ASX Announcement | 18 April 2024

Innovative Geophysical Survey to Reveal the Potential Scale of the Trieste Lithium Project, James Bay, Quebec, Canada

Highlights:

- **An intensive airborne geophysical survey is planned for June, utilising a comprehensive suite of innovative sensors and 3D analysis to identify lithium-bearing structures and reveal the potential scale of the Trieste Lithium Project in James Bay.**
- **Recent advancements in mobile Magnetotellurics (MTm) technology, including a broad band frequency probe, will investigate and differentiate between highly resistive rock types (i.e. pegmatitic and metamorphic) to a depth of 600+ metres.**
- **The geophysical survey is also expected to reveal conductive and contrasting structural features within Trieste's unique 20km^2 Metasediment Fault Flow Zone, in which the six prominent spodumene bearing pegmatite dykes have been discovered.**
- **Multi sensor data analysis is anticipated to generate a detailed 3D model that will generate surface and subsurface drilling targets to complement the existing high-grade lithium assays from completed drill holes[1, 2] - dyke #04 results imminent.**
- **The Trieste Lithium Project is strategically located along the Trieste Greenstone Belt and connected to multiple spodumene bearing lithium projects of Rio Tinto/Midland Exploration, Azimut/SEQUEM and Winsome Resources' (ASX:WR1) Adina-Jamar project with a JORC Inferred Mineral Resource Estimate of 59 Mt at 1.12% Li_2O[4].**
- **Loyal Lithium is well-funded with $6.4m[3] in cash and plans to collaborate with neighbouring lithium projects, exemplified by the Winsome Resources collaboration MOU, to develop the Trieste Greenstone Belt into a premier lithium hub.**
- **Winsome Resources' recent acquisition of the Renard processing facility and infrastructure is set to accelerate development plans for the emerging region.**

Loyal Lithium Limited (ASX:LLI) (**Loyal Lithium**, **LLI**, or the **Company**) is excited to announce that is has commissioned an innovative airborne geophysical survey to commence in June at the Trieste Lithium Project in James Bay, Quebec, Canada. This cutting-edge survey will utilise a suite of advanced sensors, including the latest in mobile Magnetotellurics (MTm) technology, to identify structural corridors that may contain lithium-bearing structures and reveal the project's potential scale. The survey is expected to investigate and differentiate between highly resistive rock types to a depth of 600+ meters and expose conductive features within the 20km^2 Metasediment Fault Flow Zone. Anticipated to generate a detailed 3D model, this survey will aid in pinpointing both surface and subsurface drilling targets, building upon the high-grade lithium and tantalum assays from previous drilling programs. With $6.4m in cash reserves, Loyal Lithium is well-positioned to advance the Trieste Greenstone Belt as a premier lithium hub in the region.

Loyal Lithium's Managing Director, Mr. Adam Ritchie, commented:

"Credit to the Loyal Lithium team for investigating and securing this innovative suite of technologies via 'Expert Geophysics Limited' that will significantly enhance our exploration strategy. The Trieste Lithium Project is distinguished by its high-grade Lithium and Tantalum within a metasedimentary host rock, which enables the use of such cost-effective geophysical surveys and the creation of a detailed 3D structural model to identify our next drilling targets. In time, the metasediment advantage will also offer substantial advantages for mining and processing.

"The Trieste Greenstone Belt is taking shape and with the acquisition of the Renard processing facility and infrastructure by Winsome Resources there is now a clear path forward. Our collaboration MOU with Winsome Resources demonstrates our combined commitment to establishing the region as a premier Lithium hub."

