NextSource's Brent Nykoliation on their 'game-changing' modular mine model

March 15, 2018 – "This has never been done before in mining where the full mine has been built in a modular form. This is game changing to us because this can be applied in any jurisdiction, any commodity." states Brent Nykoliation, Senior Vice President of Corporate Development at NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRCF), in an interview with InvestorIntel's Peter Clausi.

Peter Clausi: We are talking about Madagascar and we are talking about NextSource Materials, which has a graphite deposit in Madagascar. Let me set the scene. People come in to talk about mining. I ask about 43-101s. We did this before the interview and you told me you actually had a full feasibility study and you are in development for your mill now.

Brent Nykoliation: Yes. The mine right now, we are raising the money. We have been in Madagascar 10 years, done 2 feasibility studies, recently updated our feasibility study in June, which we announced to the market we are building the world's first fully modular mine.

Peter Clausi: Pause there. The old one called for $200 million of capex.

Brent Nykoliation: Correct.

Peter Clausi: The modular mines calls for?

Brent Nykoliation: $20 million. Now the volume is 50,000 originally. We are bringing it down to 17 as a Phase 1. Phase 2 will be the full 50,000 tons a year, which makes even a 17,000 ton mine still probably the fourth largest in the

world. This is very high-quality. All our graphite has been tested already by end-users. It has been verified. Our stage right now is to raise the $20 million dollars U.S. to build the mine. We can have it up and running in 9 months' time. How we can do that is because it is modular. It is being built off-site. It will then be sent to Madagascar, constructed, reassembled in about 30 days' time.

Peter Clausi: Your labor cost is less, housing cost is less.

Brent Nykoliation: Yes, we do not have to house all these expensive– It is 1,500 people was original to bring them down to Madagascar; feed them, sanitation, house them. Now we can build it off shore in a first world country. People go home to their families at night. Then it gets shipped. This is incredibly, incredibly efficient. That is one of the biggest savings for us is to be able to have it sent. It is basically connected like a Lego set. This has never been done before in mining where the full mine has been built in a modular form. This is game changing to us because this can be applied in any jurisdiction, any commodity. It is a derisking exercise. It is a proof of concept. When we build this phase then we intend on using it to do our other opportunities, which are vanadium. We have the big vanadium deposit as well 10 kilometers away from our graphite…to access the complete interview, click here

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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.

