

SMaRT Center Weekly Digest
July 29, 2022

Alireza Valian

Strategic Material and Recovery Technologies Center
University of Kentucky

Page 1/4

Contents

News 2

- Energy Department will lend G.M. and LG \$2.5 billion to build battery factories 2
- US finalizes \$102.1m loan to Syrah Resources for Louisiana plant 2
- NETL hopes to create centers for unconventional critical materials supply chain research..... 2
- Doubts grow over Turkey's huge discovery of rare earths 2
- US Critical Metals signs definitive agreement for investment into rare earth projects in Montana and Idaho 2
- Namibia Critical Metals Lofdal Heavy Rare Earth Deposit: Exceptionally Positive Flotation Test Program Completed..... 3
- Greenland Minerals to object to government's draft decision on rare earth license 3

Column of the Week 3

- Two simple charts show why green energy is all about mining 3

Select Articles..... 4

- The extraction of silica from nickel laterite ore by alkaline hydrothermal process 4

Funding Opportunities 4

- DE-FOA-0002776 Geothermal Energy from Oil and gas Demonstrated Engineering (GEODE)..... 4

News

[Energy Department will lend G.M. and LG \\$2.5 billion to build battery factories](#)

The U.S. Energy Department said Monday that it would lend \$2.5 billion to a battery maker owned by General Motors and LG Energy Solution to build battery factories. G.M. and LG Energy, a South Korean battery maker, are partners in Ultium, a joint venture that will use the money to manufacture batteries in Ohio, Tennessee and Michigan. The loan, which is conditional on the companies' meeting certain requirements, is the first in more than a decade by a government program that provided \$465 million to help Tesla produce its first sedan, the Model S.

[US finalizes \\$102.1m loan to Syrah Resources for Louisiana plant](#)

The US Energy Department said on Wednesday it had closed a \$102.1 million loan to Syrah Technologies LLC for expansion of a facility that produces graphite-based active anode material, a key component for lithium-ion batteries. It was the first loan from the Advanced Technology Vehicles Manufacturing (ATVM) Loan Program finalized since 2011, and the first ATVM loan exclusively for an automotive supply chain manufacturing project. Australia-based Syrah plans to use the loan to expand the Louisiana plant that will process graphite mined from Mozambique into anodes, the positively charged electrode of a battery. The facility is expected to produce enough anodes for 2.3 million electric vehicles by 2040.

[NETL hopes to create centers for unconventional critical materials supply chain research](#)

"We hope to unite complementary approaches and research capabilities with the long-term goal to create dedicated supply chain research centers that will continue to prove-out domestic production techniques for CMs. These domestic sources will provide jobs that can't be off-shored in American communities that need investment. Many of these jobs will be in the nation's historic mining and power communities and will incentivize new cleanup initiatives at legacy mining sites," explained Burt Thomas, technical portfolio lead for critical minerals at NETL.

[Doubts grow over Turkey's huge discovery of rare earths](#)

While Turkey believes its new deposit is enough to meet the world's needs for 1,000 years, a lack of clarity about the grade or quality of the metal elements has left many analysts scratching their heads. "If they're claiming such a big deposit, they would have done a lot of drilling and would know what the grade was," Christopher Ecclestone, a principal and mining strategist at the UK research house Hallgarten & Company, told DW. "So where's the detail?"

[US Critical Metals signs definitive agreement for investment into rare earth projects in Montana and Idaho](#)

US Critical Metals Corp. and US Critical Materials Corp. have entered into a definitive agreement, dated July 25, 2022, whereby USCM, through its wholly owned subsidiary, US Energy Metals Corp., will invest in rare earth projects, including the Sheep Creek Property in Ravalli County, Montana and Lemhi Pass Trail Property in Lemhi County, Idaho. The Properties are located in the Montana-Idaho alkalic belt and contain at least eleven of the critical risk elements defined by the US Geological Survey. The key

elements identified on the Properties include neodymium and praseodymium. The Properties also contain cerium, dysprosium, europium, gadolinium, lanthanum, niobium, scandium, strontium, and gallium

[Namibia Critical Metals Lofdal Heavy Rare Earth Deposit: Exceptionally Positive Flotation Test Program Completed](#)

Lofdal heavy rare-earth project in Namibia is one of only two primary xenotime projects under development in the world, which requires pioneering processing approaches to this unusual type of rare earth mineralisation. The deposit has the potential for significant production of dysprosium and terbium, two of the most valuable heavy rare earth elements. The Company has successfully completed an extended flotation test work program with more than 110 individual flotation test regimes. The tests were conducted at two specialised institutions at SGS Minerals Services Canada and UVR-FIA in Germany. As an overall result, a simplified flowsheet was developed which allows for the direct flotation of run-of-mine material resulting in an upgrade of the heavy rare earths in the flotation concentrate by an impressive factor of more than twenty.

[Greenland Minerals to object to government's draft decision on rare earth license](#)

reenland Minerals Ltd said on Tuesday it will object to the Greenland government's draft decision to not grant it a license for the Kvanefjeld rare-earths project citing a legislation that effectively bans uranium exploration. The Australia-listed miner said it will lodge an objection against the draft decision as it relies on a rule — which bans mining of ore bodies with uranium content of 100 parts per million (ppm) or greater — that is being contested separately in the court. So far, more than 1 billion tonnes of mineral resources and ore estimates of 108 million tonnes have been outlined in the Kvanefjeld project area across three different zones. It also contains radioactive uranium, which some residents fear will harm the environment.

Column of the Week

[Two simple charts show why green energy is all about mining](#)

The latest UN Forecast Policy Scenario anticipates a substantial increase in electricity generation from renewables – comprising hydro, wind and solar – across all regions. Couple this with the metal intensity of renewable energy resources and it is clear that even if the installation of renewable energy capacity falls far short of expectations, the impact on metals and mining would be immense.

Select Articles

[The extraction of silica from nickel laterite ore by alkaline hydrothermal process](#)

Silica was extracted from nickel laterite ore by hydrothermal process with sodium hydroxide as reaction assistant. The results showed that the mole ratio of NaOH-to-ore was the most important factor affecting the extraction rate of silica, followed by reaction temperature and reaction time.

Funding Opportunities

[DE-FOA-0002776 Geothermal Energy from Oil and gas Demonstrated Engineering \(GEODE\)](#)

Funding entity: Department of Energy (DOE)

Office of Energy Efficiency and Renewable Energy (EERE)

Areas of Interest:

- Identifying geothermal energy technology and workflow needs related to drilling, completion, reservoir operations, and exploration through forums and direct discussions with geothermal stakeholders including developers and service providers (geothermal and oil and gas) as well as governmental, academic, and national laboratory subject matter experts
- Identifying and implementing technologies and workflows that can address geothermal industry needs with little or no modification, and partnerships that can ensure implementation
- Identifying critical technologies that are not available to the geothermal industry but are in oil and gas and require reengineering or revisioning for application in geothermal-relevant environments
- Analyzing current oil and gas well stimulation technologies and/or methods compared to those required or previously demonstrated for geothermal activities
- Prioritizing technologies and workflows that have the largest quantifiable impact on geothermal development and will be addressed through focused development programs.

Award size: Facet #1: Technology Transfer and R&D: \$10 million

Facet #2: Demonstrations and Deployment: \$155 million

Cost sharing: 20% of the total allowable costs

Deadline: 10/28/2022 5:00pm ET