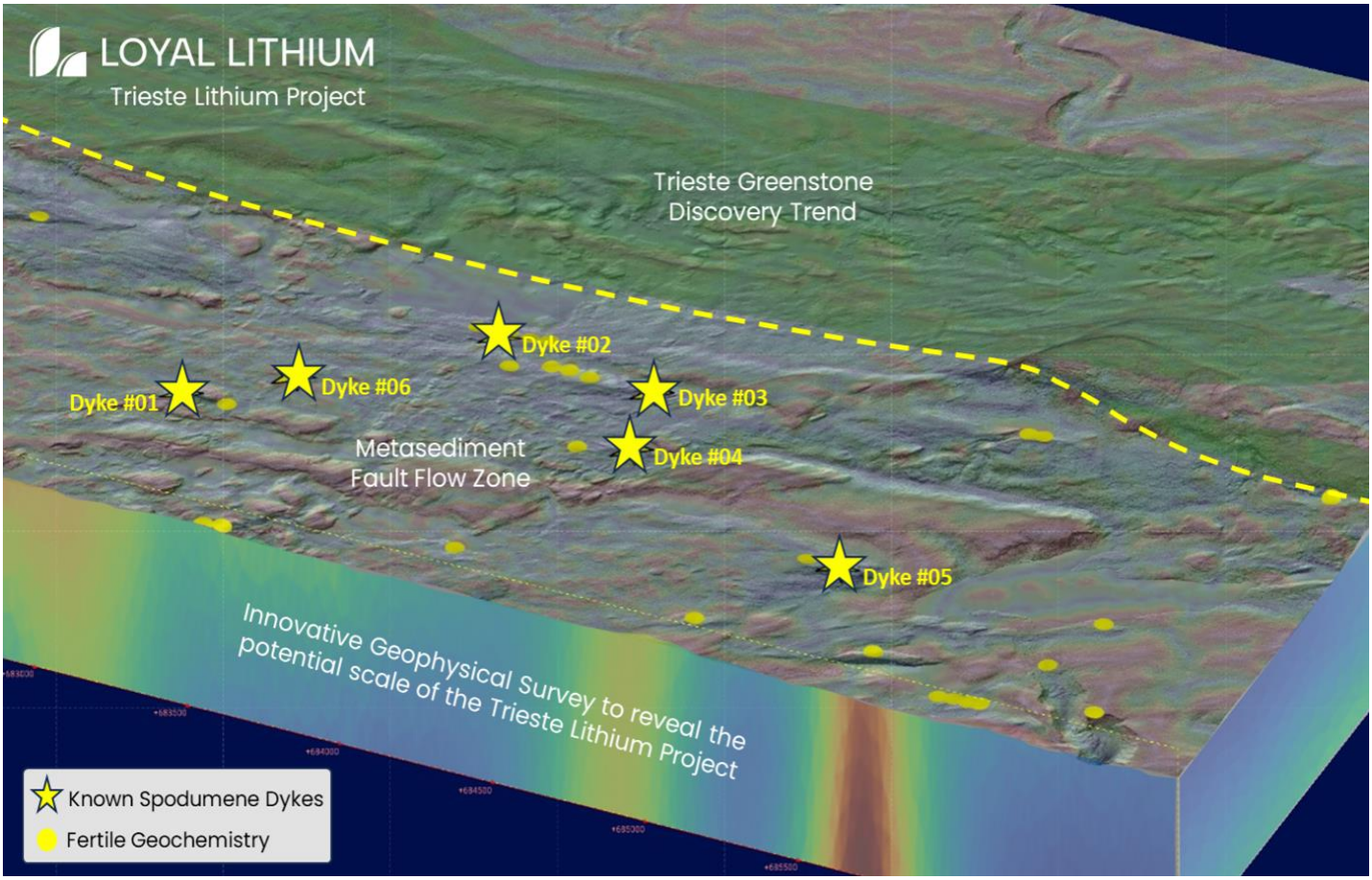

Figure 1: The Trieste Lithium Project, an example depth of inspection output against the Trieste backdrop.

The latest iteration of Mobile Magnetotellurics (MTm) technology, the most advanced generation of airborne AFMAG survey, has greatly improved the depth of investigation and the capacity to distinguish between various conductive and resistive rock types. This broad-band MTm probe is particularly effective in investigating pegmatites and metamorphic rocks, which were previously challenging to analyse with existing geophysical technologies (Figure 2).