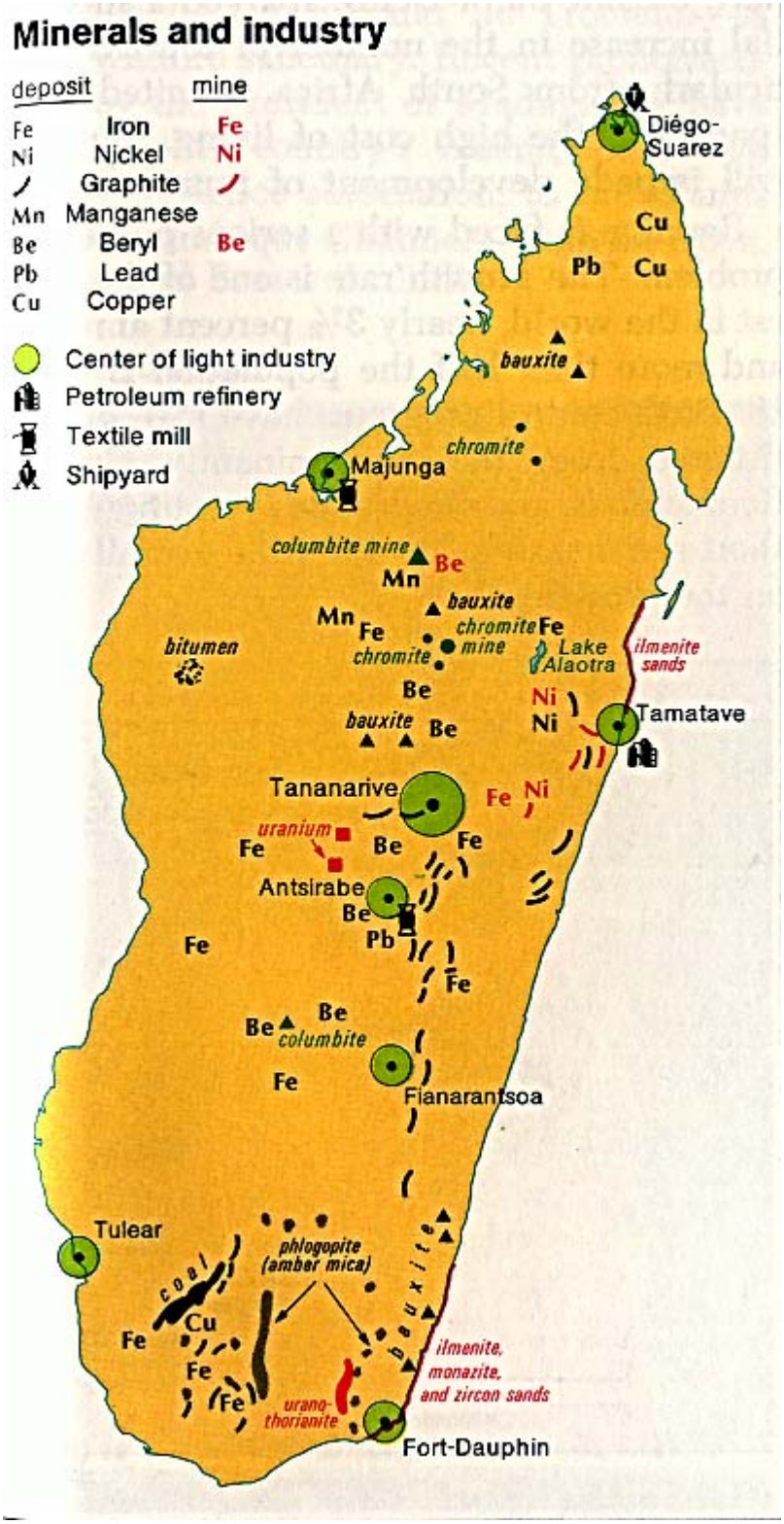
There were riots starting in January of 2009 in the capital that left around 170 dead. After losing support of the military and under intense pressure from the mayor of the capital Andry Rajoelina, Ravalomanana resigned as President on the 17 March 2009. Ravalomanana assigned his powers to a military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



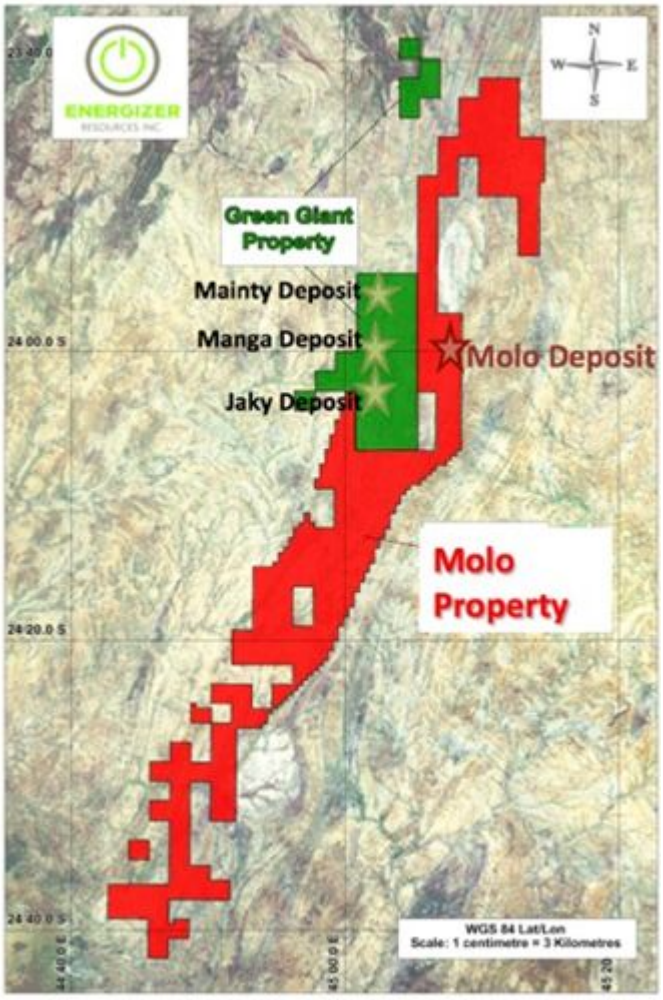
So Madagascar is a country with a number of world-sized mining projects under way but little else in mining (at least until now). As a result infrastructure is very thin in many parts of the country. The semi-arid south-west corner of the country where the many of the new projects are located is currently 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 at #CTMS2017 presents “Delivering the World’s Next Source of High Quality Flake Graphite”

