

Platinum Group Metals Ltd.'s Subsidiary Lion Battery Technologies Inc. Granted Third US Patent for PGMs Focused on Next Generation Lithium Sulphur Batteries

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Vancouver, July 14, 2021 - [Platinum Group Metals Ltd.](#) (TSX: PTM) (NYSE American: PLG) ("Platinum Group" "PTM" or the "Company") and subsidiary Lion Battery Technologies Inc. ("Lion") reports that the U.S. Patent and Trademark Office has issued a third patent to Florida International University ("FIU") related to platinum group metals ("PGMs") being used in lithium batteries. Specifically, this third patent is related to PGMs in the "Next Generation" Lithium Sulphur Batteries. Under a sponsored research agreement, Lion has exclusive rights to all technology being developed by FIU with Lion funding, including granted patents.

The new patent was issued on June 15, 2021, entitled "Battery Cathodes for Improved Stability" with patent number US 11,038,160 B2. The patent covers a preparation method using PGM catalysts in carbon materials for use as cathodes with increased emphasis on Lithium Sulphur Batteries. The new patent broadens protection for US patent 10,734,636 B2 issued to FIU on August 4, 2020, covering the composition of carbon cathodes containing PGMs.

Lithium Sulphur Batteries are well known to have the potential for a significant increase in power to weight ratios over traditional lithium-ion batteries popular in EV applications, such as those utilizing nickel, manganese and cobalt or "NMC" cathodes. One of the challenges in Lithium Sulphur Batteries is getting them to charge and discharge hundreds of times as required in commercial settings.

Dr. Bilal El-Zahab, the project leader of the Lion Battery work at FIU commented, "We are pleased to receive this important patent for the use of PGMs in Lithium Sulphur Batteries. As outlined in our patent application, we are seeing 2 times capacity retention after 100 cycles using PGMs versus the control group without PGMs. We have observed Lithium Sulphur Batteries with cycling performance at nearly 300 cycles with greater than 70% capacity retention relative to the first cycle. We are still working on optimizing performance and we are working towards 500+ cycles. The initial results are encouraging and indicate that PGMs can bring significant performance improvements to high power to weight Lithium Sulphur Batteries."

In addition to the above new patent, a further final patent application has also been filed for specific application of PGMs in most lithium batteries, including current lithium-ion chemistries. A PGM bearing separator is showing good promise to extend the life of a lithium metal anode, which for example, may allow for weight savings by the elimination of graphite at the anode.

R. Michael Jones, CEO of Platinum Group said, "Lion's patents and research work continue to show the potential of PGMs to improve the performance of lithium batteries. PGMs are well known to be good catalysts, encouraging reactions, and a little bit can go a long way. Using PGMs to thrift out other costly and heavy battery components while improving battery performance is the focus of our exciting research."

Lion is a private company formed jointly in 2019 by [Anglo American Platinum Ltd.](#), one of the world's leading primary producers of platinum group metals, and the Company to accelerate the development of next-generation battery technology using platinum and palladium. The Company currently owns 53.7% in Lion. Dr. El-Zahab, with prior battery research and development experience and post-doctoral work completed at the Massachusetts Institute of Technology, is the head of the Lion battery research team and was recently appointed to the Board of Lion Battery Technologies Inc.

About Platinum Group Metals Ltd.

Platinum Group Metals Ltd. is the operator of the Waterberg Project, a 19.5 million ounce proven and probable reserve, bulk underground palladium, platinum and gold deposit located in South Africa. The Waterberg Project was discovered by PTM and is being jointly developed with [Impala Platinum Holdings Ltd.](#), Japan Oil, Gas and Metals National Corporation, Mnombo Wethu Consultants (Pty) Ltd. and Hanwa Co. Ltd.

Platinum Group Metals is investing in energy efficiency innovation, such as with Lion, where PGMs can play an important role. As the majority owner of the Waterberg Project, the Company views the innovative use of PGMs in new technology as an opportunity.

For further information contact:

R. Michael Jones, President
or Kris Begic, VP, Corporate Development
[Platinum Group Metals Ltd.](#), Vancouver
Tel: (604) 899-5450 / Toll Free: (866) 899-5450
www.platinumgroupmetals.net

Disclosure

The Toronto Stock Exchange and the NYSE American have not reviewed and do not accept responsibility for the accuracy or adequacy of this news release, which has been prepared by management.

The recent COVID-19 pandemic and related measures taken by government create uncertainty and have had, and may continue to have, an adverse impact on many aspects of the Company's business, including employee health, workforce productivity and availability, travel restrictions, contractor availability, supply availability, the Company's ability to maintain its controls and procedures regarding financial and disclosure matters and the availability of capital and insurance and the costs thereof, some of which, individually or when aggregated with other impacts, may be material to the Company.

