

Companies progressing along the journey towards superior battery anodes

It was looking like we could start to become optimistic about the market last week as the rebounds in the share prices were positively better than just action and reaction movements. Up until Thursday, the outlook was understood and digested by the markets, but then came the jump in inflation rate from 7% to 7.5% in the USA and bingo! The indices were slapped down. Nevertheless, we saw a good improvement in sentiment over the week as a number of charts broke out of short term downtrends.

Variations in expectations of inflation and interest rates will continue to be the dominant influence on markets, but we should note that real interest rates in the USA, and elsewhere in the world, are negative. Inflation rates in the USA are running ahead of interest rates. Until interest rates catch up, the scenario is favourable to debtors who are paying the lower rates. The inflation will eat into their debt positions, whether private or government. This is a scenario which actually gives governments an incentive to let inflation run for a while, as it will be of material assistance in reducing the level of real indebtedness. However, it is a bit like having a killer dog on the end of a leash. Everything is fine while the dog is focusing on intruders but the danger comes when it turns on its master. It can get out of control.

Battery anode sector has a number of players

We describe the quest for the next generation of battery anodes as a journey rather than a race, as the latter implies some desperation to get to the finish line. Nothing is happening that quickly and so far, there is no one company that has it wrapped up, yet many are trying. Judging by the reported progress, being a multi-billion dollar company doesn't automatically mean a greater chance of success. Junior companies will be more vocally promotional in what they report, but in assessing these companies we need to be aware of what they conveniently don't say just as much as focusing on what they do announce.

Remember that batteries already have anodes based on graphite materials. That is the default position. Improving the performance of those anodes is the objective but it is not just a matter of getting the new design to work. They have to be significantly better to encourage battery manufacturers to adopt them. Marginal improvements might just be time wasters.

The Australian Sector

This commentary will focus on four ASX-listed companies as examples of what is going on rather than being an exhaustive list; Altech, EcoGraf/FYI, First Graphene and Talga. The list is representative but not exhaustive.

Altech, HPA and Silicon and Graphite Anodes

About this time last year Altech (ATC) announced that it had made a breakthrough in the development of silicon anodes by coating the graphitic materials with high purity

alumina (HPA). Altech was coming from the position of an emerging HPA producer, bringing its skills in this field to the battery business. At the time we opined this was quite a significant breakthrough.

Industry has known that silicon anodes have the potential to increase the energy density of anodes by up to 10x but the obstacle to getting to this level has been the degradation of anodes as they approach 200 cycles. In order to be commercial, a battery component must last at least 800 cycles with efficiency levels still above 90%. The trouble with silicon is that the expansion and contraction of the material through repeated cycles of expansion and contraction of the anode material, as lithium ions charge and discharge the anodes, effectively wears them out prematurely.

Enter Altech with its HPA coating and its ability to protect the anode from this degradation problem. As promising as the news has been, the anodes still only have 5% silicon content. At this level the anodes can hold 300 mAh/g of capacity. While being good, it is a long way short of the theoretical charge of 4,200 mAh/g that silicon can offer. ATC is continuing with its research with the next target being 10% silicon content for 600 mAh/g of charging capacity.

A not insignificant problem that also has to be overcome is the First Charge Efficiency reading, which needs to be 90%. Altech is not yet at this level. So, it is work in progress.

EcoGraf and FYI joining their skill base

EcoGraf (EGR) is a junior mining company that has been promoting its Epanko graphite project in Tanzania for a number of years, but more recently its focus has been on the EcoGraf™ HFFree spherical graphite as a value-added product (even though the graphite mine is not yet operating). The spherical graphite seems to be a good product.

FYI is one of the emerging breed of prospective HPA producers along with its incoming heavy weight joint venture partner, Alcoa. In an ASX release last week, FYI announced the test results achieved by the doping of its HPA onto EcoGraf's spherical graphite.

EcoGraf uses a proprietary impregnation technique and heat treatment process to produce carbon coated spherical graphite (patent pending), and then it is surface doped with a fine spray of ultra fine HPA to produce an enhanced HPA-doped carbon coated spherical graphite product.

The first observation is that EcoGraf/FYI are not using silicon. They are using high quality graphite that does not introduce silicon-associated complications. That has enabled First Charge Efficiency readings of 95.5% in test coin batteries, which is a small increase on the industry average of 93%. Capacity has been measured at 362 mAh/

g. This places the product in the acceptable playing field. The plan is to construct a 20,000 tpa high purity graphite plant at Kwinana, WA.

