Mad About Madagascar’s Mining Potential

With the eclipse of Tanzania as a mining destination the hunt is on for amenable jurisdictions in East Africa. In recent years the rising stars have been Mozambique and to a lesser extent, Madagascar.

The last month saw the full court press of the great and good of Madagascar descend upon London for a day of interaction with London investors in the energy and mining sectors. We attended in the company of NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRC) (formerly Energizer Resources) which has a graphite project and a vanadium deposit in the country.

The event had a certain element of cloak and dagger to it with the location of an event only being released a few days before the event to the hundreds of people attending, somewhat like a house-rave in the 1980s. However in light of the lively politics this century we can see why organisers did not want the event disturbed by the appearance of a rent-a-crowd. As it turned out the event was in the august premises of the Skinners Company (a City Guild).

A Lively Recent Past

The early part of this century was politically colourful in Madagascar after a long period of relative quietude. President Ravalomanana came to power in April 2002 after a hotly contested election. Things were relatively quiet until the end of 2008.

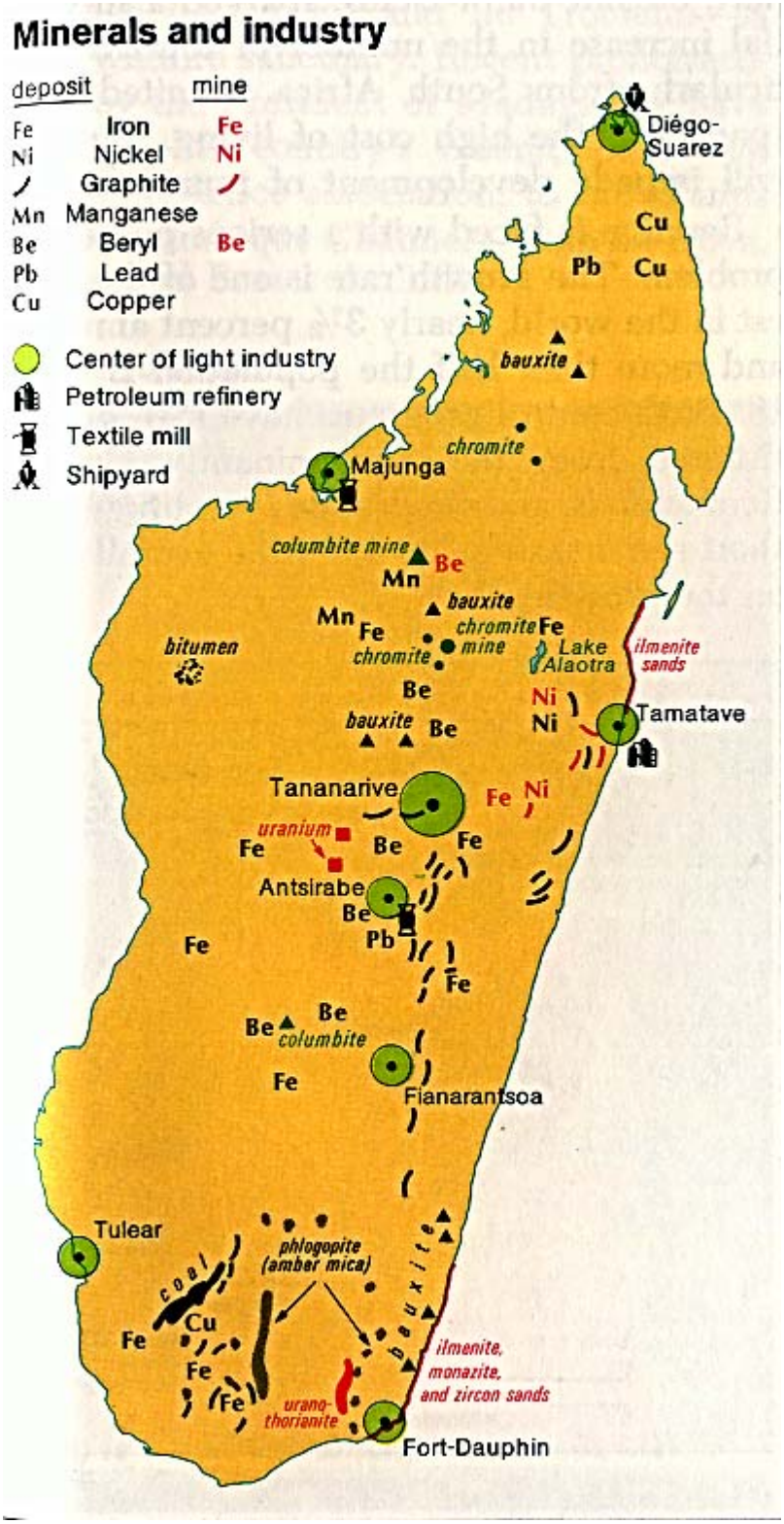
There were riots starting in January of 2009 in the capital that left around 170 dead. After losing support of the military and under intense pressure from the mayor of the capital Andry Rajoelina, Ravalomanana resigned as President on the 17 March 2009. Ravalomanana assigned his powers to a

military council loyal to himself. Other parts of the military called the move by Ravalomanana a “ploy” and said that it would support Rajoelina as leader. Rajoelina had already declared himself the new leader a month earlier and assumed the role of acting President. The European Union, amongst other international entities, refused to recognize the new government, due to it being installed by force. The African Union, suspended Madagascar’s membership as long as Rajoelina remained president.

Out of all the schemozzle appeared the current president Hery Rajaonarimampianina who was the main speaker at the London event. He has been President of Madagascar since January 2014. Previously he served as Minister of Finance under Rajoelina, and he was the Rajoelina political movement’s candidate in the 2013 presidential election. He won the vote in a second round, defeating Jean-Louis Robinson, the candidate of Ravalomanana’s party.

Mining

The country has scarcely appeared on the radar screen of most mining investors but there are a few major developments, such as Sherritt’s Ambartovy nickel/cobalt mine and Rio Tinto’s mineral sands mine near Fort-Dauphin at the south-east tip of Madagascar. QIT Madagascar Minerals, which is 80% owned by Rio Tinto and 20% owned by the Government of Madagascar, is extracting ilmenite and zircon from heavy mineral sands over an area of about 6,000 hectares along the coast over the next 40 years.



