**ASX:TLG** 



# **Cobalt and Graphite Exploration Update**

- New large geophysical conductor identified at the Kiskama cobalt-copper-gold project, double the size and strength of the current deposit signature
- Infill geophysical surveys planned and permitting underway to commence drilling as part of re-scheduled resource drillout
- Drilling to commence at the Vittangi graphite project to test extensions of the North Nunasvaara deposit into the Niska prospect for permitting and development planning

Australian advanced materials technology company, Talga Resources Ltd ("**Talga**") (**ASX:TLG**) is pleased to provide an update on exploration activities at two of its resource projects in Sweden.

#### Kiskama Co-Cu-Au Project (100% owned)

As a precursor to resource drilling, Talga recently completed a surface geophysical campaign at what is currently recognised as Sweden's largest cobalt deposit, Kiskama. Analysis of the Induced Polarisation (IP) and Moving Loop Electromagnetic (MLEM) survey data identified conductive anomalies below the currently known Co-Cu-Au deposit, and a new, very large conductor located 500-1000m to the east ("K2"). The K2 conductor has a conductive signature at least twice as strong and double the size of the known Kiskama deposit.

Historic drilling failed to test the newly identified conductor defined in the current surveys (Appendix and Fig 1). A program of infill IP and MLEM is scheduled to commence early in the second quarter followed by further processing, modelling and interpretation to better define the new anomalies for drill testing late in the second quarter. The commencement of drilling in conjunction with the maiden JORC Co-Cu-Au mineral resource estimate at Kiskama, which contains 113 historic drillholes, has been re-scheduled to allow testing of the new K2 conductor in upcoming exploration activities and access permits.

**Talga Managing Director, Mr Mark Thompson**: *"While our development focus remains on our graphite projects, our strategy is to add value to these strategically well-placed cobalt-copper-gold assets. So, the identification of these new, highly prospective targets is an exciting development. Battery metals like cobalt are and will continue to be very much in demand and this is a developing opportunity for the Norrbotten region of Sweden to play an important role in the supply of this vital material for the Lithium-ion battery supply chain."* 

**Figure 1** 3D inversion model of Kiskama Co-Cu-Au project conductors with conductivity in blue and chargeability in green. Image covers approximately 2km strike.

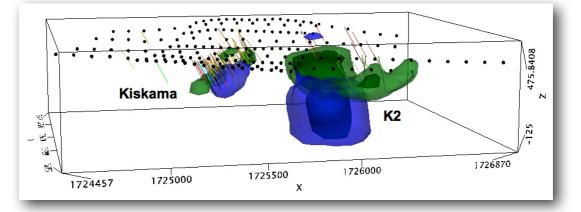
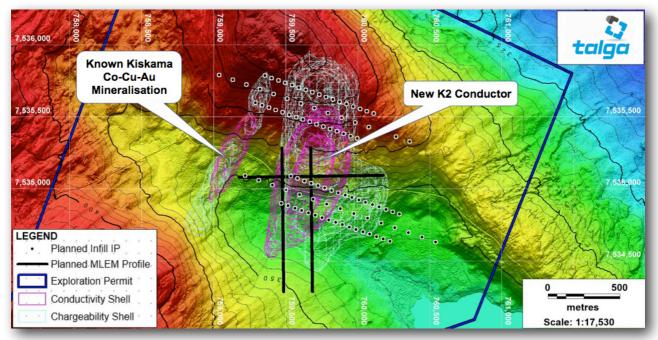






Figure 2 Map of new Kiskama conductors and planned geophysical infill surveys.



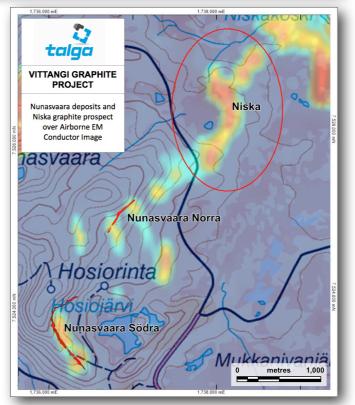
#### Vittangi Graphite Project (100% owned)

At the Niska prospect, Talga recently completed a shallow-penetrating surface EM survey along with re-processing and analysis of historic airborne and ground geophysical surveys along the graphite trend extending north from the high grade North Nunasvaara resource.

Several conductors coincident with high grade graphite surface samples (up to 39%Cg, ASX: TLG 1 Sep 2014) were identified at Niska and a drill program has been designed to test the main anomalies. The drilling is targeting extensions to the high grade Nunasvaara North resource for future development potential, permitting and planning. The drill program will consist of approximately 20 diamond core holes for ~1,600m and is scheduled to commence next week and finish in late March-early April, with sample results to be released when received and analysed.

