

Talga Taking Strides to be World's Largest Graphene Producer

Mark Thompson, Managing Director of Talga Resources Ltd. (ASX: TLG) in an interview with InvestorIntel Editor Peter Clausi discuss a unified graphite/graphene supply chain. The Australian company is autonomous at every step from deposit to final product. Sourced from north Sweden, the graphitic carbon is unconventionally processed at a pilot plant in Germany. Mark details the processing technique and discusses test results from graphene infused concrete.

Peter Clausi: I've been interested in talking with you since I saw you were on the list. Talga has been up to a very lot over the past year.

Mark Thompson: Yeah. We're starting to hit some straps on our graphene developments and some of the other things we've had on the background. The cobalt is starting to come into its own of course.

Peter Clausi: So let's do big picture. You have your own deposit and you have your own R&D departments and you have your own end-users that you're targeting. Tell us about your deposits first.

Mark Thompson: The deposits; we've got about 25 deposits. Three are JORC resource status and one of them, our flagship project, has got an average grade of 25.5%. These are in north Sweden.

Peter Clausi: That's graphite?

Mark Thompson: Yeah. That's graphitic carbon for graphite. That's in north Sweden. Then about a couple of years ago we

set up a test plant because we've got a really different way of processing the ore. We've got a pilot plant basically running down in Germany to make the materials and scale up the process.

Peter Clausi: You mean you have a different kind of processing technique?

Mark Thompson: Yeah so we actually cut the ore. We don't drill and blast. We actually cut the ore out in blocks, which are – Because our ore is so conductive straight out of the ground it's like an electrode so we actually use electricity to break the ore down to atoms rather than crushing and grinding.

Peter Clausi: Okay.

Mark Thompson: Obviously that's fairly new to scale up. Normally there's lots of electrode processors, but normally you're keeping them going, you're not destroying them. We're doing that. We've been trial mining for 2 years. We've been processing the material on a bigger scale. About mid last year we announced a product development strategy...to access the full interview, [click here](#)

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Thompson on the impact of Talga's graphite and graphene results on their lithium-ion

battery program

Mark Thompson, Managing Director of Talga Resources Ltd. (ASX: TLG) in an interview with InvestorIntel Corp. CEO Tracy Weslosky discuss Talga's "ultimate goal of becoming a global scale producer of graphite and graphene" and how their recently announced positive results will boost Talga's lithium ion battery program. They also explore how Talga is targeting the \$11 billion plus corrosion protection sector, and the numerous competitive advantages therein. With an update on the Phase 2 graphene pilot test plant and the high quality graphene output that has been confirmed, Tracy asks Mark for his insight on the overall global graphite and graphene market and how the electric vehicle market will drive demand.

Tracy Weslosky: Mark the reason why I'm so excited about talking to you is, and I don't say this very often to the InvestorIntel audience, but I do believe we have one of the most undervalued stocks currently on the market. We have a lot of questions to talk to you about with both graphite and graphene today. Are you ready?

Mark Thompson: Go for it.

Tracy Weslosky: Okay. First of all I'd like to start by doing something I never do, which is to actually read a quote that I read in your shareholders letter from your Chairman, Keith Coughlan. He wrote in a recently published letter, "The Company has made great strides toward our ultimate goal of becoming a global scale producer of graphite and graphene. As a result we are strategically placed to play a growing role in the emerging trend towards low-emission energy production and storage via devices such as batteries and fuel cells, conductive coatings and a host of technology applications that require advanced materials". I would love it if you would just start by reintroducing Talga to our audience and understand

why that's not just a visionary statement, but that's really what Talga is trying and is achieving.

Mark Thompson: Yeah. At the root of that is that the world has a lot of problems. It's got a lot of resource pressure and a lot of pollution pressure and it's trying to fix those problems. One of the ways around that is to positively change energy storage and energy mobility and energy generation. Graphite being a crystalline form of carbon is at the heart of a lot of those technologies and we own the world's highest grade resource of graphite under (inaudible) and NI 43 conditions. We're taking advantage of that and we're trying to work out strategically how to use that resource to the betterment of all these sorts of products that people read about in the media, but then don't enter into their lives for a little while, but similar to plastics and carbon fiber before it some of these companies go on to become global leaders. That's where Talga is heading.