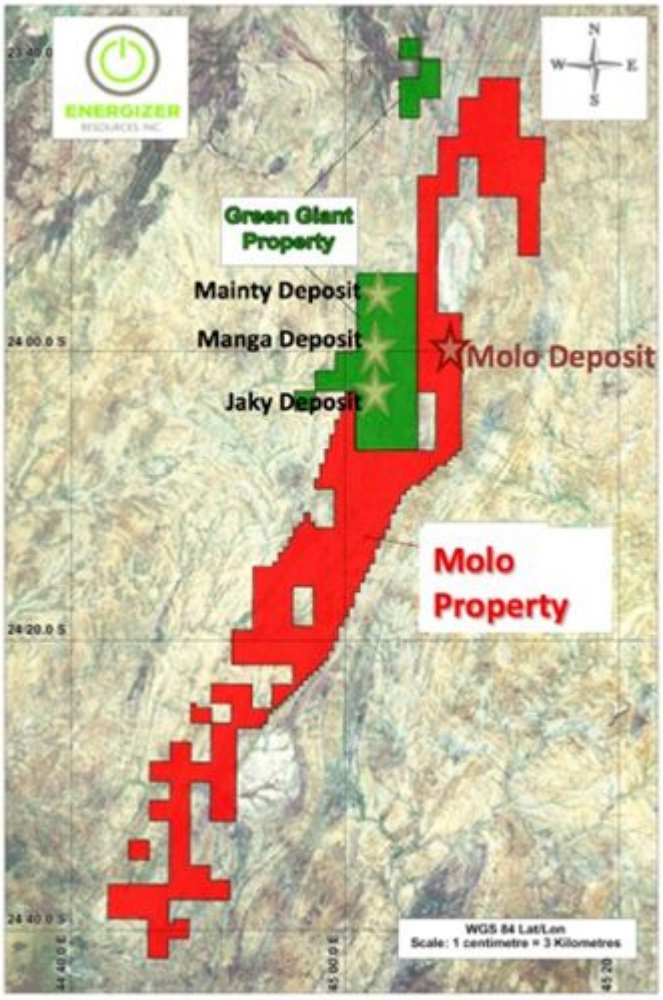
So Madagascar is a country with a number of world-sized mining projects under way but little else in mining (at least until now). As a result infrastructure is very thin in many parts of the country. The semi-arid south-west corner of the country where the many of the new projects are located is currently infrastructure poor. Thus the move to production will require the upgrading of existing roads, ports, and water supply

routes and the importation of diesel power. RTZ set the ball rolling with the construction of the port at Elhoala for its mineral sands exports.

NextSource

Long term denizens of InvestorIntel need little introduction to this company’s graphite deposit at Molo but they probably do need reminding of its name change that was precipitated by the need to differentiate itself from a certain infamous bunny. While Molo moves towards production at a swift clip with the project having been reconfigured to a modular, more bite-sized format with a capex at a fraction of previous plans (and almost all competitors) it is easy to forget that the company’s original raison d’etre. This was the Green Giant Vanadium deposit which shares the same land block as the graphite but is distinct. In fact the “energizing” that was originally foreseen was Vanadium Redox batteries, not the graphite component in Lithium Ion batteries. Now the company can potentially fire on two cylinders (pardon the bad pun) with Vanadium having taken off in recent times because of various reasons.

The map below shows the proximity of the two projects to each other, while also highlighting their divisibility.



Thus investors should not be surprised to get a double energizing from NextSource if it spins out the Vanadium project to have two horses running in the CleanTech/battery technology race. As we may have signaled before we are big fans of demergers to release value for shareholders from disparate themed assets.

Conclusion

While Tanzania did not come up in conversations the undertone was that Madagascar was aiming to wrest for itself the title of the country in East Africa to do mining business. The chief admission from the speakers, both government and non-government was that the processes were slow and that applicants for licenses and permit had to have patience. There was an element of “when in Rome…” fatality about this issue but no-one was really complaining as most had factored it into their timelines.

Importantly no-one said that the processes were arbitrary or irregular in any way.

The clear message though was that the mining potential is enormous and the country sees it as a way of broadening its export revenues from what has been primarily an agricultural export base with a modicum of artisanal (read smuggled) export of gold and gemstones. With massive Nickel/Cobalt exports being joined by minerals sands and hopefully Graphite and Vanadium on a large scale the country seems destined in the next five years to move from being a bit player in global mining to being a substantial force.

NextSource Materials' Modular Graphite Game Plan

With positive results from their detailed engineering study in hand, NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRC) ("NextSource") have set their sights on creating value. The company announced that the planned demonstration plant will instead be a fully producing mine which will output 15,000 tpa of premium flake graphite concentrate during the initial production phase alone, stepping up to full capacity of 53,000 tpa as the market requires. Battery-grade flake graphite typically sells for thousands of dollars per tonne, and with portable technologies and electric vehicles both in their prime, it's hardly surprising that NextSource have put their foot down.

The plant will take only six months from commencement to construct, and is based on a smart modular design that allows the company to scale-up production as the target markets

expand. The inclusion of the option to grow when necessary will protect NextSource from fluctuations that are to be expected in technology-affected marketplaces, making them more likely to succeed in the long-term. The 100% owned Molo graphite project in Madagascar has a projected mine-life of over twenty years, and so the completion of the facility should signal the beginning of a consistent growth period lasting decades.

Having the ability to produce the highest quality flake graphite is the holy grail of any graphite play, as some plots simply lack the standard of raw material that is necessary. The Molo project is one of the largest and highest-purity graphite resources known in the world, and is the first significant graphite discovery in Madagascar in over fifty years. Additionally, the area is remarkably flat and in close proximity to existing infrastructure, including Port Dauphin, from where the material will eventually be shipped. The graphite-bearing trends at the site are all immediately at surface, meaning a much lower production cost is possible; all this adds up to a relatively low-risk endeavour.