Geopolitical factors will play a role as the EcoGraf product could help reduce the Western world's dependence on spherical graphite coming out of China. In the meantime, test work continues with the next milestone being the successful completion of 100 cycles.

First Graphene has been granted a patent for an innovative graphene-based technology

We know that FGR has been working on the development of the next generation of supercapacitors for some time, with very positive results. Now, with the developments on the anode front, the door is opening to another angle in energy storage with lithium-ion batteries. Both supercapacitors and more efficient lithium-ion batteries will play an important role in the new green world that all ESG auditors are chasing.

Supercapacitors and lithium-ion batteries could work very well together in the heavy transport sector. Supercapacitors are notable for their high power density ratings. They can discharge and recharge rapidly without deteriorating over time. Thus when a truck brakes, the kinetic energy can feed the supercapacitor. The power thereby stored can be called upon quickly when the truck starts to accelerate. Lithium-ion batteries can take over when the trucks approach cruising speeds. Lithium-ion batteries do wear out over time but they will last longer if power drawdowns are more regular, such as at cruising speeds. They are capable of discharging quickly to enable rapid acceleration from a standing start, as we have seen in the videos, but that can significantly shorten their lives. The optimum scenario is to have supercapacitors and batteries working together.

We have discussed the anodes with respect to the four aforementioned companies. EcoGraf and FYI are still focusing on graphite anodes but with the enhancement of HPA coating that could lead to longer life, with a more efficient graphite formulation. Altech and Talga are chasing the more dramatic, 10x expansion of energy density storage (from 400mAh/g to 4,200mAh/g) that is theoretically available with silicon anodes. Progress is being made with Altech, but we have no information on which to assess Talga's abilities.

FGR is entering the fray from a different, highly innovative angle. It wants the 10x improvement, but like everyone else, its ability to get there will be scaled measurement following a sensible roadmap.

FGR has access to the intellectual property portfolio for the unique cavitation chemistry-based Kainos Process, to make both hydrogen and graphite/graphene. This is a clean, green process that captures carbon on site, so there are no CO₂ emissions polluting the atmosphere. We know this already, but the process is capable of even more: it can also coat silicon particles that could be used in anodes to greatly improve their performance.

The process allows for the addition of silicon particles into the chamber, which are then coated with graphene in a simple bulk process at ambient temperatures and pressures. The graphene coating gives a dramatic improvement in surface conductivity that allows the passage of lithium ions into the underlying silicon to realise the benefits of much greater energy density that silicon is theoretically capable of achieving. Thus it offers a much

more energy efficient alternative to the traditional method of coating silicon particles, such as coating with pitch or char and graphitising at the high temperatures, typically about 900°C, or CVD processes. Both the silicon particles and the petroleum feedstocks for the process are off-the-shelf products, so easy obtainable.

We have mentioned above the challenges in getting silicon to maximise its performance, and it would be too early to assume that the Kainos Process will provide the magic solution, but it is heading in the right direction. The next step will be the design and manufacturing of batteries at bench scale to test their performance. At this point the Company believes that at the very least, the kinetics of charging and discharging a battery will be significantly improved. The ratio of silicon to graphite as well as coating thickness will need to be optimised and subjected to cycle testing. Conceptually, the process is elegantly simple, but now it needs to be proven. It could be a game changer, but time will tell. Granting of the patent (announced to the ASX yesterday) positions the Company where it may profitably deal with large battery companies without having to take full responsibility for capex and manufacturing operations. Thus it will be working co-operatively with established companies, not going head to head in competition.

Talga - promoting (but not proving) its own anode

Talga (TLG) has been touting its version of a graphite anode for some time, since October 2019, actually. Talga said the aim was to develop a new high capacity graphitic carbon composite anode, Talnode-E, designed to have multiple advantages including faster charge and higher power, easier processability, safer handling, highly scalable industrial manufacturing and lower costs. The objective sounds good, but what about the deliverability?

Rapidly after that release, Talga announced an MoU with Swiss-based Leclanché SA, described as a leading provider of high quality energy storage solutions.

In March 2020, Talga announced a non-binding MoU with Mitsui & Co. Europe Plc to evaluate the Vittangi Anode Project, starting with the due diligence step. In May, another non-binding deal was announced with Farasis Energy Europe GmbH. Talga said that it would supply coated ('active') anode products for evaluation in Farasis batteries and assessment of potential business development opportunities.