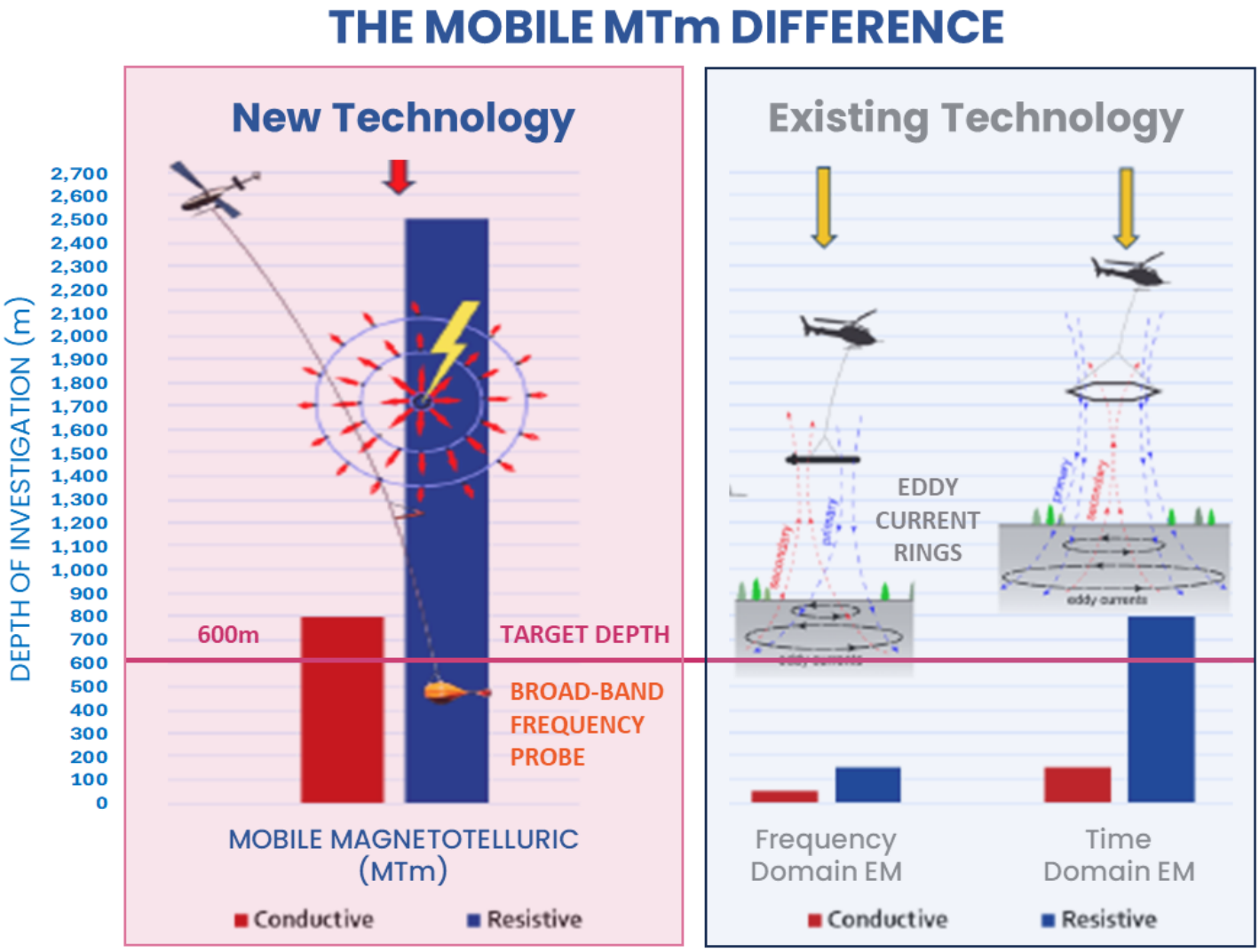

Figure 2: The Mobile Magnetotelluric (MTm) Difference, comparing the depth of investigation to existing technologies for Conductive & Resistive Rock Types.

The MTm technology is not only capable of deeply probing pegmatitic rock types that could contain spodumene, but it is also foreseen to be more effective in discriminating the contrast from the unique metasediment host rock at the Trieste Lithium Project (Figure 3). Additionally, it's anticipated to identify the conductive structural features that host the spodumene pegmatite dykes and assist in discovering connections between known pegmatite dykes and pinpointing potential 3D drilling targets both near surface and to depth, up to 600+ metres.

The Mobile MTm geophysical survey will be paired with a host of other geophysical surveys that can be flown simultaneously, significantly increasing the efficiency of data collection for the suite of surveys, compared to flying the geophysical surveys separately. The suite of geophysical surveys, in addition to Mobile MTm, includes magnetometry, and VLF. The wide suite of geophysical techniques has been carefully considered as the strengths of each data type compensate for the weaknesses of the others, thus enabling superior imaging.