The US, China and Europe have all noted graphite as a critical strategic material as its unique properties serve a multitude of niches. Not only is it an excellent conductor of heat and electricity, but it has the highest natural strength and stiffness of any material, even possessing the ability to maintain its strength and stability in temperatures exceeding 3,600°C. In addition to its powerful aforementioned properties, it is also one of the lightest of all reinforcing agents, meaning that it will likely be demanded by many more industries than just the battery sector.

Of particular interest to scientific, military and technology sectors is the super-material graphene. The material’s perfect lattice structure and incredible strength is set to be put to use in advanced microprocessors and even quantum computing. Graphene was discovered in 2004, and is currently graduating

from the early stages of development before it is properly harnessed, but many expect a rise in demand over the next five years to bring a ten-fold increase in prices.

There is no doubt that computing must advance past its current abilities, and once a breakthrough in quantum computing brings it to the consumer, companies involved in the graphene supply chain will need to step up or shut up. NextSource is exceedingly well-positioned to reap the benefits of the plethora of emerging graphite demands, and with a prestigious management team that have considerable legal and geological experience, as well as previous successes in bringing exploration projects to fruition, confidence is high that Molo will be in full swing in the very near future.

“Bold decision” on graphite pays off for Energizer

In 2012 Energizer Resources Inc. (TSX:EGZ | OTCQB:ENZR) (“Energizer”) took a bold decision to halt its vanadium prospects in south-central Madagascar and focus its efforts entirely on developing its nearby full feasibility-stage Molo graphite deposit. This decision is certainly paying off.

The location – a sparsely populated dry savannah grassland region, far away from any rainforests, endemic wildlife and villages, makes it as idyllic as any prospector can hope for to ensure low cost, open-pit mining. In my experience in working with mines in Africa, some of the biggest upfront hurdles and costs is the relocation of villages. This process too often becomes a long drawn out one that could hold up a mine’s development for years. Often mere rumour that a mine is

underway and will be relocating people brings more people from outside the area in the hope of being able to get a free pass. For investors thinking about investing in African mining projects, the fact that the Molo project is situated in an scarcely populated area and at the same time far away from any natural reserves, cannot be underestimated.

As far as African mining jurisdictions go, Madagascar is a pretty sweet deal. It has an Indonesian-based culture with French and Malagasy as official languages whose government recognises mining as a key growth engine, and as such is a mining-friendly jurisdiction with codified mining laws, thanks to two major billion-dollar projects already established and operational in the country by Sherritt International and Rio Tinto. On November 27th of this year, Madagascar hosted the 2016 Francophonie Summit, where France and other Francophonie countries attended to promote bilateral trade and investment into the country. The Canadian government sent a large delegation, headed by Prime Minister Justin Trudeau himself. The Molo project is regarded as one of top five mining projects in the country expected to reach production and I've even noted it listed on a few of Madagascar's tourism sites. Major countries are currently invested in Madagascar (U.S., France and China) and regard it as a strategic location for mineral wealth opportunity. Madagascar's laws on large scale mining investments incentivise mining companies with larger operations to invest in the country in return for various fiscal benefits. These benefits include a temporary exemption from minimum corporate tax and no VAT on imports. Furthermore, Madagascar's distance from all Africa's conflict zones provide investors with confidence in the project's stability.

Molo is home to one of the largest primary sources of crystalline flake graphite in the world. Those readers who have been following InvestorIntel for a while have seen the stellar projections for flake graphite over the next four years.

To satisfy the steel market alone, annual graphite demand is expected to rise 8% CAGR to 2020 from 1.1 million tonnes to 1.5 million tonnes. Batteries and high-tech application needs are projected to be dramatic enough to require a 600% increase in annual flake graphite production. Only flake graphite can be used in the over 200-known applications that require graphite as an additive and is the only natural form of graphite that can be used to make the spherical graphite used in lithium-ion batteries. Thus, purified, spherical graphite currently sells for between $4-6,000/tonne, more than twice the price of high quality flake graphite. Furthermore, the British Geological Survey listed graphite, along with antimony and rare-earths, as most at risk of a global supply disruption.

To this end, Molo is well poised to take advantage of the highly anticipated demand growth in flake graphite. The project hosts one of the largest, high-quality crystalline flake graphite deposits ever discovered and extensive independent testing by various third-party end-users verified that the flake graphite concentrates from the Molo deposit met or exceeded quality requirements for all major end-markets for natural flake graphite – namely refractories, lithium-ion batteries, specialty foils, and graphene ink applications.

The company announced last month a three-phased approach for the development of its world-class Molo project using a modular approach, which looks to significantly accelerate the company's original timeline to production. The first phase will be the construction of a 15,000 tonne per annum demonstration plant for the project, which is expected to commence in January 2017 and be completed in only 9 months time. As outlined in the company's November 7th, 2016 Front-end Engineering and Design ("FEED") Study, Energizer is taking a sensible phased approach to production, with phase one being the demonstration plant, thus providing a cost-effective solution to test and verify the mine flow sheet design process

ahead of the planned expansion to the 53,000 tonne per annum mine as envisioned in the company's 2015 full feasibility study. Once the demonstration plant's process has been proven and optimised, phase two will include the development of additional sustaining infrastructure required to achieve the planned capacity, with phase three being the expansion to the 53,000 tonne per annum mine as market demand requires. As the company's feasibility study indicated, the Molo project is estimated to have one of the lowest graphite processing costs in the industry.

The demonstration plant in Madagascar will have an estimated capital cost (CAPEX) of just US$7,000,000 will provide a front-end processing capacity of 240,000 tonnes of ore per annum with an expected mine life of over ninety years, based on ore reserves alone. This will permit the company to provide off-takers with multi-tonne "run of mine" flake concentrate for final product testing and verification. Energizer will be immediately initiating the required steps to implement the primary phase. During this time, the plant's capabilities will be assessed and a comprehensive costing review exercise undertaken to ascertain the possibility of utilising a similar modular build for the full-scale Molo mine. Energizer's implementation of a modular build plan and phased approach is truly unique to the industrial minerals industry and provides a significant competitive advantage in terms of speed to market and reducing overall financial risk. We expect to be hearing much more from Energizer in the months to come.