Tracy Weslosky: I think something that I would love for you to explain to our audience is how you really differentiate yourself. Your competitive advantage is you're going after some very unique niches – for instance an \$11 billion dollar plus corrosion protection sector...can you talk about these different sectors that you're targeting please?

Mark Thompson: So we were quite an early mover into the graphite space and what we found is that there's an industry that's 40 times bigger than the entire global graphite market and that's the total volume of material used for paints and coatings. Graphene, one of the largest volume applications with really good margins and really good speed to market in its development is in the coating sector. We've got a Chief Technology Officer, Dr. Siva Bohm who has over 25 patents and over 100 technical papers in his 25-year career. He's a coating specialist. He's now, as our CTO, basically constructing products made of our graphene to license and look for revenues from royalties and production obviously that

feeds into our raw materials. We see the coating as a, I guess, a media darling compared to a roll up TV screens and things like electric planes, but it's actually a very good solid move because it only involves replacing encumbered materials like zinc and zircon rather than creating entirely new technologies. That's just one part of the four main sectors we focus on.

Tracy Weslosky: And of course, something that is sizzling to our audience is the battery storage market. Can you tell us what your involvement is in that particular sector?

Mark Thompson: Yeah, we've got a two-pronged approach to that...to access the complete interview, [click here](#)

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Top 10 InvestorIntel Videos of the Year

✘ In an **InvestorIntel** story published earlier this week titled The year that was a "challenge" I promised to highlight public company stories that "defied gravity in 2015, and the ones we learned from". Through literally dozens of hours of analysis this last couple of weeks, I can confirm that we do see a correlation between marketing initiatives and companies who fared better relative to their peers. This said, there are no guarantees and as one of our members called me today and concluded so aptly: **"It's never just one person."** Indeed, and *here's to teamwork*, and our members whose dedicated hours in airports en route to road shows, endless hours on news releases reflecting benchmarks

achieved by management while struggling with patience with shareholders on the phones frustrated by market performance -- Congratulations, here are the results from our audience on the top 10 InvestorIntel videos they enjoyed best in 2015!

#1 Most Viewed Interview of 2015: NioCorp's recent niobium resource updates and "outstanding" titanium and scandium deposits

#2 Most Viewed Interview of 2015: MMPR licensee Aurora Cannabis on being first to build a new marijuana facility in Canada

#3 Most Viewed Interview of 2015: China tightens control on the world's supply of rare earths in 2015

#4 Most Viewed Interview of 2015: Neometals' on lithium, vanadium and building a better battery

#5 Most Viewed Interview of 2015: Lifton on why this is 'the very best time ever' to invest in rare earths

#6 Most Viewed Interview of 2015: Global mining expert Joseph Carrabba discusses NioCorp's niobium project PEA results

#7 Most Viewed Interview of 2015: Adrian Griffin on the Rare Earth, Lithium and Graphite Market

#8 Most Viewed Interview of 2015: Lifton on how the market has chosen the survivors

#9 Most Viewed Interview of 2015: Talga Resources' on breaking the cost barrier for producing grapheme

#10 Most Viewed Interview of 2015: Professor Kingsnorth on the 'Real State' of the Global Rare Earth Market

Mark Thompson on the Talga Graphene Partnership with Tata Steel

November 09, 2015 – InvestorIntel Publisher Tracy Weslosky in an interview with Mark Thompson, Managing Director for Talga Resources Ltd. (ASX: TLG) discuss the formal collaboration agreement announced earlier today with the UK steel arm of global conglomerate Tata Group. Talga, which is operating what is arguably the world's highest grade NI 43-101 resource for graphite, is linking their emerging industrial scale graphene production to end-user Tata Steel's growing large volume graphene coating innovations. The global paint and coatings markets currently use over 40 million tonnes of materials per annum and the benefits of graphene in the coatings market include the control of corrosion and being environmentally friendly.

Tracy Weslosky: Mark, you've just put out some substantial news in the last 24 hours. You just made a deal with a company that does \$100 billion in revenue in 2014, Tata. Can you talk to us a little bit about this deal announcement please?

Mark Thompson: Sure. Formalizes the results of quite a bit of work between Tata and Talga; working on graphene samples we've been producing both in Australia and more recently in Germany from the pilot plant. It really is, I guess, the acceptance from Tata that some of these products are going to be potentially commercial and they're looking for a source of larger scale supplies. This collaboration agreement starts formalizing what hopefully will go on to be a long-term relationship.