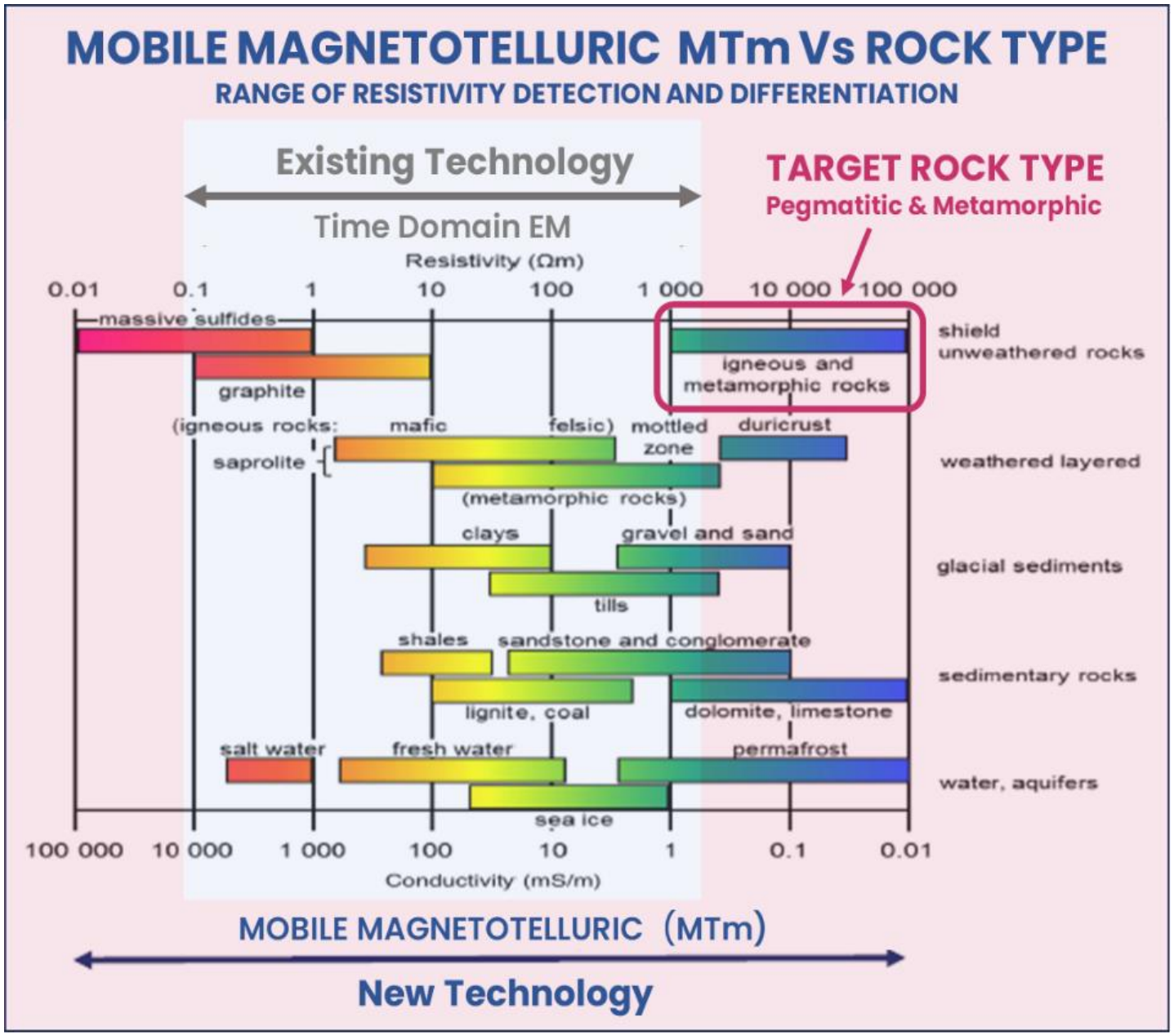

Figure 3: A comparison of detection limits (resistivity and conductivity) of existing technology (Time Domain EM) and the innovative new technology of Mobile MTm.

The innovative geophysical survey program is set to significantly enhance Loyal Lithium's in-house geological and structural 3D model. The prior field mapping and drilling campaigns have collectively confirmed the presence of six spodumene pegmatite dykes and their geological trends within the 20km^2 Metasediment Fault Flow Zone. The comprehensive geophysical survey area, which spans roughly 75 km^2, includes the Metasediment Fault Flow Zone and entire Trieste Greenstone Belt of the Trieste Lithium Project.