Energizer "demonstrates" how

to be one of the leaders of the pack in the graphite space

The challenge for mining companies through the dark years since 2011 has been how to maintain forward momentum when the next step on the path is obviously production rather than just yet another iteration of a PEA or PFS. The solution for some has been small-scale mining (some gold players we have highlighted here have had that strategy) and the other is pilot mining.

Pilot plants come in various forms, some are just to test the mineralogy or mineability of a deposit, some are to test a technology and yet others are some form of "mining on the cheap" with the ultimate plan being that the pilot plant goes to the scrap yard when there is the eventual construction of the "real" plant. One company came to our attention as a perennial pilot miner because they did not want to report their lousy earnings from what was really a proper mine and just called it a pilot mine and reported their silver ounces to keep their stock price in play. They deservedly came to grief. In our opinion pilot mining should be regarded as a revenue (if the product is sold) and thus revenues and costs should be disclosed not hidden away in some R&D number.

Kicking it Up a Notch

As followers of the Molo Graphite development of Energizer Resources Inc. (TSX: EGZ | OTCQB: ENZR | WKN: A1CXW3) in Madagascar we were thus pleasantly surprised to see that last week they announced that they were moving to a "demonstration plant" at the deposit. Unlike the pilot plants that other companies trumpet, the set-up at Molo will be a wholly different scale of things with a throughput of up to 240,000

tpa. The stunning thing though is that the estimated CapEx is a mere US$8.5mn with an estimated build time of nine months for the first phase. This development will allow Energizer to provide off-takers with “run of mine” Molo graphite flake concentrate for final product test verification purposes, rather than mere samples. Energizer has reached the stage with several potential off-takers where they are awaiting final multi-tonne samples of Molo concentrate in order to run full-scale end production runs using Molo concentrate and, hopefully, then they will enter into definitive off-take contracts.

With cash in hand of nearly half of the required spend and the IFC getting behind the bigger project and offtakers nibbling at the bait, the ducks appear to be getting in a row for what was one of the less trumpeted plays in the Graphite space.

The FEED Study

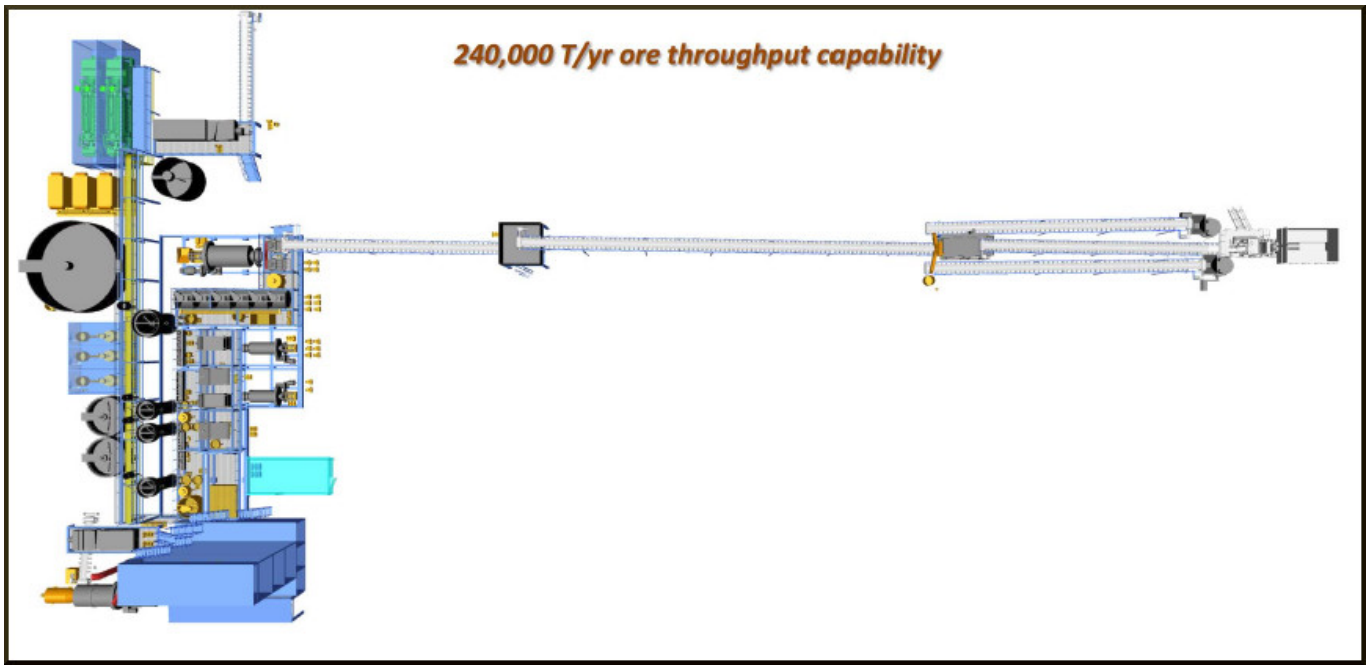
Like many others, Energizer found its PFS from the golden days of “build it big” was no longer fit for purpose. Therefore it launched a FEED Study, which was initiated in September, 2016. This was initiated as a part of a comprehensive value engineering exercise undertaken in order to examine ways of optimizing the mine plan as envisioned in the Molo Feasibility Study. All costing aspects were reviewed with the goal of providing a method to produce meaningful, multi-tonne test samples of Molo graphite concentrate to potential off-takers while reducing the CAPEX and time required to the commencement of commercial production.

Under an exploration permit, Energizer will initially be limited to an input of 20,000 cubic metres (or approximately 50,000 tonnes) of front-end feed into the demonstration plant for the purposes of verifying the flow sheet design process of the proposed Molo Project mine plan. Management have however already initiated the application process for a mining permit, which upon approval would remove the 20,000 cubic metre test

limit. At full capacity, the demonstration plant would be capable of processing 240,000 tonnes of feed per annum. This equates to 30 tonnes per hour of feed, and roughly one to three tonnes of flake graphite concentrate per hour.