In August 2020, Talga reported "*Outstanding detailed feasibility results to support Talga's anode project*", forecasting commissioning in 2022 and commercial production in 2023. (subject to a DFS, due in Q1 2021 - but not released until Q3 2021). This was for a 19,000 tpa plant, similar in size to what EcoGraf is intending. Also like EcoGraf, the graphite raw materials are intended to come from a company-owned mine. The announcement focused more on recovery of graphite feedstock and the purity of the product rather than the performance qualities of the intended anode ... which is the most important, final hurdle.

Silicon entered the mix in the release of 14 October 2020, in which Talga stated that its silicon anode approach uses lower-cost metallurgical-grade silicon for a high-energy density anode with mass-producibility potential. The report did acknowledge that "*greater amounts of silicon in anodes tends to create problematic swelling, cracking and lithium consumption leading to various issues including shorter battery life*", also stating that "*Talnode®-Si is a highly*

engineered composite of silicon and graphene-graphite, with materials and construction of the anode particles designed to manage swelling and increase performance, while using low-cost metallurgical-grade silicon for increased commerciality. That sounds promising but there was no supporting evidence. I supposed we were expected to take the Company's word for it.

The list of collaborators expanded in November 2020, with the news that Talga had entered into a non-binding tripartite Letter of Intent ("LOI") with international high-tech mining and minerals group Luossavaara-Kiirunavaraa Aktiebolag ("LKAB") and Mitsui & Co. Europe Plc ("Mitsui"). Further, in a separate announcement on the same day, Talga advised that it had received a commitment for grant funding under the UK Government's Automotive Transformation Fund to complete a preliminary feasibility study into the commercialisation of Talga's silicon anode product in the UK. Twenty days later Talga announced an MoU with global technology leader ABB to support the development and construction of Talga's Vittangi Anode Project in northern Sweden. Under the MoU, ABB will utilise its industrial automation and electrification expertise to develop and co-ordinate an extensive suite of production control and process solutions for Talga's vertically integrated lithium-ion battery anode operations. It seemed like everyone wanted to part of the action, but is the plan to build in the UK or in Sweden?

If you read the announcement carefully you would have seen some inconsistencies. Talga said it was "*constructing a scalable battery anode production facility and integrated graphite mining operation*", but the reality is that it was still working on a DFS, with an "*intent to execute binding agreements for construction and operations in future*". Remember that at this juncture the Company did not have a granted mining licence ... a position that is still the case today.

It was at this time that Talga started to talk about 100,000 tpa of anode production by 2025, based on its Swedish graphite resources. It was quoting estimated NPV's of US\$2.4 to US\$4.6bn with an IRR of 47% and capex payback of 1.7 years. These numbers were incredibly bullish. No wonder the shareholders were getting excited.

A week later the company announce a \$25m placement and a \$10m SPP to fund an anode pilot plant at a cost of \$22m. (The SPP was actually upscaled from \$10m to \$30m due to strong support). Somehow the sequence of events here seemed to be departing from the norm, which goes something like this; DFS leads to a pilot plant to confirm the science at scaled-up levels, then proceed to construction if the pilot stage outcome is positive.

In June 2021, Talga announced a non-binding MoU regarding supply of Talga's Swedish active anode materials (Talnode®) for FREYR's battery cell production under development in Norway. The agreement covered studies into potential operational synergies such as Talga co-locating operations within FREYR's production facilities for the scale-up of new anode materials and technologies at industrial level for battery manufacturing.

Details of the all important DFS were released on 1 July 2021, itemising a US\$484m capex figure, for a 19,500 tpa anode plant. IRR and NPV calculations continued to be impressive, but the capex payback had increased from 1.7 years to 2.5 years.

Even though mining and environmental permit applications were submitted to relevant Swedish authorities in May 2020, there still hadn't been any indication if and when these would be granted. Unperturbed, the Company then came out with a release with the headline "*Talga Supersizes Graphite Target in Sweden*". Making the already large resource bigger seems a bit pointless given how large it is already. Getting a mining licence, however, is critical.