The mineralised dykes within nearby projects of Winsome Resources (ASX:WR1) Adina-Jamar Project and Rio Tinto's (ASX:RIO) Galinee Project, are entirely within the Trieste Greenstone Belt. Loyal Lithium's six known spodumene pegmatite dykes uniquely occur within the metasediments south of the Greenstone Belt, where the bulk of field mapping occurred in 2023. Pegmatites crystallize either from fractionated magma derived from a parent granitic body or from the partial melting of metasediments or meta-igneous rocks (e.g., amphibolite). Within the broader context of the Trieste Greenstone Belt, Loyal Lithium's Trieste Lithium Project has significant potential to host mineralised pegmatite dykes not only within the metasediments but also within the Trieste Greenstone Belt (amphibolite). The comprehensive geophysical survey with multiple data types aims to unlock this unrealised value.

These six mineralised dykes and in particular, the 3 already drilled dykes will provide an excellent baseline for calibrating the raw geophysical datasets, thereby improving analysis efficiency and the quality of the final products. The geophysical surveys are aimed at extending and refining the known pegmatite trends at both surface and depth, as well as uncovering new mineralised pegmatite dykes that may be hidden by ground cover.

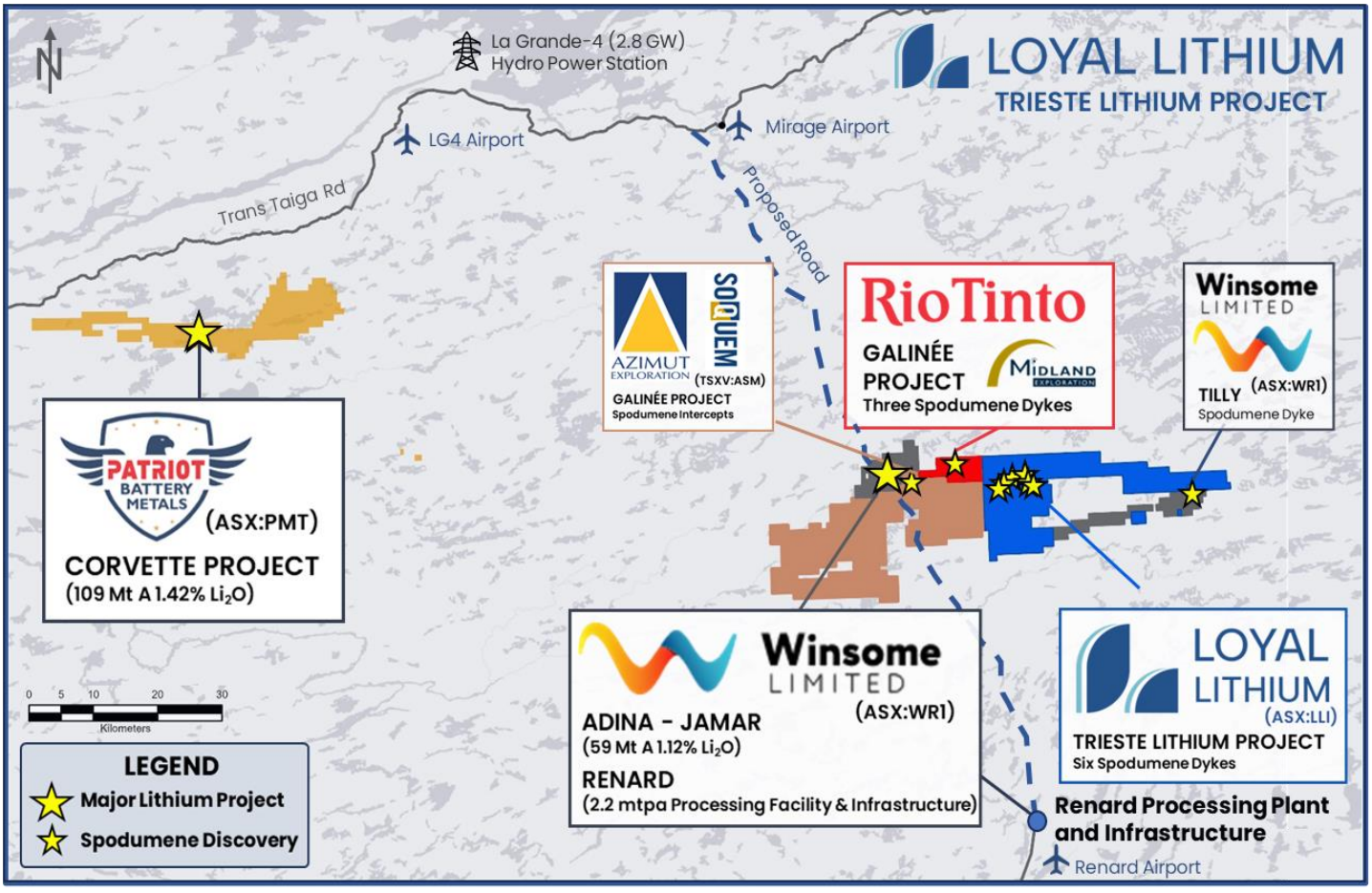

Figure 4: Loyal Lithium's Trieste Project relative to other regional projects that have identified spodumene bearing pegmatites within the greater Trieste Greenstone Belt Lithium Complex.

In September 2023 Loyal Lithium and Winsome Resources signed a collaboration Memorandum of Understanding (MOU) on a range of objectives mutually applicable to the respective companies' and their James Bay Lithium projects. The MOU is a strategic move towards minimising environmental and stakeholder impacts, and to achieve a low-cost domestic Lithium supply and positions the Trieste Greenstone region as a key player in the emerging North American Lithium supply chain. The strategic acquisition of the Renard processing facility and infrastructure by Winsome Resources further solidifies and accelerates the development pathway for the region.

This announcement has been authorised for release by Loyal Lithium's Board of Directors

For more information:

Adam Ritchie
Managing Director
aritchie@loyallithium.com
+61 (0) 403 462 383

Jane Morgan
Investor & Media Relations
jm@janemorganmanagement.com.au
+ 61 (0) 405 555 618

About Loyal Lithium