The company is called the “demonstration plant” the Phase 1 of Molo’s development. This will consist of the construction of a demonstration processing plant producing flake graphite concentrate. The plant will utilize dry-stack tailings in order to eliminate the up-front capital costs associated with a tailings dam. The demonstration plant is designed to be a “proof of concept” operation with the goal of optimizing the process circuit.

Base, essential-only infrastructure (shown in the schematic below) will be employed for this phase, with Energizer’s current camp being used for accommodation and offices, including accommodation for workers in the nearby town of Fotadrevo.



It is estimated that the nine-month build-out will include detailed engineering, equipment procurement, off-site fabrication and assembly, factory assurance testing, module disassembly, shipping, plant infrastructure construction, and

onsite module assembly at a cost of approximately US$8.5mn (of which $7mn for the processing plant and $1.5mn for related infrastructure).

Phase 2 – Pushing "Demonstration" to its Limits

Once the process circuit has been proven and optimized in Phase 1, then Phase 2 will include the development of sustaining infrastructure required for long-term processing and the ramp up of production at the demonstration plant to its full capacity of 240,000 tpa (or 30 tonnes per hour) of ore. This will involve the construction of additional on-site accommodation and offices, upgrading of mine-site road infrastructure, and purchases to provide redundancy in the processing circuit.

Assuming Phase II operates at full capacity, it would produce 14,750 tonnes of graphite at the estimated operating costs below:

	FEED Study		Feasibility Study	
Costs	Ore $/T	Concentrate $/T	Ore $/T	Concentrate $/T
Mining	$5.29	$86.15	$4.66	$66.99
Processing	$18.47	$300.46	$12.38	$188.35
Trucking		$68.60		$124.63
Shipping		*$140.53*		*$209.35*
G&A Mada		-	*$7.36*	*$119.70*
Total		***$595.75***		***$709.02***

Phase 3

Assuming the successful completion of Phases 1 and 2, then Phase 3 of the development will involve additional mine build-out infrastructure and plant construction for a fully

operational, large-scale mine as envisioned in the Molo Feasibility Study. This would include construction of a tailings dam facility and upgrading or maintenance of the regional road system used to transport graphite concentrate to the port.

Conclusion

The race to production was always more of a crawl in the Graphite space and some of the companies actually seemed to be running away from the goalposts. The perverse logic was that the bigger the capex the less the market thought they would build it and then managements thought that made themselves more attractive to acquirers. They had just made themselves less attractive, period. As no acquisitions have taken place and the companies in the mega-capex category are mired in inaction, we can't say that was a successful strategy.

Energizer as we have noted before looked like one of the tortoises in this race where many fancied themselves as hares. The joke is now on the others as Energizer moves into the production phase with it's thinly veiled "demonstration plant" which is actually just small-scale production and the start of the ramp up. The "demonstration plant" rather than being a throw-away will then become the base for the move to full production. Waste not, want not seems to be the motto in what are still tough times for graphite wannabes. Energizer is staking out its claim to being a "will be".

Interestingly, Energizer has been pondering the inclusion of value-added processing for lithium-ion battery and graphite foil applications at the classification portion of the plant, which might very well be located at a port in Madagascar rather than at the mine site. This is the first time we have heard a company espousing such close linkage to the value-added chain.

The "demonstration plant" seems destined to demonstrate that

Energizer is going to be one of the leaders of the pack in the graphite space.

Energizer making a dash out of the pack towards the graphite production finish line

The fact that Energizer Resources Inc. (TSX: EGZ | OTCQB: ENZR) had a pilot plant operating when most of the rest of the graphite pack were just discovering the mineral shows the level of seriousness of the company. It has leapt ahead in the Feasibility Study race and is now in the final straight for a production decision with a putative start date in late 2017.

Energizer Resources' prime focus is the exploration and development of its 100%-owned Molo/Green Giant Project located in the extreme south of the island nation of Madagascar off the east coast of Africa. This project is vast and thus encompasses different mineralisations. However at that time I first met them over five years ago it was primarily a Vanadium story, with a sideline in the then barely known graphite.

Time has moved on the graphite moved to the fore as Vanadium fell afoul of the steel industry retraction and graphite moved up due to the battery storage surge. Paradoxically though both of these very different minerals have applications in energy storage. Energizer refocused onto graphite and has now reached the advanced design phase. Recent financings have essentially got the company covered through to the mine build decision. In another recent development an investment bank has been secured

to line up an offtaker/partner for the potential output.

Therefore it looks like another “hare & tortoise” situation where a company that had largely fallen off the public radar screen has silently crept up and got ahead of those that were more intent on blowing their own trumpets but not actually doing anything. As a bonus, if added value was needed, it comes with a Vanadium “option” embedded within it for future consideration or spin-out.

A Refresher on Molo/Green Giant

This concession is located 145 km SE of the port city of Tulear with a land position consisting of 36 licenses covering around 225 km².

The property is located in an area that has good access via a network of seasonal secondary roads from the village of Fotadrevo, which in turn has access to a regional road system that leads to the regional capital of Toliara. Unlike the typical image of Madagascar as lush jungle the part of the island where the property is located in the rain-shadow and thus it has a dry semi-desert climate subjected to seasonal cyclonic rainfall.

Current Strategy

The goal at the current time is to get a Front End Engineering Design Study (FEED Study) completed for the Molo graphite project. The FEED Study is being undertaken in order to determine potential development path options that have been presented to Energizer by prospective strategic partners. The current timetable has a 4Q17 start to construction and production in late 2018.

Graphite Potential Crystallises

The PEA study, working on the assumption of open-pit mining, was completed in February 2013. The company initially had a target for a production start-up in 2015, with an output capacity of between 50,000 and 150,000 tpa, but that fell afoul of the market's grim financing conditions. Energizer's technical partner DRA was designing the mine with three 50,000-tonne modules, whereby the Molo mine would begin initially at 50,000 tpa, but could expand to produce additional graphite as the market requires.