On 17 November 2021, yet another non-binding MoU was announced, this time with Long Time Technology Co., Ltd ("LT Tech"), a leading manufacturer of anode materials used in lithium-ion batteries. The intention is to enter into an Anode Testing Contract (ATC) to secure increasing volumes of materials for larger cell trials and to complete qualification programs with agreed customers. The ATC will consider volumes, pricing, intellectual property and know-how to align the Parties' commercial goals. Am I wrong to think that these sort of issues should have been addressed by earlier MoUs, or were these just "likes", as we see on Facebook? We don't know. There has been precious little news flow on how these MoUs have progressed.

The room is starting to fill up with MoU parties with one thing in common. They are all non-committal, as the MoUs are non-binding. In any event, I imagine it would be very difficult to get all these parties on the same page, co-operating together, for competitive reasons. It would be like trying to herd cats. How often does corporate polygamy work in practice anyway? Maybe there is the start of the answer with the withdrawal of Luossavaara-Kiirunavaraa Aktiebolag ("LKAB") from the tripartite LOI between that company, Talga and Mitsui, announced last November.

While the saga of announcements and progress towards an anode production facility is interesting for what it reveals, both in how the story has been crafted and what it actually discloses, the real question that remains unanswered is just how good the anodes are expected to be. What are the technical specifications? How is the issue of expanding and contracting silicon anodes being addressed? What are the First Charge Efficiency figures and the numbers cycles that have been achieved? Does the Company have these figures and is not choosing to release them, for either commercial competitiveness or is it just avoiding scrutiny by analysts? There seems to be more questions than answers.

No amount of talking about the global outlook can substitute for actual technical details that testify as to the veracity of the claims the Company has been making. There is no point in talking about how green the process is without tying it in with science and micro-economics of the production process. Nevertheless, the share price has been a spectacular performer. This is yet another example of where promotion can initially override fundamentals and a paucity of technical detail, but eventually there will have to be delivery if the share price is going to be sustainable.

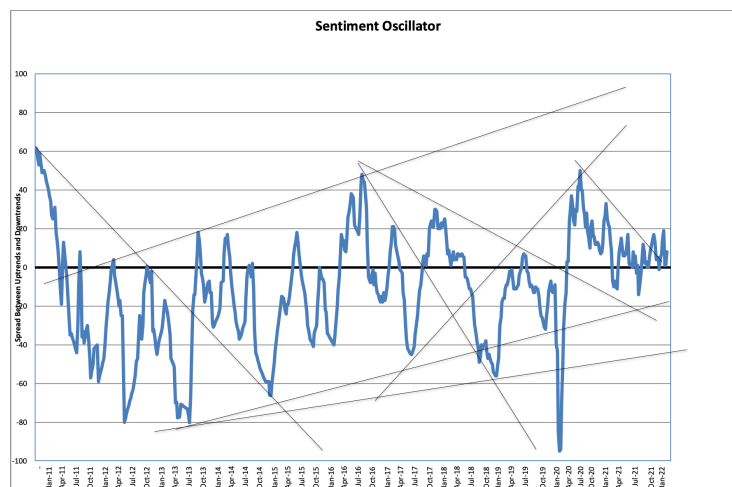
Disclosure: Interests associated with the author own shares in First Graphene and the author is a director, but they do not own shares in Altech, EcoGraf or Talga. Going back a few years when the author was chairman on Canaccord Genuity, he did own a substantial position in Talga and undertook capital raisings for that company.

Lithoquest Resources presentation

Last week I updated readers on Lithoquest. This week I thought I should provide a link to a presentation made by Dr. Quinton Hennigh, one of the most influential exploration geology commentators in Canada. It is worth listening to what he has to say. Click on the figure opposite. *Further, I have just been informed that Lithoquest is planning to raise C\$3.5m in a placement that is due to close on 25th of February. If any reader want to participate, contact me and I will pass on the detailed information. Terms are C\$0.115 per share with an attached 1 for 2 warrants, two year life, 17¢ strike price.*



Disclosure: Interests associated with the author own shares in Lithoquest Resources



Sentiment Oscillator: Sentiment improved usefully as a number of charts broke out of short term downtrends. There were 38% (35%) of the charts in uptrend and 30% (34%) 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	strong rebound	
Metals and Mining	XMM	great rebound	
Energy	XEJ	rising again	
Information Technology	XIJ	rallying	
Stocks	Code	Trend Comment (updated comments in bold)	Main Interest
Alpha HPA	A4N	near highs	HPA

