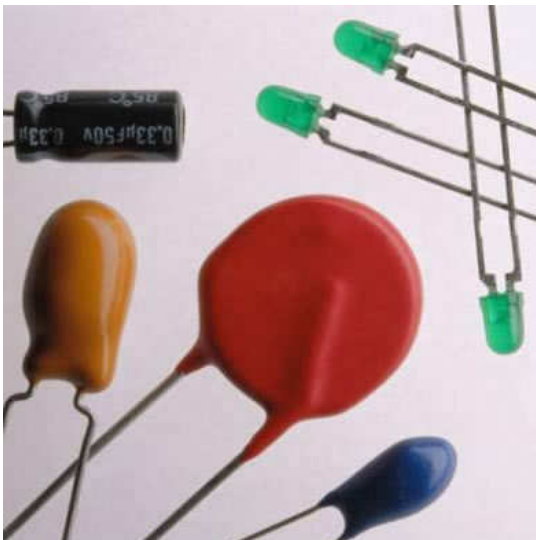




## Avalon Ventures – for a greener planet

By Sam Kiri CFA ACMA

***Mining usually invokes images of metals, dusty work sites and men in their work gear but hardly green technologies. Fuel efficient vehicles and environmentally friendly hybrid cars use a type of metals known as Rare Earth Elements (REE). REE are also used in renewable energy technologies such as solar and wind power generation. Yes, mining could actually be green if it involves metals of the right variety such as REE.***



Toronto listed Avalon Ventures (TSX: AVL) is engaged in the exploration and development of rare metals projects. The company has five rare metals and minerals projects in Canada, three of which are at advanced stages of development. These projects provide exposure to a series of rare metals such as lithium, indium, tantalum, gallium, neodymium, dysprosium and lanthanum.

The rare earth elements (REE or "rare earths") are also known as the lanthanide series of elements and include the 15 elements in the lanthanide series of the Periodic Table, plus yttrium and scandium. However, Cerium, lanthanum, neodymium, terbium, europium, dysprosium and samarium are the best known due to their range of applications.

It is astonishing to realise the diversity of REE applications and their increasingly important role in our everyday life. These include automotive catalysts, magnets for electric motors, electronics, TV, computer and other screens, rechargeable batteries, glass and ceramics. In other words, we use REE when we drive cars, when we use computers, when we watch television and during many other day-to-day activities. Amongst them, REE's role in green technologies for energy efficiency makes them particularly interesting especially in the wake of rising energy prices.

Currently, China is the largest supplier of rare earth metals. The World is expected to be at their mercy as China is gradually imposing restrictions on rare earth metal exports. For instance, China recently announced a 22% cut in rare earth exports to 11,376 tonnes for 2H2008, thus reducing the total exports for 2008 to 34,176 tonnes compared to approximately 43,600 tonnes in 2007. As China further reduces rare earth exports, the industrial world and end-users outside China are expected to feel the pinch.

It is hardly surprising that China turns itself to be a thrifty accumulator of rare earth metals. According to industry sources, global consumption of REE in 2007 was approximately 108,000 tonnes. China consumed a whopping 65% of that amount with the remainder split between Japan & South East Asia (25%) and the US (10%). At a growth rate of 10-15% per annum, REE demand is expected to reach 190,000 tonnes per year by 2012, potentially exceeding the projected supply available from currently known sources.

This makes companies such as Avalon interesting investments. In its Thor Lake, Separation Rapids, Warren Township, East Kemptville and Lilypad Lakes projects, Avalon has an impressive prospect portfolio that provides



exposure to a broad range of rare metals including REE. Thor Lake, Separation Rapids and East Kemptville are advanced stage projects at or close to feasibility stage.