Loyal Lithium Limited (ASX: LLI) is a North American focused lithium led battery minerals company with projects in the Tier 1 North American mining jurisdictions in the Northwest Territories, Canada, James Bay Lithium District in Quebec, Canada and Nevada, USA. Through the systematic exploration of its projects, the Company aims to delineate JORC (2012) compliant resources, creating value for its shareholders.

Future Performance

This announcement may contain certain Forward-Looking statements and opinion Forward-looking statements, including projections, forecasts and estimates, and are provided as a general guide only and should not be relied on as an indication or guarantee of future performance and involve known and unknown risks, uncertainties, assumptions, contingencies and other important factors, many of which are outside the control of the Company and which are subject to change without notice and could cause the actual results, performance or achievements of the Company to be materially different from the future results, performance or achievements expressed or implied by such statements. Past performance is not necessarily a guide to future performance and no representation or warranty is made as to the likelihood of achievement or reasonableness of any forward-looking statements or other forecast. Nothing contained in this announcement, nor any information made available to you is, or and shall be relied upon as, a promise, representation, warranty or guarantee as to the past, present or the future performance of Loyal Lithium Limited.

Competent Person Statement

The information in this announcement that relates to Exploration Results and Targets, is based, and fairly reflects, information compiled by Mr Darren Allingham, who is the Company's geologist. Mr Allingham is a Fellow of the Australian Institute of Geoscientists. Mr Allingham has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity

he is undertaking to qualify as a Competent Person (CP) as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results and Mineral Resources (JORC Code). Mr Allingham consents to the inclusion in the announcement of the matters based on the information in the form and context in which it appears.

References

[1] ASX Announcement LLI: 18 January 2024: Major Lithium Discovery Confirmed from First Drillhole Assays at Trieste Lithium Project, James Bay, Quebec, Canada.

[2] ASX Announcement LLI: 21 March 2024: World Class Lithium and Tantalum Grades recorded within Dyke #05 Drill Intercepts at Trieste Lithium Project, James Bay, Quebec, Canada.

[3] ASX Announcement LLI: 31 January 2024: Quarterly Activities Report – For the Quarter Ending 31 December 2023.

[4] ASX Announcement WR1: 11 December 2023: Globally significant maiden Mineral Resource of 59 Mt at 100% owned Adina Lithium Project.