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Adriatic Resources	ADT		continuing down	zinc, polymetallic
Alkane Resources	ALK		but surged on drill result	gold
Alicanto Minerals	AQI		downtrend	base metals, silver, gold
Altech Chemical	ATC		down	HPA, anodes
Alto Metals	AME		sideways	gold exploration
American Borates	ABR		recapturing uptrend	borate
American Rare Earths (was BPL)	ARR		new high	rare earths
Antilles Gold	AAU		testing downtrend	gold
Arafura Resources	ARU		rising	rare earths
Ardea Resources	ARL		recovering from fall	nickel
Aurelia Metals	AMI		new uptrend	gold + base metals
Australian Potash	APC		heavy fall	potash
Australian Rare Earths	AR3		trying to hold uptrend	rare earths
Auteco Minerals	AUT		rallying	gold exploration
Azure Minerals	AZS		rising	nickel exploration
BHP	BHP		pullback	diversified, iron ore
Beach Energy	BPT		new uptrend confirmed	oil and gas
Bellevue Gold	BGL		down	gold exploration
Benz Mining	BNZ		new low	gold
Blue Star Helium	BNL		down	gas, helium
BMG Resources	BMG		new low	gold exploration
Boab Metals	BML		in a secondary downtrend	silver/lead
Breaker Resources	BRB		heavy fall from highs	gold exploration
Buru Energy	BRU		testing uptrend	oil
Calidus Resources	CAI		on support line	gold
Capricorn Metals	CMM		surge to new high	gold
Caravel Minerals	CVV		slump	copper
Celsius Resources	CLA		testing short-term uptrend	copper
Chalice Mining	CHN		down	nickel, copper, PGMs, gold exploration
Chesser Resources	CHZ		rallied off lows	gold exploration
Cobalt Blue	COB		surge to new high	cobalt
Cyprium Metals	CYM		rallied to meet resistance line	copper
Danakali	DNK		downtrend accelerating	potash
De Grey	DEG		on support line	gold
E2 Metals	E2M		surge higher, then heavy fall	gold exploration
Ecograp	EGR		down	graphite
Element 25	E25		strong rallying	manganese
Emerald Resources	EMR		rising again	gold
Empire Energy	EEG		holding uptrend	gas
Euro Manganese	EMN		testing downtrend	manganese
Evolution Mining	EVN		breached uptrend	gold
Firefinch	FFX		breached uptrend	gold
First Graphene	FGR		testing uptrend	graphene
Fortescue Metals	FMG		new uptrend	iron ore












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FYI Resources	FYI		new uptrend being tested	HPA
Galena Mining	G1A		still down	lead
Galilee Energy	GLL		sideways	oil and gas, CBM
Genesis Minerals	GMD		surged higher after consolidation	gold
Genmin	GEN		new uptrend	iron ore
Global Energy Ventures	GEV		testing downtrend	hydrogen
Gold Road	GOR		testing downtrend	gold
Great Boulder Resources	GBR		rising	gold exploration
Hastings Technology Metals	HAS		testing uptrend	rare earths
Hazer Group	HZR		bounce back to resistance line	hydrogen
Highfield Resources	HFR		back to resistance line	potash
Hillgrove Resources	HGO		long term uptrend	copper
Iluka Resources	ILU		breached downtrend, back to highs	mineral sands
Image Resources	IMA		new uptrend	mineral sands
Independence Group	IGO		new high	gold
ioneer (was Global Geoscience)	INR		slump	lithium
Ionic Rare Earths (Oro Verde)	IXR		recovering long term uptrend	rare earths
Jervois Mining	JVR		shallower uptrend	nickel/cobalt
Jindalee Resources	JRL		strong rally	lithium
Kairos Minerals	KAI		breached ST downtrend	gold exploration, lithium
Kingston Resources	KSN		rallying	gold
Kingwest Resources	KWR		testing uptrend	gold
Legend Mining	LEG		surge higher	nickel exploration
Lepidico	LPD		testing steepest uptrend	lithium
Lindian Resources	LIN		surge higher	bauxite
Lion One Metals	LLO		sideways	gold
Lithium Australia	LIT		sideways	lithium
Los Cerros	LCL		rallied to hit resistance line	gold exploration
Lotus Resources	LOT		short term down	uranium
Lucapa Diamond	LOM		new uptrend being tested	diamonds
Lynas Corp.	LYC		sharp pullback	rare earths
Magnetic Resources	MAU		sideways	gold exploration
Mako Gold	MKG		breaching support	gold exploration
Marmota	MEU		sideways	gold exploration
Marvel Gold	MVL		drifting lower	gold exploration
Matador Mining	MZZ		rallied to hit resistance line	gold exploration
Mayur Resources	MRL		base forming	renewables, cement
Meeka Gold	MEK		strong rise but still LT downtrend	gold
Megado Gold	MEG		new low	gold exploration
MetalTech	MTC		off the end of a ramp	gold
Meteoric Resources	MEI		sideways out of downtrend	gold exploration
MetalsX	MLX		new high	tin, nickel
Metro Mining	MMI		new uptrend confirmed	bauxite
Mincor Resources	MCR		new high	gold/nickel

