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# HYPROMAG COMMISSIONING UPDATE FOR THE UK'S FIRST COMMERCIAL SCALE RARE EARTH MAGNET RECYCLING AND MANUFACTURING PLANT AT TYSELEY ENERGY PARK IN BIRMINGHAM

#### Highlights

- Commissioning of the short-loop magnet recycling and manufacturing plant at Tyseley Energy Park is continuing to advance with past and upcoming major milestones as follows:
  - Magnet manufacturing presses delivered and commissioned in December 2023
  - o Powder processing (sieving, blending, jet milling) plant delivered in July 2024
  - Hydrogen Processing of Magnet Scrap (HPMS) vessel expected to be delivered in September 2024
  - Infrastructure development by the contractors expected to commence in September 2024, with start-up of commercial operations now expected in Q1 2025
  - The permitting process for commercial operations is well underway and proceeding as expected
- The plant is being commissioned by the University of Birmingham with the support of HyProMag, the main industrial partner for the project and exclusive HPMS licencee
- Initial commercial production is expected at an approximate rate of 25 30 tonnes per year of recycled NdFeB based on 20% capacity utilisation for the first few months, with approximately two months of NdFeB scrap supply currently in inventory
- The main commercial product will initially be a recycled NdFeB alloy for magnet manufacturing or for chemical processing by third parties – this will be supplemented with production of recycled sintered NdFeB magnet blocks for product qualification purposes to support ongoing HyProMag customer discussions and further scale-up
- The product suite will have a minimal carbon footprint, reflecting the highly energy efficient combination of HPMS with short-loop magnet manufacturing, with typical product specifications to be issued by HyProMag in due course
- The production potential at Tyseley is significantly higher, with potential for a minimum of 100-330 tonnes per year of recycled NdFeB at full capacity, as well as opportunities to expand production of sintered blocks and finished magnets, and significantly larger scale-up scenarios currently being evaluated

London / Vancouver: July 24, 2024 – Mkango Resources Ltd. (AIM/TSX-V: MKA) (the "Company" or "Mkango") is pleased to provide an update on the commissioning of the short-loop rare earth magnet recycling and

manufacturing plant at Tyseley Energy Park in Birmingham, UK. HyProMag limited ("HyProMag") is the main industrial partner for the project and exclusive HPMS licencee. HyProMag is 100% owned by Maginito Limited ("Maginito"), which is 79.4% owned by Mkango and 20.6% owned by CoTec Holdings ("CoTec").

Start-up of commercial operations is expected in Q1 2025, subject to the remaining equipment being delivered and infrastructure being installed by the contractors on schedule, as well as completion of the permitting process. The majority of equipment will initially be owned by the University of Birmingham and utilised by HyProMag as the main industrial partner for the project and exclusive HPMS licencee. HyProMag has ordered additional equipment to debottleneck certain parts of the process and is evaluating further ways to optimise and debottleneck the flow sheet.

William Dawes, Chief Executive of Mkango stated: "We are excited to see the Tyseley development progressing towards commercial production, which will underpin the international roll-out of HPMS technology into Germany, USA and other jurisdictions such as Japan. Rare earth magnet recycling is a core focus for Mkango and we are well positioned given our early move into the sector in January 2020 when we initially invested in HyProMag. Apart from the capability to develop bespoke recycling solutions for a range of end-of-life products, we can offer customers a broad suite of recycled NdFeB products with a very low carbon footprint, and as such we are receiving high levels of interest from potential offtakers and partners."

**Nick Mann, Managing Director of HyProMag stated:** "In parallel with ongoing commissioning at Tyseley, HyProMag has been continuing to utilise the existing pilot facilities at University of Birmingham to expand the portfolio of magnet grades achievable from end-of-life materials to underpin the transition to commercial production. By the end of 2024, we are targeting production of over 10,000 finished recycled magnets from pilot operations covering a range of grades for demonstration in a range of applications by a number of end users. The whole team is excited to roll out this know-how to the commercial scale equipment which is being commissioned at the Tyseley plant. HyProMag is proud to be making the UKs first domestically produced sintered magnets in over twenty years."

Rare earth magnets play a key role in clean energy technologies including electric vehicles and wind turbine generators, and they are also a key component in electronic devices including mobile phones, hard disk drives and loudspeakers. The UK has no domestic source of primary rare earths. The development of domestic sources of recycled rare earths via HPMS, a homegrown technology, is a significant opportunity for the UK to fast-track the development of sustainable and competitive rare earth magnet production.

In parallel with the short-loop process being commercialised by HyProMag, Maginito subsidiary, Mkango Rare Earths UK, recently commissioned a pilot facility for long-loop chemical recycling of HPMS product not suitable for the short loop process as well as swarf.

