6.3%	
Coal	8	5.6%	
Oil/Gas	8	5.6%	
Lithium	8	5.6%	
Copper	6	4.2%	
Mineral Sands	6	4.2%	
Nickel	7	4.9%	
Cobalt	5	3.5%	
Zinc	5	3.5%	
Potash/Phosphate	5	3.5%	
Silver	3	2.1%	
Tin	3	2.1%	
Uranium	3	2.1%	
Rare Earths	2	1.4%	
Bauxite	2	1.4%	
Diamonds	2	1.4%	
Iron Ore	1	0.7%	
Other	7		
Total	143		

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