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Mithril Resources	MTH		down	gold/silver
Musgrave Minerals	MGV		testing downtrend	gold exploration
Neometals	NMT		new high then heavy slump	lithium
Northern Minerals	NTU		rising	REE
Northern Star Res.	NST		slump back into downtrend	gold
Nova Minerals	NVA		heavy slump	gold exploration
Oceana Gold	OGC		down	gold
Oklo Resources	OKU		down	gold expl.
OreCorp	ORR		down	gold development
Oz Minerals	OZL		standard retracement	copper
Pacific American	PAK		back to lows	coking coal
Pantoro	PNR		surge higher	gold
Panoramic Res	PAN		surge higher	nickel
Peak Minerals	PUA		new low	copper exploration
Peak Resources	PEK		broken down through support line, but rebound	rare earths
Peel Mining	PEX		down	copper
Peninsula Energy	PEN		on support line	uranium
Poseidon Nickel	POS		sideways	nickel
Perseus Mining	PRU		slump	gold
PVW Resources	PVW		steep rise	rare earths
Queensland Pacific Metals	QPM		sideways through downtrend line	nickel/cobalt/HPA
Red River Resources	RVR		still down	zinc
Regis Resources	RRL		new low on large financing	gold
Renegen	RLT		rallying	gas, helium
RIO	RIO		new uptrend	diversified, iron ore
Rumble Resources	RTR		breached downtrend	gold exploration
S2 Resources	S2R		consolidating after steep rise	gold exploration
St Barbara	SBM		downtrend	gold
Sandfire Resources	SFR		attempting new uptrend	copper
Santos	STO		breached downtrend	oil/gas
Saturn Metals	STN		breached ST downtrend, but still in LT one	gold exploration
Silex Systems	SLX		sideways through downtrend	uranium enrichment technology
Silver Mines	SVL		sideways	silver
South Harz Potash	SHP		back to highs	potash
Stanmore Coal	SMR		hitting resistance line	coal
Strandline Resources	STA		new high	mineral sands
Sunstone Metals	STM		off its highs	exploration
Talga Resources	TLG		still down	graphite
Technology Metals	TMT		down	vanadium
Tesoro Resources	TSO		new low	gold exploration
Theta Gold Mines	TGM		down	gold
Thor Mining	THR		downtrend breached	gold exploration
Tietto Minerals	TIE		strong rise	gold
Titan Minerals	TTM		breached downtrend	gold

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Turaco Gold	TCG		sideways	gold exploration
Vanadium Resources	VR8		back to highs	vanadium
Vimy Resources	VMY		testing downtrend	uranium
West African Resources	WAF		new high	gold
Westgold Resources	WGX		new uptrend being tested	gold
West Wits Mining	WWI		risen to meet resistance line	gold
Whitehaven Coal	WHC		secondary uptrend	coal
Wiluna Mining	WMC		gently higher	gold
Yandal Resources	YRL		breached uptrend	gold exploration
Zenith Minerals	ZNC		surge to new high	gold exploration
Zinc Mines of Ireland	ZMI		sideways	zinc
Totals	38%	54	Uptrend	
	30%	43	Downtrend	
		144	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	31	21.5%	
Gold Exploration	26	18.1%	
Nickel	11	7.6%	
Copper	10	6.9%	
Rare Earths	9	6.3%	
Oil/Gas	7	4.9%	
Iron Ore/Manganese	6	4.2%	

Lithium	5	3.5%	
Potash/Phosphate	5	3.5%	
Graphite/graphene	4	2.8%	
Uranium	4	2.8%	
Zinc/Lead	4	2.8%	
Mineral Sands	3	2.1%	
Silver	3	2.1%	
Coal	3	2.1%	
Bauxite	2	1.4%	
Cobalt	1	0.7%	
Tin	1	0.7%	
Diamonds	1	0.7%	
Other	8		
Total	144		

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