In a recent presentation at InvestorIntel’s 6th Annual Cleantech & Technology Metals Summit (#CTMS2017), Brent Nykoliation, Senior Vice President of NextSource Materials Inc. (TSX: NEXT | OTCQB: NSRC) delivered a presentation titled, “Delivering the World’s Next Source of High Quality Flake Graphite”. Addressing industry and investors alike, Brent provides an overview of, “one of the largest graphite properties in the world,” the Molo Graphite Project in Madagascar. Brent also highlights how the plant’s modular design will affect the project’s capital expenditure (CapEx)… to access the complete presentation, click here

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.

Analyst says the time is now for Energizer Graphite

Energizer Resources Inc. (TSX:EGZ | OTCQB:ENZR) ("Energizer") is about to complete a detailed engineering study on its 100%-owned Molo Graphite Project in Madagascar. Following the study, the company will enter phase 1 of real production. The construction of the mine, is earmarked for completion by year-end and will run at 15,000 tpa and later be scaled-up to track the demand curve. The mine is capable of running for over ninety years and the company's bankable feasibility study (BFS) envisages that this capacity could be scaled up to 50,000 tpa. We have commented on numerous occasions regarding graphite's near-absurd upward momentum in the coming years, which prompted Energizer's decision in 2012 to temporarily halt progressing its nearby vanadium deposit in order to prioritise development of one of the world's leading graphite deposits.

The procurement of equipment for construction is now imminent, and in preparation, the company has hired renowned former Managing Director of DRA Africa (DRA), Johann de Bruin, as consultant to the project. DRA is the largest and most successful African-based engineering firms specialising in mine construction. You don't get to having 3,000 global employees and twenty offices for nothing, and de Bruin's involvement is a strong confidence marker indeed. During his tenure at DRA, Mr. de Bruin was instrumental in growing the mining project portfolio to include design and construction of 35 platinum concentrators, 42 coal processing plants and 12 metallurgical plants across multiple commodities, collectively valued at over $5 billion.

Additionally, the company's VP of operations, Robin Borley, who will work alongside de Bruin, has also done time at DRA, and their combined skillsets provide Energizer with, quite frankly, ridiculous levels of expertise in bringing the complex island project to maximum fruition.

Molo contains one of the largest primary sources of crystalline flake graphite in the world. What gives this particular deposit a competitive edge is that the material in Madagascar is immediately at surface, meaning little-to-no stripping requirements, and much easier access to the site than would normally be expected.

The Molo flake graphite deposit is located in a savannah region that is sparsely populated, which makes it ideal for low cost, open pit mining as no special relocation or protection measures (lengthy and costly endeavours) are required. As a result of this favourable location, the demo-plant will cost only $7m. Furthermore, the site enjoys convenient access to two port cities, Toliara, the regional capital, and Fort Dauphin, that will be utilised for shipping the finished product.