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**Figure 3** Airborne EM Conductor Image showing the Vittangi Graphite Project.

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#### APPENDIX

#### **Details of Completed Geophysics Program**

A geophysical survey consisting of double-offset 2.5D dipole-dipole induced polarisation (IP) and resistivity measurements was completed by GRM Services (Finland), with 50m receiver dipoles and 200m transmitter dipoles. The survey was completed on wide spaced survey lines (400m) to maximise the area covered and geared towards low resolution / deeper penetration to assess the potential of the known Co-Cu-Au mineralisation below the existing drilling and surrounds.

A small moving-loop electromagnetic (MLEM) survey was also designed, processed and modelled by Precision Geophysics (Perth) to test a discrete EM anomaly identified from historical geophysical data from the project. Individual decays of all readings were manually inspected and qualitatively processed with relatively good (low) overall noise levels, despite the relatively low current levels.

Multiple chargeable zones were detected in the western (known mineralised trend) and eastern (new anomalies) parts of most of the IP survey lines. In some cases, the responses were 40-50mV/V, considered to be at least 5 times above the background chargeability level. Anomalous zones were observed at shallow levels and extending into deeper areas, especially in the east.

The apparent resistivity was also variable with relatively resistive zones in the far north of the survey area (hilly areas with rocky outcrop) and along the western edge of each line. Conductive zones were observed at shallow levels adjacent to the main mineralisation and at depth in the east, coincident with some of the chargeability features.

The full dataset was modelled as a 3D block using the software package RES3DINV. The inversion model identified a western chargeable/conductive zone corresponding to the main mineralisation (Kiskama). In terms of size and relative strength, the western zone is both smaller and weaker than the multi-zonal features in the east where a broad conductive zone at depth (200m+) with coincident and adjoining chargeable zones were modelled (Figure 1 and 2).

The eastern IP anomalies remain unexplained. Whilst there are several historic drillholes in the vicinity of the new IP anomalies, none were drilled deep enough to test the conductor. There are also no known occurrences of graphitic sediments or strongly magnetised units in the eastern area which could adequately explain the anomalism prior to drill testing.



#### About Talga

Talga Resources Ltd is an advanced materials technology company enabling stronger, lighter and more functional graphene and graphite enhanced products for the multi-billion dollar global battery, coatings, construction and composites markets. Talga has significant advantages in graphene production owing to its vertically integrated high grade Swedish graphite deposits and in-house process to product technology. Company website: www.talgaresources.com

#### **Competent Persons Statement**

The information in this document that relates to exploration results is based on information compiled by Amanda Scott, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (Membership No.990895). Amanda Scott is a full-time employee of Scott Geological AB. Amanda Scott has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Amanda Scott consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.

#### Forward-Looking Statements

This ASX release has been prepared by Talga Resources Ltd. This document contains background information about Talga Resources Ltd and its related entities current at the date of this announcement. This is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this announcement. This announcement is for information purposes only. Neither this document nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction.

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#### JORC Code 2012 Edition

### Section 1 Sampling Techniques and Data

| Criteria  | JORC Code explanation   | Commentary   |
|---|---|--|
| Sampling<br>techniques                                  | <ul> <li>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul> | <ul> <li>At Kiskama a geophysical survey consisting of double-offset 2.5D dipole-dipole induced polarisation (IP) and resistivity measurements was completed by GRM Services (Finland) with 50m receiver dipoles and 200m transmitter dipoles. The survey was completed on wide spaced survey lines (400m) to maximise the area covered and geared towards low resolution / deeper penetration to assess the potential of the known Co-Cu-Au mineralisation below the existing drilling and surrounds.</li> <li>At Niska a geophysical survey consisting of surface slingram electromagnetic (EM) measurements utilizing the Promis Slingram system with 20m coil separation was completed by GRM Services (Finland). The EM survey was completed over known EM anomalies identified through historic aroborne and surface surveys.</li> </ul> |
| Drilling<br>techniques                                  | <ul> <li>Drill type (e.g. core, reverse circulation, open-hole<br/>hammer, rotary air blast, auger, Bangka, sonic, etc.)<br/>and details (e.g. core diameter, triple or standard tube,<br/>depth of diamond tails, face-sampling bit or other type,<br/>whether core is oriented and if so, by what method,<br/>etc.).</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> </ul>  |
| Drill sample<br>recovery                                | <ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>  | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |
| Logging   | <ul> <li>Whether core and chip samples have been geologically<br/>and geotechnically logged to a level of detail to support<br/>appropriate Mineral Resource estimation, mining<br/>studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature.<br/>Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant<br/>intersections logged.</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |
| Sub-sampling<br>techniques<br>and sample<br>preparation | <ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> </ul>  |
| Quality of<br>assay data<br>and laboratory<br>tests     | <ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |

| Criteria  | JORC Code explanation  | Commentary  |
|---|--|---|
| Verification of<br>sampling and<br>assaying                         | <ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>  | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> <li>Raw pseudosections were used to verify the quality of the geophysical data.</li> </ul>   |
| Location of<br>data points  | <ul> <li>Accuracy and quality of surveys used to locate drill<br/>holes (collar and down-hole surveys), trenches, mine<br/>workings and other locations used in Mineral Resource<br/>estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>  | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> <li>The geophysical surveys were completed using the Swedish Grid RT90 2.5 Gon V.</li> <li>Detailed (2m) national elevation data was used for topographical control.</li> </ul>   |
| Data spacing<br>and<br>distribution                                 | <ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient<br/>to establish the degree of geological and grade<br/>continuity appropriate for the Mineral Resource and Ore<br/>Reserve estimation procedure(s) and classifications<br/>applied.</li> <li>Whether sample compositing has been applied.</li> </ul>                 | <ul> <li>At Kiskama the IP survey was completed on 400m spaced survey lines with 50m receiver dipoles and 200m transmitter dipoles.</li> <li>At Niska the EM survey was completed using 20m coil separation.</li> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> </ul> |
| Orientation of<br>data in<br>relation to<br>geological<br>structure | <ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul> | <ul> <li>At both Kiskama and Niska the geophysical profiles<br/>have been orientated perpendicular to the strike of the<br/>known mineralisation.</li> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>   |
| Sample<br>security  | • The measures taken to ensure sample security.  | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> </ul>   |
| Audits or<br>reviews  | • The results of any audits or reviews of sampling techniques and data.  | <ul> <li>Not applicable; no sampling or drilling completed or reported by Talga.</li> </ul>   |

## Section 2 Reporting of Exploration Results

| Criteria                                      | JORC Code explanation  | Commentary   |
|---|--|--|
| Mineral tenement<br>and land tenure<br>status | <ul> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</li> </ul> | <ul> <li>The Kiskama Project is located within exploration licence Kiskama nr 1 owned 100% by the Company's Swedish subsidiary Talga Battery Metals AB.</li> <li>The Niska Prospect is located within exploration licence Vittangi nr 2 owned 100% by the Company's Swedish subsidiary Talga Graphene AB.</li> <li>The licences are located in forested areas which are also used for seasonal grazing by local indigenous Sami reindeer herders.</li> <li>The licences are in good standing with no known impediments.</li> </ul>   |
| Exploration done<br>by other parties          | Acknowledgment and appraisal of exploration by other parties.  | <ul> <li>The Kiskama Co-Cu-Au deposit was discovered by SGU in 1972 by drilling geochemical and geophysical anomalies and is located approximately 40km east of the town of Kiruna. SGU investigated the project by geophysical ground measurements (Mag, SR, IP) and diamond drilling (&gt;100 drillholes) during the period 1972-1980. Rio Tinto and Anglo American briefly explored the project area in the late 1990's and subsequently by Teck prior to Talga acquiring the project in 2011-12.</li> <li>Graphite was first identified at Nunasvaara in the early 1900's and has been extensively explored since that time. In the early 1980's LKAB completed diamond drilling and test mining at Nunasvaara (located along strike from Niska). More recently the area has been explored by Anglo American and Teck Cominco for copper and base metals prospectivity.</li> </ul>   |
| Geology                                       | Deposit type, geological setting and style of mineralisation.  | <ul> <li>At Kiskama the host rock to the copper-cobalt-gold mineralisation is fragmental in character with subrounded clasts, up to 4cm in size, of altered volcanic rocks of intermediate composition. The matrix to the clasts is mainly fine-grained volcanic material and varying amounts of hematite-magnetite-pyrite. Many clasts are strongly K-feldspar altered, giving them a distinctive red colour. Texturally similar K-feldspar alteration occurs as diffuse patches in the matrix to the fragments, indicating the alteration to partly precede clast formation. Thus, a hydrothermal origin is suggested with contemporaneous alteration and fragmentation due to tectonic and hydrothermal activity.</li> <li>The mineralisation at Nunasvaara is sub-vertical, 20-30m wide lithologically continuous unit of very fine grained, dark-grey to black graphite containing 10-45% graphitic carbon. The hangingwall is comprised of volcanoclastics and tuffacous units and the footwall to the mineralisation is a mafic intrusive. The graphite units are regionally extensive over many kilometres and are interpreted to have developed in a shallow fresh water basin in the early Proterozoic (Circa 1.8 billion years). Subsequent deformation, possibly related to domal intrusive bodies have metamorphosed and tilde the units to the sub-vertical orientations present today.</li> <li>The graphite at Nunasvaara is highly crystallined microflake and very high grade. Trial mining and metallurgical testwork completed by the Company show a range of raw and value-added graphite and graphene products can be produced.</li> </ul> |