Then in February 2015 Energizer announced the results of its Feasibility Study. The main metrics were:

- Post-tax: NPV (at 10%) of US$390mn
- Post-tax: IRR of 31.2%
- Payback in 4.84 years
- Capex of US$149.9 million (down from $162mn in the PEA)
- OpEx per tonne of concentrate (Year 3 onward) of US$353

- Transportation per tonne of concentrate (from mine to port Year 3 onward) of US$182
- Transportation per tonne of concentrate (from Madagascar Port to European Customer Port from Year 3 onward) of US$155
- Average annual production of concentrate of 53,017 tonnes
- Life of Mine – 26 years
- Graphite concentrate sale price (US$/tonne at Start Up – 2017) US$1,689 per tonne
- Average Head Grade of 7.04%
- Average ore mined per annum 856,701 tonnes
- Average stripping ratio of a very low 0.81:1

With the ball rolling on the FEED study and significant financing in the door the company is now set upon the task of finding the largely financing tranche.

Hiring a Matchmaker

In mid-July the company announced that it had appointed London-based HCF International Advisers as its advisor in negotiating and structuring strategic partnerships, off take agreements and debt financing. HCF is an independent corporate finance advisory boutique based in London, UK and focused on the global natural resources and infrastructure sectors.

Since it was established in 2003, HCF has executed transactions with a combined value exceeding USD$12bn. Notably, HCF advised Turquoise Hills Resources on the introduction of Rio Tinto as a 19.9% strategic equity investor, and with the structuring and raising of the US$4bn project financing to develop the Oyu Tolgoi Copper-Gold Project in Mongolia.

Funds Start to Flow

It was a good sign to the marketplace when Energizer announced in recent days that investment funds managed by Goodman &

Company, an affiliate of Dundee, purchased CAD$6mn in shares in the recent non-brokered private placement. This took Goodman's stake in Energizer to just under 20%.

The total issue was an offering of 96,064,286 common shares at a price of CAD$0.07 per share for aggregate gross proceeds of CAD$6,724,500. Sprott Asset Management and significant existing shareholders represented the remaining investors.

The stock price of Energizer lifted slightly but clearly the market has taken its eye off this story as the market cap is almost derisory compared to many far less advanced (and more challenged) players in the graphite space. This must make it a potential acquisition target, but we suspect the stock price will start to move up from here on out.

The net proceeds of the offering will be used to fund the completion of the FEED Study.

The Resource & Reserve

The mineral resource for the Molo deposit the last time we looked at it consisted of:

- a Measured resource of 23.62mn tonnes grading 6.32% C
- an Indicated resource of 76.75mn tonnes grading 6.25% C
- an Inferred resource of 40.91mn tonnes at 5.78% C

This gives a combined total of 141.28mn tonnes at 6.13%C. A cut-off grade of 4% C was used for the "high grade" zones and 2% C for the "low grade" zones. Interestingly while the 'high' grade resource occurs within the 'low' grade resource, each was estimated and reported separately. The resource remains open along strike and to depth.

The reserves consists of:

- Proven – 14,170,000 tonnes at 7%
- Probable – 8,367,000 tonnes at 7.04%
- Proven and Probable – 22,437,000 tonnes at 7.02%

Energizer has ventured that Molo will be the one of the world's largest known single source deposits of high-grade graphite. The company claims that Molo's size and scalability will be a barrier to entry for other producers.

Conclusion

In light of this project's position in East Africa I can't help thinking that an Australian listing would glean the company more love. After all it's a long way from Toronto for investors to focus their spyglass but just across the pond for Australian investors who have traditionally "done" East Africa with more ease.

In any case, Energizer has survived the lean years after the end of the brief Graphite Boom and shown itself to be immensely adaptable having done a timely de-emphasizing of Vanadium just when that metal faded. The potential for V in

the battery space is only starting to be recognized so Energizer has a foot in two technologies, so to speak.

Graphite has been the laggard in the three elements crucial to Lithium Ion batteries, with Lithium and Cobalt making a dash while graphite has been trailing, possibly because it was not clear which of the players would be the survivors.

Graphite is likely to regain its attraction to mining investors at least up until such time as there are enough Western producers to allay supply fears. That Dundee waded in with such a significant investment shows that selectively the smart money is trying to pick the winners and avoid the never-gonnabes. Energizer, with its Feasibility Study under its belt, and FEED study coming down the pike, has barged its way to near the front of the pack. This is essentially a reiteration of the same idea I have propagated in lithium and REEs that the first few sizeable projects through the gate effectively kill off the prospects of latecomers (no matter what their virtues might be).

With Dundee making a vote of confidence and the hunt for an offtaker/strategic partner hotting up, it would appear that Energizer is making a dash out of the pack towards the production finish line.

Energizer – Charging for the Next Phase

A balmier breeze has been blowing through the halls, where graphite stocks lay shivering for a long while, and that has turned the focus (pardon the pun) back onto the carbon sub-sector and its more serious players.

The graphite sector was never as over-run with wannabes as the Rare Earth space, so there was never the need for mass attrition as we saw in that less auspicious group.

Energizer Resources Inc. (TSX: EGZ | OTCQX: ENZR) was previously called Uranium Star Corp. when I was first introduced to it a couple of years ago in New York. Its prime focus is the exploration and development of its 100%-owned Green Giant Project located in the extreme south of the island nation of Madagascar off the east coast of Africa. This project is vast and thus encompasses different mineralisations. However at that time it was primarily a Vanadium story, with a sideline in the then barely known graphite. Paradoxically these were two very different minerals but that both had applications in energy storage.

The company's strategy with regard to supplying demand for the emerging Vanadium Radox battery market has, somewhat seamlessly morphed into becoming a graphite contender. This was achieved via the multi-faceted nature of its property in Madagascar, off the eastern coast of Africa. .

Molo/Green Giant

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The property is located in an area that has good access via a network of seasonal secondary roads from the village of Fotadrevo, which in turn has access to a regional road system that leads to the regional capital of Toliara. Unlike the typical image of Madagascar as lush jungle the part of the island where the property is located in the rain-shadow and thus it has a dry semi-desert climate subjected to seasonal cyclonic rainfall.

Molo – Putting Vanadium in the Shade

Interestingly I had been presented with a pair of past-producing graphite mines in Madagascar several years back and thus I was not especially surprised to see that Energizer claimed to have discovered that its Green Giant project also contained a viable grade of graphite. However to put this in perspective, past production in Madagascar had never exceeded 12,000 tpa of graphite.