The 2015 Feasibility Study considers a mine that will produce an average of 856,701tpa of ore, which will be processed to produce approximately 53,017tpa of graphite concentrate over a mine-life of 26 years. Production is likely to commence in 2018 given the ever-so-slight delay in completing the engineering study, but at such a late stage, and with progress looking good, Energizer have a clear shot at emerging successful with a long-term project.

Perhaps most importantly, the Molo site is to be found in an area of dry grassland, entirely away from people and wildlife, meaning that very little resistance should be encountered in establishing a producing facility in the pro-mining nation. Investors looking to participate in a graphite play (who isn't?) would do very well to send some cash to Madagascar;

this year will almost certainly be the final year of construction-only business for Energizer, and with conveyor-belts-a-rolling from next year, it won't be a bargain to get involved for very much longer.

"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

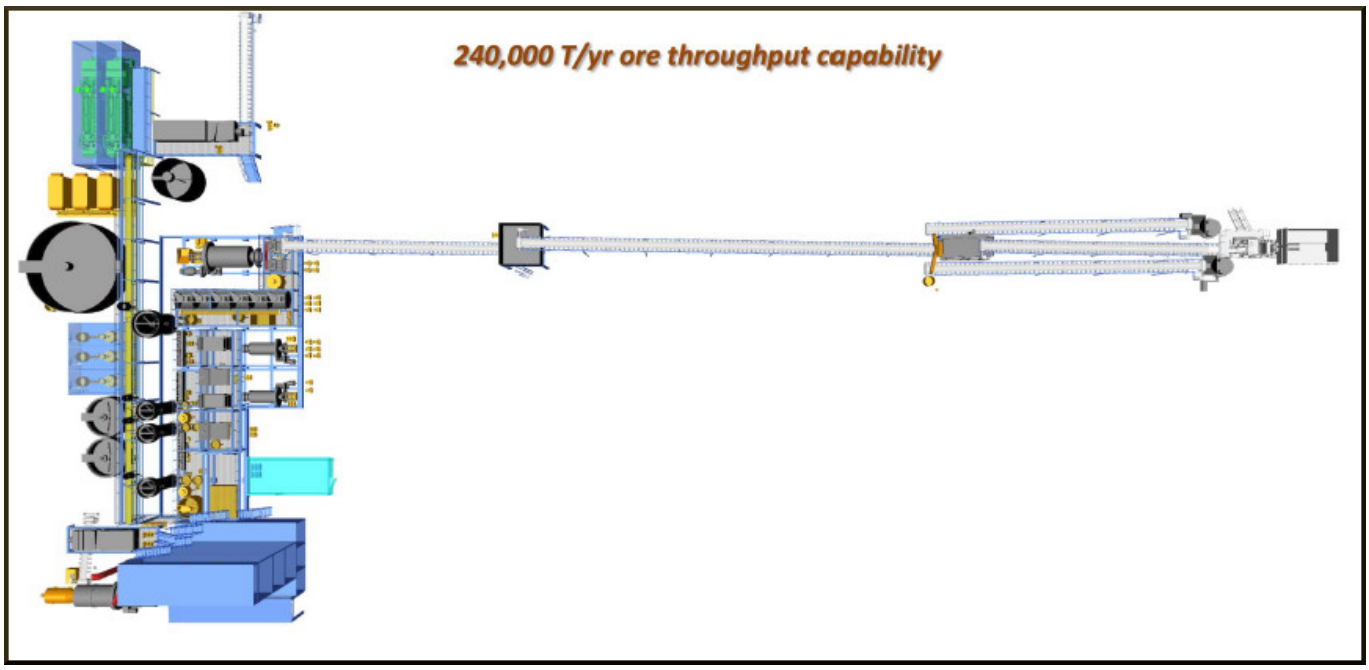
Like many others, Energizer found its PFS from the golden days of “build it big” was no longer fit for purpose. Therefore it launched a FEED Study, which was initiated in September, 2016. This was initiated as a part of a comprehensive value engineering exercise undertaken in order to examine ways of 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.