Both long-loop and short-loop recycling technologies are underpinned by the patented HPMS technology developed at University of Birmingham, which liberates magnets from end-of-life scrap streams in a cost effective and energy efficient way to produce a recycled NdFeB alloy powder, which is manufactured into a magnet (via the short loop process) or into a rare earth carbonate or oxide (via the long loop chemical process).

HPMS technology is underpinned by approximately US\$100 million of research and development funding, and has major competitive advantages versus other rare earth magnet recycling technologies, which are largely focused on chemical processes but do not solve the challenges of liberating magnets from end-of-life scrap streams – HPMS provides the solution.

HyProMag's HPMS recycling technology was selected by the Minerals Security Partnership ("MSP") for support as one of its key projects. The technology was selected because the MSP determined its strong potential to contribute towards the development of responsible critical mineral supply chains.

HyProMag is also commercialising HPMS recycling technology in Germany and United States, with commercial production targeted for 2025 and 2026, respectively. HyProMag is also evaluating other jurisdictions, and recently launched a collaboration with Envipro on rare earth magnet recycling in Japan.

#### **About Mkango**

Mkango is listed on the AIM and the TSX-V. Mkango's corporate strategy is to become a market leader in the production of recycled rare earth magnets, alloys and oxides, through its interest in Maginito Limited ("Maginito"), which is owned 79.4 per cent by Mkango and 20.6 per cent by CoTec, and to develop new sustainable sources of neodymium, praseodymium, dysprosium and terbium to supply accelerating demand from electric vehicles, wind turbines and other clean energy technologies.

Maginito holds a 100 per cent interest in HyProMag and a 90 per cent direct and indirect interest (assuming conversion of Maginito's convertible loan) in HyProMag GmbH, focused on short loop rare earth magnet recycling in the UK and Germany, respectively, and a 100 per cent interest in Mkango Rare Earths UK Ltd ("Mkango UK"), focused on long loop rare earth magnet recycling in the UK via a chemical route.

Maginito and CoTec are also rolling out HyProMag's recycling technology into the United States via the 50/50 owned HyProMag USA LLC joint venture company. HyProMag is also evaluating other jurisdictions, and recently launched a collaboration with Envipro on rare earth magnet recycling in Japan.

Mkango also owns the advanced stage Songwe Hill rare earths project and an extensive rare earths, uranium, tantalum, niobium, rutile, nickel and cobalt exploration portfolio in Malawi, and the Pulawy rare earths separation project in Poland. Discussions with the Government of Malawi in relation to the Mining Development Agreement for Songwe Hill are ongoing.

For more information, please visit www.mkango.ca

## Market Abuse Regulation (MAR) Disclosure

The information contained within this announcement is deemed by the Company to constitute inside information as stipulated under the Market Abuse Regulations (EU) No. 596/2014 ('MAR') which has been incorporated into UK law by the European Union (Withdrawal) Act 2018. Upon the publication of this announcement via Regulatory Information Service, this inside information is now considered to be in the public domain.

## **Cautionary Note Regarding Forward-Looking Statements**

This news release contains forward-looking statements (within the meaning of that term under applicable securities laws) with respect to Mkango. Generally, forward looking statements can be identified by the use of words such as "targeted", "plans", "expects" or "is expected to", "scheduled", "estimates" "intends", "anticipates", "believes", or variations of such words and phrases, or statements that certain actions, events or results "can", "may", "could", "would", "should", "might" or "will", occur or be achieved, or the negative connotations thereof. Readers are cautioned not to place undue reliance on forward-looking statements, as there can be no assurance that the plans, intentions or expectations upon which they are based will occur. By their nature, forward-looking statements involve numerous assumptions, known and unknown risks and uncertainties, both general and specific, that contribute to the possibility that the predictions, forecasts, projections and other forward-looking statements will not occur, which may cause actual performance and results in future periods to differ materially from any estimates or projections of future performance or results expressed or implied by such forward-looking statements. Such factors and risks include, without limiting the foregoing, the availability of (or delays in obtaining) financing to develop the various recycling plants in the UK, Germany, governmental action and other market effects on global demand and pricing for the metals and associated downstream products for which Mkango is researching and developing, , the ability to scale the HPMS and chemical recycling technologies to commercial scale, competitors having greater financial capability and effective competing technologies in the recycling and separation business of Maginito, availability of scrap supplies for recycling activities, government regulation (including the impact of environmental and other regulations) on and the economics in relation to recycling and the development of the various recycling plants of Maginito and future investments in the United States pursuant to the cooperation agreement between Maginito and CoTec, the outcome and timing of the completion of the feasibility studies, cost overruns,

complexities in building and operating the plants, and the positive results of feasibility studies on the various proposed aspects of Maginito's activities. The forward-looking statements contained in this news release are made as of the date of this news release. Except as required by law, the Company disclaims any intention and assume no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable law. Additionally, the Company undertakes no obligation to comment on the expectations of, or statements made by, third parties in respect of the matters discussed above.

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