

# Investments off the beaten path: rare earth metals

by Peter Degraaf

## RARE EARTH ELEMENTS

Critical Resources for High Technology.

Rare Earth Elements, or REEs, are an irreplaceable component of our current lifestyle.

Ree's are vital to the proper functioning of our computer's memory, hydrogen storage, nuclear reactors, fluorescent lighting, TV's, cell phones, DVD's, re-chargeable batteries, fiber optic lasers, as well as car catalytic converters, and nickel-metal hydride batteries. Magnets made from REEs are the most powerful on the planet.

Every Prius hybrid car has 20 kilo's of REEs packed inside, most of it in batteries.

Without REEs our hi-tech environment would quickly grind to a halt.

A search at Google for information reveals that there are 17,000,000 pages of data on this subject.

REEs range in price from a few dollars a pound for 'cerium', to \$10,000.00 a pound for 'dysprosium'. One internet site ([www.2spi.com](http://www.2spi.com)) offers a selection of 15 polished marble sized REEs for \$1,750.00

There are at least 30 different REEs (including one called Einsteinium), and these 30 are divided into 2 groups, the lanthanides and the actinides.

To make exploration for REEs profitable they need to be discovered in area's where they occur in dense concentration, in order to make mining for them profitable.

There are very few area's in North America where REEs are found in abundance. In California's Mojave desert, at the Mountain Pass Mine, owned by Union Oil, 2 different REEs have been mined and are being supplied to the market: cerium and lanthanum.

At several locations in Georgia some REEs are mined at private mines, but not in great abundance.

One of the most promising concentrations of REEs was discovered a few years ago in Wyoming. According to Mr. M. H. Staatz. Author of U.S. Geological Survey Professional Paper 1049-D, the deposit at the Bear Lodge property in Wyoming is the largest deposit of disseminated rare earth elements in North America.

REEs have been found in worthwhile concentrations in Sweden, Australia, Mongolia, Nevada and British Columbia, and the greatest number of REEs are currently mined in China.

China dominates the world REE market. At present the Chinese export most of them, but as their economy matures, they will need more and more for themselves. As well, in the event of hostilities between China and the West, the supply of REEs to the West would dry up. The total market value of REEs to the US economy is estimated at one billion dollars.

Worldwide the demand for REEs is growing by leaps and bounds, as the world becomes increasingly more hi-tech, as well as more environmentally conscious.

In life, one thing inevitably leads to another. Scientists are currently developing a new method of refrigeration, using several REEs, primarily 'erbium'. This new method is expected to revolutionize the way we refrigerate and power our air conditioners. It is called 'magnetic refrigeration', and since this method does not deplete the earth's ozone layer, it is expected to transform the industry.

The use of REEs continues to grow, as civilization becomes ever more 'hi-tech'.

There are several exploration companies currently in the hunt for REEs.

Commerce Resources (CCE-TSXV 0.38) [www.commerceresources.com](http://www.commerceresources.com) is an exploration and development company in British Columbia, with special emphasis on tantalum and niobium. Tantalum is an essential element in the fabrication of cell phones, laptops, digital camera's, ipods and hand-held game stations. The price of tantalum has increased over 1,000 percent since 1955. Niobium is used quite extensively as wiring in the electronics industry.

The company is in the process of exploring and increasing their reserves (5.6 million tonnes of ore grading 203 g/t of tantalum and 1,047 g/t of niobium indicated). Insiders own 15 percent of the outstanding shares. Though Commerce is several years away from onsite production, the property is close to existing infrastructure, which will facilitate the building of a mine. Meanwhile they are shipping 20,000 tonnes of ore each month to processing facilities around the globe. This ore has been crushed and concentrated and has a recovery rate of between 83 and 91 percent. Commerce recently entered into a 50/50 alliance with a Chinese company that deals in tantalum. Commerce will supply tantalum concentrate, for Fogang Jiata to process and sell to it's customers. [info@commerceresources.com](mailto:info@commerceresources.com) (604)-484-2700

Gold Canyon Resources (GCU – TSXV \$0.43) [www.goldcanyon.ca](http://www.goldcanyon.ca) has discovered gallium in Nevada. 337,000 kilo's of gallium, certified NI 43-101 compliant. (Plus 384,000 kilo's in the inferred category). This is very likely the largest gallium deposit in North America. Gallium is used in integrated circuits, also in cell phones and computers, as well as opto-electric devices, including solar cells. Gallium sells for between \$7.00 and \$14.00 an ounce, depending on purity.