The identification of graphite as a potential credit to the company's vanadium resource led its geologists to conduct a reconnaissance exploration program in September 2011, with the goal of delineating new graphitic trends, and comparing them to those associated with the vanadium mineralization. In the course of this exploration, graphitic trends were identified, which were visually determined to be of both higher carbon content, and larger flake size than those associated with the vanadium mineralization.

The company signed a Joint Venture Agreement in mid-December 2011 with an Australian company, Malagasy Minerals Ltd (MGY.ax) for the exploration and development of industrial minerals. EGZ originally held 75% of the JV, and MGY held the balance. MGY also owned 7.5mn shares of EGZ. EGZ has since moved to take 100% of the venture.

Geology & Exploration

The region around the property has primarily been explored historically for base metal-type occurrences although colonial geologic services highlighted a wide range of mineral potential in the region. The Besakoa base metal mineral occurrence, located 9 km north of Energizer's property hosts the Besakoa polymetallic prospect (owned 50% by Majescor Resources Inc. and 50% by Sunridge Gold), which was discovered by BRGM (the State Mining Bureau). There were no known historic mineral occurrences on the property.

The Molo deposit exists within a folded sequence over a 2 km

strike length. In the north, it is between 50 to 60 metres wide then flares to over 500 metres in width. From this point, the Molo deposit tapers down to a width of approximately 250 to 350 metres. Finally, the deposit splits into two ‘arms’ of between 50 and 100 metre widths, respectively, which continue for tens of kilometres in length in either direction.

The purpose of Energizer’s exploration program was to ascertain the industrial mineral potential of the JV property, in addition to further drill testing of graphitic trends. Based on drill and trench data, as well as mapping, prospecting, and geophysical surveying, graphite mineralization is confirmed at surface and over an area of at least 250,000 m2. Drilling consisting of 47 holes (totalling 9,246 metres) and 19 trenches (totaling over 2,100 metres) confirmed that the mineralization is open at depth in excess of 300 metres.

Graphite Potential Crystallizes

With the switch of focus to graphite the company de-emphasized the process of moving the Vanadium forward and instead came up with a NI 43-101 graphite resource which was completed by December 2012. This maiden resource consisted of 124.31 million tonnes, with an Indicated resource totalling 84.04mn tonnes grading 6.36% carbon (C), and an Inferred resource totaling 40.34mn tonnes grading 6.29% C, above a 2% C cut-off grade. The company ran a pilot plant producing 13 tonnes of graphite concentrate. Of this a high percentage (43.5%) came out as premium extra-large and large flake with up to 97.7% purity achieved with simple flotation.

The PEA study, working on the assumption of open-pit mining, was completed in February 2013 with the main metrics being:

- Recovery: 89%
- Average Head Grade: 8.5%
- Annual production of Graphite: 84,000 tpa

- Strip Ratio of 1.65:1
- Capex of $162mn
- Operating Costs: US$418.45 per tonne
- Average selling price: $1,526 per tonne
- NPV @ 10% discount: US$421M
- IRR: 48%
- Payback period of three years

The company has an aggressive target for a production start-up in 2015, with an output capacity of between 50,000 and 150,000 tpa. Energizer's technical partner DRA is designing the mine with three 50,000-tonne modules, whereby the Molo mine will begin initially at 50,000 tpa, but can expand to produce additional graphite as the market requires.

Energizer recently completed an infill drilling campaign to upgrade a portion of the Molo deposit to Measured status as part of its Full Feasibility Study (FS), which is on track to be released before the end of this year.

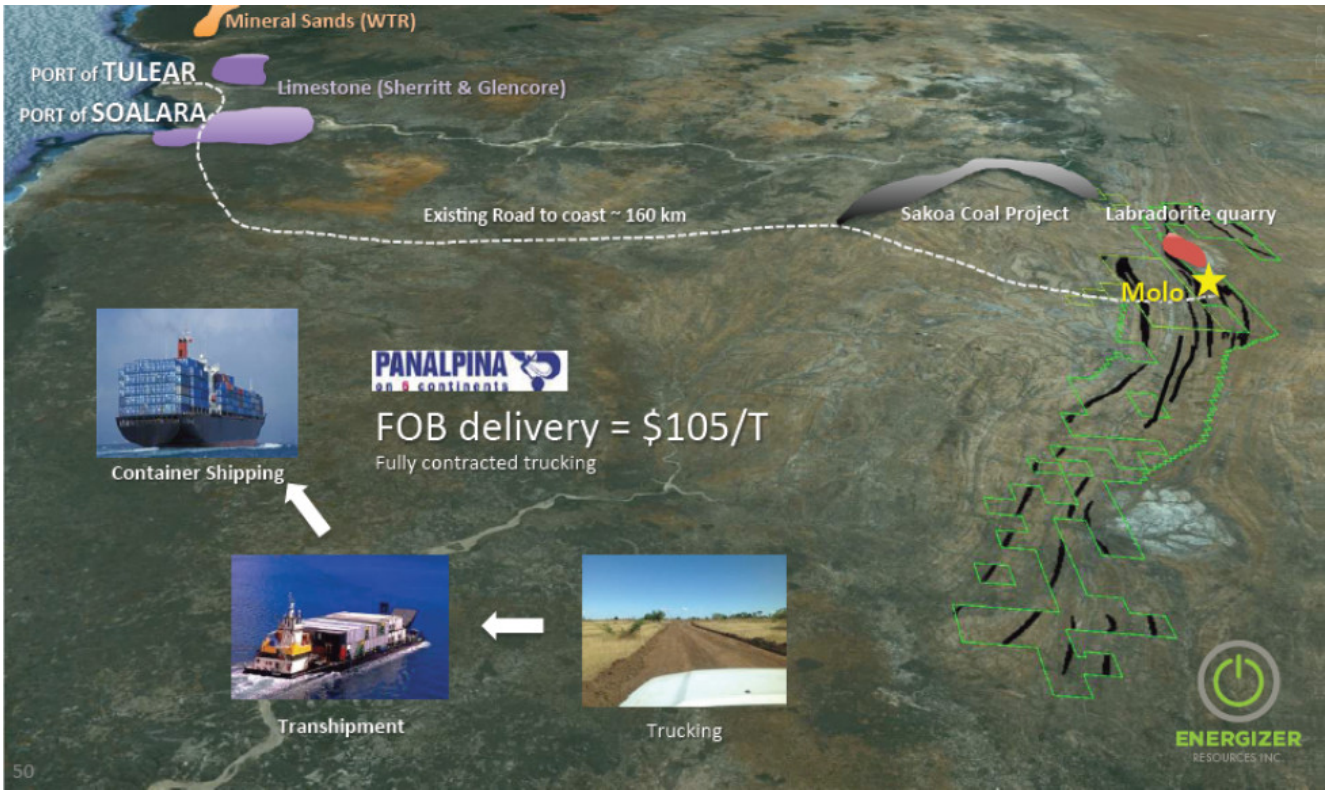
The new mineral resource for the Molo deposit consists of a Measured resource of 23.62 MT grading 6.32% C, an Indicated resource of 76.75 MT grading 6.25% C and an Inferred resource of 40.91mn tonnes at 5.78% C, for a combined total of 141.28mn tonnes at 6.13%C. A cut-off grade of 4% C was used for the "high grade" zones and 2% C for the "low grade" zones. Interestingly while the 'high' grade resource occurs within the 'low' grade resource, each was estimated and reported separately. The resource remains open along strike and to depth.