Tracy Weslosky: Okay. This formal collaboration deal is with the UK steel. It's the division from Tata Group. Is that

correct?

Mark Thompson: The steel division, which is quite significant in its own right, has been probably the preeminent large volume end-user in the graphene space for a while now so their interest in coatings does actually span things like the energy market to do some battery coatings for example and fuel cell development, but they all come down to coatings on steel products. That's been the branch of the company that's probably the most advanced at the moment.

Tracy Weslosky: I deem this to be rather substantial news from the perspective that this puts you out front as a graphene producer. Obviously Tata believes you can create or you can produce commercial scale graphene. Is that correct?

Mark Thompson: We've been catching up with them (Tata) for quite a while now, actually over most of the year, both from the scientist level, now you're seeing the more corporate level starting to recognize what can happen as well. I think the significance is also just that it validates our graphene production capacity and the actual output, but also even as a graphite supplier that is reaching into new markets that I think is the most serious aspect of it in that the markets you can access with ultrafine graphite as well as the graphene are actually larger than the current natural graphite market. I think this is definitely a commercial tick in those boxes.

Tracy Weslosky: Obviously this collaboration deal you have with Tata really provides additional reinforcement about Talga being out front as being able to actually produce graphene on a commercial scale. Can you tell us a little bit about this? To access the complete interview, [click here](#)

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Graphene research now expanding at breakneck speed

✘ Dresden is in the vanguard of graphene research and development. But the German city is just one participant in what is becoming a headlong rush to expand the world's graphene thrust.

This week Talga Resources began graphene pilot plant processing in Germany. This follows commissioning of the equipment by Talga's partner, Technische Universität Dresden (TU-Dresden). As reported on InvestorIntel, the company said excellent performance has been reported. Meanwhile, graphene, nano and micro graphite, are now being further characterized by Talga's other German research partner at the Friedrich Schiller University in Jena.

Talga managing director Mark Thompson says he is pleased to have made initial progress at Dresden, in the heart of one of the world's most innovative technology districts.

This development draws attention to the amount of graphene research now under way around the world. New applications are emerging at a bewilderingly rapid pace.

Just in the past days, the University of Manchester has been awarded a £3 million research grant to help develop breakthrough applications for 2D materials including graphene. The *Manchester Evening News* reports the grant will go into work on combining one-atom-thick materials to help make innovative new gadgets.

Sir Andre Geim, who received the Nobel prize in physics in 2010, will lead a consortium including experts from Harvard

University, the National University of Singapore, ETH Zurich, and the Japanese National Institute for Materials Science. That is another indicator of the spread and depth of the graphene research sector.

Meanwhile, the university is to spend £60 million on a new Graphene Engineering Innovation Centre; it will house experts aiming to accelerate taking graphene to the marketplace.

Manchester already has the National Graphene Institute, which cost £61 million, and there is another £235 million earmarked for the Sir Henry Royce Institute for Materials Research and Innovation. And this week Professor Vladimir Falco, who has been one of the moving forces behind European graphene research, was appointed research director at the aforementioned National Graphene Institute.

Rice University in Houston, Texas, has come up with laser-induced graphene. The University of Adelaide in the state of South Australia, which has already done work on graphite, is now turning to running a pilot plant to extract graphene from graphite mined in Sri Lanka.

The Department of Applied Physics at the Hong Kong Polytechnic University has successfully developed low-cost semi-transparent perovskite solar cells with graphene electrodes. These have resulted in a marked increase of power conversion efficiencies compared to the convention semi-transparent solar cells.

At the University of British Columbia, researchers have been able to create the first ever superconducting graphene sample by coating it with lithium atoms. The university's press release says that inducing superconductivity in single-layer graphene has until now eluded scientists.

And the private sector is not standing still.

Britain's Haydale Graphene Industries has just won a contract

to investigate whether graphene could be used to protect aircraft from lightning strikes.

London's *The Daily Telegraph* said the company's composites unit would investigate how graphene's electricity-conducting properties could be incorporated into the carbon fibre that is increasingly being used to build the wings and fuselages of modern airliners to reduce damage caused by lightning strikes.

Another British company, engineering materials group Versarien Plc has been granted U.S. patent protection for its volume graphene platelet production process. It has been working with scientists at the University of Ulster in Northern Ireland.