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13 September 2021

Ferro-Alloy Resources Limited ('FAR' or the 'Company' or the 'Group')

Electrolyte patent received and proving trials started with Fraunhofer Institute for Chemical Technology

Ferro-Alloy Resources Limited (LSE:FAR), the vanadium producer and developer of the large Balasausqandiq vanadium deposit in Southern Kazakhstan, is pleased to announce it has received a Kazakhstan patent for the efficient technology which it has developed to produce electrolyte for vanadium flow batteries ('VFBs') directly from ammonium metavanadate ('AMV'), a precursor form of vanadium from which vanadium pentoxide is usually made.

The Company has also signed an agreement with Fraunhofer Institute for Chemical Technology, an institute in Germany that is well-known for its research work on VFBs and electrolyte technology, for testing of the Company's electrolyte for battery purposes. Samples have been shipped and work is expected to commence on 15 September 2021.

By way of background, VFBs provide a means of storing energy and discharging over longer periods than are economic for lithium-ion battery technology. VFBs advantages compared with lithium-ion and similar technologies include:

- Energy (kWh) can be scaled independently of power (kw), meaning that economies of scale can be achieved by simply increasing the amount of electrolyte rather than by adding more cells to the battery, thus reducing the cost of storage per kWh;
- VFBs can be fully charged and discharged repeatedly without damage;
- VFBs do not catch fire;
- VFBs do not deteriorate in use after many cycles; and
- At the end of the battery life, all the components can be easily recycled, including the vanadium electrolyte.

For these reasons, VFBs are the front-running technology for large-scale storage of energy produced from solar and wind which typically require storage and discharge over many hours. This market is expected to grow rapidly as the world moves to decarbonise power generation.

The Company's process of producing electrolyte for VFBs directly from AMV requires relatively simple equipment, is safer, and improves the quality of electrolyte produced compared with other processes. The ability to make electrolyte gives the Company not only the required know-how to enter this market but also a cost advantage over traditional processes.

Nick Bridgen, CEO, commented: *"Receiving the electrolyte technology patent is another endorsement of the FAR technical team's capabilities."*

"FAR expects to become the world's lowest cost producer of vanadium and this technology positions the Company to become a dominant supplier of VFB electrolyte at prices which other producers will find impossible to achieve."

For further information, visit www.ferro-alloy.com or contact:

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About Ferro Alloy Resources Limited:

The Company's operations are all located at the Balasausqandiq deposit in Kyzylordinskaya Oblast in the South of Kazakhstan. Currently the Company has two main business activities:

- a) the high grade Balasausqandiq vanadium project (the "Project"); and
- b) an existing vanadium concentrate processing operation (the "Existing Operation")

Balasausqandiq is a very large deposit, with vanadium as the principal product together with several by-products. Owing to the nature of the ore, the capital and operating costs of development are very much lower than for other vanadium projects.

A reserve on the JORC 2012 basis has been estimated only for the first ore-body (of five) which amounts to 23 million tonnes, not including the small amounts of near-surface oxidised material which is in the Inferred resource category. In the system of reserve estimation used in Kazakhstan the reserves are estimated to be over 70m tonnes in ore-bodies 1 to 5 but this does not include the full depth of ore-bodies 2 to 5.

There is an existing concentrate processing operation at the site of the Balasausqandiq deposit. The production facilities were originally created from a 15,000 tonnes per year pilot plant which was then adapted to treat concentrates and expanded. Further expansion is being undertaken which is expected to result in annualised production capacity of around 1,500 tonnes of contained vanadium pentoxide plus significant by-product molybdenum.

The strategy of the Company is to develop both the Project and the Existing Operation in parallel. Although they are located on the same site and use some of the same infrastructure, they are separate operations.