Avalon's wholly owned Thor Lake project is prominent amongst its projects due to its enrichment in REE and the high proportion of more valuable Heavy Rare Earth Elements (HREE, Europium through Lutetium plus Yttrium). HREE are in short supply and are vital to many current applications in electronics (colour phosphors) and hybrid cars (high strength magnets and rechargeable batteries). As rapidly rising fuel prices underpin the demand for more fuel efficient cars especially hybrids such as the Toyota Prius, demand for HREE are also expected to gather pace. To put matters in perspective, a hybrid car such as Prius is estimated to contain an aggregate of 30kg of REE, including light rare earths used in the rechargeable battery and the catalytic converter. Yet REE are presently only produced in quantity in China, which accounts for over 95% of world supply, a fact which is of significant concern to the automotive industry.

Avalon has a NI 43-101 compliant resource estimate for Thor Lake's North T and Lake Zone deposits. North T zone has an indicated resource of 1,136,000 tonnes comprising Y<sub>2</sub>O<sub>3</sub> & TREO (yttrium oxide and Total Rare Earth Oxides), BeO (beryllium oxide) and Nb<sub>2</sub>O<sub>5</sub> (niobium oxide) at grades 0.71%, 0.48% and 0.53% respectively. The Lake Zone deposit meanwhile has an inferred resource based on historical drilling of 375 million tonnes comprising REE oxide, Ta<sub>2</sub>O<sub>5</sub> (tantalum oxide), Nb<sub>2</sub>O<sub>5</sub> and ZrO<sub>2</sub> (zirconium oxide) at grades of 0.41%, 0.014%, 0.22% and 1.19% respectively. The Company's current focus is on better defining the Lake Zone REE deposit and a new resource estimate is expected by September.

Avalon's wholly owned Separation Rapids property is host to one of the largest rare metal pegmatite deposits in the world. Known as the "Big Whopper" it is only the fourth example in the world of a rare metal pegmatite with the size required to be of major economic importance and only the second to be enriched in the rare lithium mineral called petalite. The deposit is a potential source of lithium minerals for use in the glass and ceramics industry and is attracting new interest because lithium additions to a glass batch can reduce energy consumption and greenhouse gas emissions. Lithium usage is consequently expected to increase among North American glass and ceramic manufacturers due to rapidly rising fuel costs.

In addition to lithium minerals, Avalon has a second rare minerals project with an energy-saving product for the glass industry: Calcium Feldspar on its 100% owned Warren township property located near Timmins, Ontario. This 1800 acre property hosts a large (in excess of 800,000 tonnes) high purity anorthosite resource consisting up to 98% high calcium plagioclase feldspar. Anorthosite can be processed to produce a high purity product which, like lithium, can reduce energy costs and greenhouse gas emissions. Located in close proximity to markets in southern Ontario and the U.S., Warren township property has the potential for a low-cost, highly profitable industrial minerals operation.

In fact, the company has already proven the ability to save energy with furnaces that use anorthosite. During a furnace trial conducted by a major US-based glass manufacturer using a 460 ton bulk sample of calcium feldspar product collected from the Warren Township property, a 10% energy saving was achieved without any detrimental impacts on the quality or production efficiencies of the glass. It's not just Avalon's REE project that is contributing to a greener planet!

Development efforts are also underway at the East Kemptville tin-indium project, leading to 43-101 defined resource estimate and a preliminary economic assessment in 2008. This project also has near-term economic potential but at this stage Avalon's efforts are focused on its top priority project at Thor Lake which with its large size and unusual enrichment in the heavy rare earths and other valuable rare metals offers the best potential for near-term value creation for Avalon's shareholders.

With its advanced stage rare metals projects, Avalon is expected to make a considerable contribution to a greener planet. With little hope of cheap energy prices any time soon, energy efficient technologies such as hybrid cars are likely to be the order of the day over the next few decades. This requires new sources of supply of REE and other rare metals that companies such as Avalon will need to bring on stream in the not-too-distant future to avoid supply shortages from developing. The investment case of REE companies is therefore expected to gather pace as the market becomes more aware of the critical nature of REE to many green technology applications and looming supply shortages.