| Criteria   | JORC Code explanation   | Commentary   |
|--|---|--|
| Drill hole<br>Information  | <ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:         <ul> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul> | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |
| Data aggregation<br>methods  | <ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |
| Relationship<br>between<br>mineralisation<br>widths and<br>intercept lengths | <ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>   | <ul> <li>Not applicable; no sampling or drilling completed or<br/>reported by Talga.</li> </ul>  |
| Diagrams   | <ul> <li>Appropriate maps and sections (with scales) and<br/>tabulations of intercepts should be included for any<br/>significant discovery being reported These should<br/>include, but not be limited to a plan view of drill hole<br/>collar locations and appropriate sectional views.</li> </ul>   | <ul> <li>A summary image showing the location of the new<br/>geophysical anomalies (Figure 1 and 2) at Kiskama<br/>and a location map for Niska (Figure 3) have been<br/>included in this report.</li> </ul> |
| Balanced<br>reporting  | <ul> <li>Where comprehensive reporting of all Exploration<br/>Results is not practicable, representative reporting<br/>of both low and high grades and/or widths should<br/>be practiced to avoid misleading reporting of<br/>Exploration Results.</li> </ul>   | All exploration results have been reported.  |

| Criteria                              | JORC Code explanation   | Commentary   |
|---------------------------------------|---|--|
| Other substantive<br>exploration data | <ul> <li>Other exploration data, if meaningful and material,<br/>should be reported including (but not limited to):<br/>geological observations; geophysical survey<br/>results; geochemical survey results; bulk samples –<br/>size and method of treatment; metallurgical test<br/>results; bulk density, groundwater, geotechnical<br/>and rock characteristics; potential deleterious or<br/>contaminating substances.</li> </ul> | <ul> <li>At Kiskama historic resources (SGU) are estimated at 3.42 Mt with 0.37% Cu and 0.09% Co; Talga is currently converting the historic MRE to a JORC-Compliant MRE.</li> <li>A preliminary metallurgical testwork program was completed at Kiskama using diamond drill-core from the Company's 2014 drilling. Simulus Laboratories undertook the program which included flotation to concentrate and hydrometallurgyrecovery to solution using the proprietary KELL Process("KELL") from which downstream extraction to batterygrade sulphate or metal products is possible. These preliminary tests achieved cobalt recoveries of 91% via flotation to concentrate and 99% from concentrate to solution in the KELL stage. Copper recoveries to flotation concentrate ranged from 84-86% and gold from 74-77%. Further extraction by KELL recovered 99% of the copper and 91-95% of the gold through a HCL pre-leach and chlorination step. The results demonstrate no metallurgical impediment to the high recovery of cobalt along with copper and gold from Kiskama, with flotation being relatively straight forward and samples responding well to a wide range of conditions. Mineralogical studies conclude the cobalt and copper is hosted in sulphide mineralisation (cobaltiferous pyrite and chalcopyrite respectively). Only 'rougher' flotation stages were used during the test work and optimisation of all the process steps is expected to improve recoveries.</li> <li>A substantial amount of work has been completed at the Vittangi Graphite Project by both historic explorers and more recently by Talga. Work has included geophysical surveys, rock chip sampling, MMI soil sampling, trenching, diamond drilling, metallurgical testwork and trial mining.</li> </ul> |
| Further work                          | <ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>   | <ul> <li>At Kiskama infill IP and MLEM surveying is planned for<br/>early Q2-2019. The historic MRE (completed by SGU)<br/>is currently being converted to a JORC-Compliant MRE<br/>and a high-level mine optimisation will also be<br/>completed. Diamond drilling designed to test the newly<br/>identified geopchysical anomalies and complementary<br/>resource drilling is scheduled for Q2-3 2019.</li> <li>At Niska diamond drilling is commencing during Q1-<br/>2019.</li> </ul>  |