Drilling is ongoing at this site, in order to prove up even more reserves. In addition to gallium a number of other REEs have been isolated in small quantities, at the Nevada site. The company expects to begin producing in 2009. They also own an exploration site in Ontario, Springpole, in the Red Lake area of Ontario, where hi-grade gold has been found. Management is experienced in mining, and insiders own 15 percent of the shares. [Elaine@goldcanyon.ca](mailto:Elaine@goldcanyon.ca) (604) 682-3234

Mawson Resources (MAW – TSXV \$1.60) [www.mawsonresources.com](http://www.mawsonresources.com) has discovered gold, uranium and silver in Sweden. The company has 7 projects on the go. At one of these, the company owns 180,000 tons of ore containing various REEs, but the report is based on information prior to the introduction of National Instrument 43-101.

The company plans to make their reserves NI 43-101 compliant [info@mawsonresources.com](mailto:info@mawsonresources.com) (604) 685-9316

Nova Star Resources Ltd. (NVAS, OTC-BB 0.62) [www.novastarresources.com](http://www.novastarresources.com) Nova Star is a mining and exploration company with reserves of the Rare Earth Element thorium (monazite). Monazite is the phosphate based mineral from which all commercial grade thorium is extracted.

Thorium is a heavy, slightly radioactive silvery white metal that is a viable source of nuclear energy. The thorium-cycle essentially converts naturally occurring isotope thorium 232 into fissile uranium 233 over a period of 27 days.

The waste products yielded by the thorium-cycle are far less radioactive than the current plutonium emissions of the standard uranium 238 reactors. Monazite also contains concentrations of a number of other ree's. The International Atomic Energy Agency (IAEA) has been actively promoting thorium-cycle implementation for its safety and environmental benefits. Thorium is a solution to the terrorist threat of existing stockpiles of plutonium, as thorium incinerates virtually all weapons grade plutonium bi-products. Therefore the use of thorium would end all weapons proliferation issues.

NVAS is investing in the future of nuclear energy by establishing itself as a major global supplier of thorium based nuclear fuels. Nova Star has thorium resources in Australia and Alabama

A few weeks ago NVAS raised 15 million dollars in a private issue that was oversubscribed.

Management at NVAS is highly qualified, and well known around the globe among people in the nuclear power industry. Both CEO Seth Grae and director Ambassador Graham have been involved at the highest levels of the nuclear industry for many years.

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Chart courtesy of: [www.stockcharts.com](http://www.stockcharts.com)



Rare Element Resources Ltd (TSXV-RES 0.80) [www.rareelementresources.com](http://www.rareelementresources.com) hosts probably the largest deposit of disseminated Rare Earth Elements found anywhere in North America, at their 100 percent owned Bear Lodge project in Wyoming.

Previous owner Hecla defined 4.3 million tons of 3.8 percent REE oxides (not yet NI 43-101 compliant).

CEO William Bird has 37 years experience as a geologist, and there are 5 more geologists involved in the project. The company recently announced some exciting news. Newmont Mining, through it's exploration subsidiary, has agreed to define the gold that has been found at Bear Lodge, and in a joint venture the major can earn 65 percent interest in the gold, by spending \$5 million. All other metals that are found belong to RES, and the company continues to explore and seek extensions to the already impressive deposit of REEs. Management will soon have to seek additional financing, but with the bright outlook for REEs this should not be a problem. Previously funds have been raised through private placements.

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Note: In the article on molybdenum (May 5<sup>th</sup> edition), one company was left out, yet it deserves to be mentioned: Roca Mines 0.70 (TSXV-ROK) [www.rocamines.com](http://www.rocamines.com)

604-684-2900 They are in the process of building a moly mine, in B.C., and expect to process 500 tons of ore per day, sometime this year.

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Peter Degraaf is a successful on-line stock trader, residing in Sarnia, ON. He owns shares in most of the companies mentioned herein. He commits himself not to sell any shares of companies mentioned in the articles he writes, for at least 14 days from publication. He issues an occasional email alert. To become a recipient, contact him at [itiswell@cogeco.ca](mailto:itiswell@cogeco.ca)