According to Energizer, amongst its closest peers, it has a percentage of its deposit at 44% with large flake that is only second to Northern Graphite (60%) but has an advantage over Northern Graphite that its operating cost per tonne at $418 is substantially lower than Northern's $795 per tonne. Only Mason Graphite has a lower operating cost per tonne (at $390).

Energizer has ventured that Molo will be the “world’s largest known single source deposit” of high-grade graphite. The company claims that Molo’s size and scalability will be a barrier to entry for other producers.

Infrastructure Advantages

As mentioned Madagascar is a country with a number of world-sized mining projects under way but little else in mining (at least until the last decade). As a result infrastructure is very thin in many parts of the country. The semi-arid south-west corner of the country where Energizer’s project is located has hitherto been infrastructure poor. This is being remedied though as other projects evolve.



As the image above shows the move to production would theoretically require the upgrading of existing roads, ports, and water supply routes and the importation of diesel power.

One big plus is the relative proximity to the Sakoa coal project (located only 30 kms away), which is under development and raises the possibility of infrastructure-sharing

opportunities for the two projects. To this end, Energizer initiated discussions a couple of years back with Asia-Thai Mining, one of the owners of the Sakoa coal project as well as the mine construction company retained to develop the coal project, to identify potential infrastructure sharing opportunities and other synergies. A coal project implies a rail connection (more important for bringing fuel in than taking ore out in EGZ's case). In addition, a coal source nearby raises the likelihood of the construction of coal-fired electricity generation facilities and high tension power to the Molo site. Lemur Resources is positioning itself to be the one to get a power plant up and running.

After several years of political instability that gave cause for concern to Western donors the situation has improved substantially in the last year. The European Union has reinstated civil infrastructure development projects in Madagascar, beginning with the allocation of funds for the upgrading of the main arterial roadway, Route Nationale 13, which connects the capital city of Antananarivo to the deep water port of Ehoala in Fort Dauphin, which was constructed for and being utilized by Rio Tinto/QMM's ilmenite sands project in the south eastern region of the country. The upgrade will include critical repairs to the RN13, beginning with the portion closest to the Molo Project and eventually ending at the port.

Representatives from the EU have independently confirmed the allocation of tenders in Madagascar for the rehabilitation of the road between Baraketa, which is located ~30 kilometres immediately east of Energizer's Molo Project, to Antanimora in the south. The pace is quickening with the first portion of the road upgrade expected to be completed by December of this year, with the second portion of the works program beginning in early spring of 2015 to extend the road to Ambavombe, where it will intersect with the EU's 2016 program to rehabilitate the third portion, which is the coastal road all the way to Fort Dauphin.

Interestingly the upgrading of RN13 now positions the port of Ehoala as a viable alternative for Energizer to consider as a

shipping port, instead of Tulear and Soalara. While Ehoala (where the port was built and is owned by RTZ) is farther from Molo than Tulear, Ehoala is “Asia-facing” and has significant shipping traffic already. It is multi-purpose and accommodates bulk carriers, cruise ships, container ships and refrigeration vessels. Most importantly it has significant excess capacity.

The PEA from 2013 only considered utilising Tulear as the port outlet for exports. It factored in Energizer bearing the entire cost of maintaining a regional network of gravel roads. The upcoming FS has been reoriented towards the opportunity Ehoala’s port infrastructure brings, without the previously envisioned capital and operating restraints considered in the PEA Study. This has the potential to positively impact the projected mine economics by reducing overall transportation costs to customer destination.

Conclusion

Energizer’s switch to graphite from Vanadium, in a tough financing environment, was a smart one as Vanadium is a much longer fuse story than graphite. The former will need a turn in prices plus a major turn in sentiment on the steel sector before it starts to gain traction again. Graphite, on the other hand is likely to maintain its currency until such time as there are enough Western producers to allay supply fears. Energizer, with its Feasibility Study imminent, has barged its way to near the front of the pack. This is essentially a reiteration of the same idea I have propagated in lithium and REEs that the first few sizeable projects through the gate effectively kill off the prospects of latecomers (no matter what their virtues might be).

The main focus now must be on capex, which at $162mn is at the daunting end of the current financing environment. As the largest part of the capex is plant cost at $68mn (to which then construction indirects and contingencies depend) the downsizing of the output in the short term might be one way of

making this more bite-sized from the financing point of view. The FS will make interesting reading.

Energizer is a graphite play with a very doable and advanced project, with no challenging geography to deal with and infrastructure gradually accumulating in the area from work done by other mining companies operating or building in Southern Madagascar. Better that RTZ, Sakoa and the EU foot that bill than EGZ’s shareholders.

As a bonus, if added value was needed, it comes with a Vanadium “option” embedded within it for future consideration or spin-out.