This press release contains forward-looking information within the meaning of Canadian securities laws and forward-looking statements within the meaning of U.S. securities laws (collectively "forward-looking statements") including statements regarding the development of the Waterberg project and the potential benefits and results thereof; the potential use of palladium and platinum in lithium battery applications; the development of Lithium Sulphur Batteries and the potential benefits of utilizing palladium and platinum therein; the commercialization of Lithium Sulphur Batteries; the application for patent rights with respect to the use of platinum group metals in lithium batteries; the potential use and benefits of a bearing containing platinum group metals in lithium metal anodes; the ability of the Company to continue to provide funding for Lion; the market for platinum group metals, the cost and potential of platinum group metals in batteries, and Lion's development of next generation battery technology; the Waterberg Project becoming one of the largest and potentially lowest cash cost underground platinum group metals mines globally, financing and mine development of the Waterberg Project; and the Company's other future plans and expectations. Forward-looking statements are typically identified by words such as: believe, expect, anticipate, intend, estimate, plans, postulate and similar expressions, or are those, which, by their nature, refer to future events. All statements that are not statements of historical fact are forward-looking statements. Although the Company believes any forward-looking statements in this press release are reasonable, it can give no assurance that the expectations and assumptions in such statements will prove to be correct.

The Company cautions investors that any forward-looking statements by the Company are not guarantees of future results or performance, and that actual results may differ materially from those in forward-looking statements as a result of various factors, including possible adverse impacts due the global outbreak of COVID-19 (as described above), the Company's inability to meet its funding requirements and other obligations under the sponsored research agreement between Lion and FIU, the Company's inability to generate sufficient cash flow or raise sufficient additional capital to make payment on its indebtedness, and to comply with the terms of such indebtedness; additional financing requirements; the US \$20 million senior secured facility with the Sprott Private Resource Lending II (Collector), LP ("Sprott") entered into August 21, 2019 (the "2019 Sprott Facility") is, and any new indebtedness may be, secured and the Company has pledged its shares of Platinum Group Metals (RSA) (Pty) Ltd. ("PTM RSA"), and PTM RSA has pledged its shares of Waterberg JV Co. to Sprott, under the 2019 Sprott Facility, which potentially could result in the loss of the Company's interest in PTM RSA and the Waterberg Project in the event of a default under the 2019 Sprott Facility or any new secured indebtedness; the Company's history of losses and negative cash flow;

the Company's ability to continue as a going concern; the Company's properties may not be brought into a state of commercial production; uncertainty of estimated production, development plans and cost estimates for the Waterberg Project; discrepancies between actual and estimated mineral reserves and mineral resources, between actual and estimated development and operating costs, between actual and estimated metallurgical recoveries and between estimated and actual production; fluctuations in the relative values of the U.S. Dollar, the Rand and the Canadian Dollar; volatility in metals prices; the uncertainty of alternative funding sources for Waterberg JV Co.; the Company may become subject to the U.S. Investment Company Act; the failure of the Company or the other shareholders to fund their pro rata share of funding obligations for the Waterberg Project; any disputes or disagreements with the other shareholders of Waterberg JV Co. or Mnombo; the ability of the Company to retain its key management employees and skilled and experienced personnel; conflicts of interest; litigation or other administrative proceedings brought against the Company, including the appeal of the mining right; an adverse decision on the appeal on the Mining Right could delay or prevent the Company from having the mining right reinstated and developing the Waterberg Project; actual or alleged breaches of governance processes or instances of fraud, bribery or corruption; exploration, development and mining risks and the inherently dangerous nature of the mining industry, and the risk of inadequate insurance or inability to obtain insurance to cover these risks and other risks and uncertainties; property and mineral title risks including defective title to mineral claims or property; changes in national and local government legislation, taxation, controls, regulations and political or economic developments in Canada and South Africa; equipment shortages and the ability of the Company to acquire necessary access rights and infrastructure for its mineral properties; environmental regulations and the ability to obtain and maintain necessary permits, including environmental authorizations and water use licences; extreme competition in the mineral exploration industry; delays in obtaining, or a failure to obtain, permits necessary for current or future operations or failures to comply with the terms of such permits; risks of doing business in South Africa, including but not limited to, labour, economic and political instability and potential changes to and failures to comply with legislation; the Company's common shares may be delisted from the NYSE American or the Toronto Stock Exchange if it cannot maintain compliance with the applicable listing requirements; and the other risk factors described in the Company's Form 20-F annual report, annual information form and other filings with the Securities and Exchange Commission and Canadian securities regulators, which may be viewed at www.sec.gov and www.sedar.com, respectively.

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